

ADOPTION OF A LANDUSE INNOVATION: A CASE STUDY OF PLANNED
UNIT DEVELOPMENT IN GREATER VANCOUVER

by

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Abstract

The significant constraints retarding the adoption of a residential landuse innovation, planned unit development or PUD, by private land developers in Greater Vancouver was the subject of this study. PUD is a landuse approach that integrates a variety of dwelling types, recreational and community services while preserving much of the natural landscape of a site. Although its use was highly recommended by land developers and municipal planners in Greater Vancouver, few projects had actually been constructed by 1971. To identify the reasons for this delay, interviews were undertaken with key decision-making personnel in municipal planning departments and in thirteen land development companies who had repeated opportunities to use the PUD innovation prior to 1971.

It was found that trial and adoption of the PUD approach was often delayed five years or longer primarily because of external conditions or agents involved in the implementation process. A serious shortage of suitable large tracts of land at reasonable costs had thwarted adoption by four developers and threatened to reduce PUD use by a further seven developers. Prior to 1968, there was a lack of suitable zoning to permit the clustering of housing, services, and open space in non-standard condominium developments. Even when appropriate legislation was developed, municipal planners and private developers still faced serious public and political opposition to the PUD innovation. Residents of predominately single-family neighbourhoods and their elected officials were afraid of

change in their community, poorly informed concerning the nature of PUD, and extremely suspicious of the motivation of the private developers. This mistrust and information lag was viewed by the majority of developers as the most serious constraint against PUD adoption. Design, financing and marketing of the innovation were not perceived as significant constraints.

In contrast to adoption research findings in other fields, a developer's information behaviour, antecedents or development status, and perception of the innovation were of secondary importance. Only one developer rejected PUD on the basis of incomplete information. There was no significant difference between developers of varying degrees of innovativeness as to the type, number or technical accuracy of information sources used at different stages of adoption. Only three development status characteristics were positively associated with increasing innovativeness. These characteristics, namely a large land inventory, large scale operations and a longterm investment horizon assisted developers in overcoming the primary constraints of PUD implementation. A firm belief in the relative advantage and compatibility of PUD with corporate goals also contributed to the persistence of highly innovative developers in the face of serious implementation constraints. Ultimately, the continued use of a landuse innovation depends on the satisfaction of residents with their environment, as well as the developer's satisfaction with the cost-benefit returns. If PUD in the nineteen seventies does prove to provide a desirable residential environment at acceptable costs and densities, its continued adoption may be assured.

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CHAPTER I

INTRODUCTION

By the late nineteen fifties land developers in North America had rediscovered an ancient approach to comprehensive residential landuse, planned unit development or PUD. This approach integrates a variety of dwelling types with generous open space and recreational, commercial and community services. When well planned, PUD has provided an excellent housing environment at densities slightly higher than those of conventional single-family subdivisions.¹ By the mid-nineteen sixties many PUD communities had been constructed in the United States and their assets and liabilities were well documented for the guidance of private developers and municipal officials.

Yet as late as 1970, only one PUD project providing less than 1,000 dwelling units had been completed in Vancouver, British Columbia, Canada's rapidly growing, third largest metropolis. In the nineteen sixties, local planning authorities and private land developers had proposed or recommended approximately eighteen PUD projects in many municipalities. However, most housing developments either perpetuated the monotonous grid landscape reminiscent of nineteenth century railway subdivisions or they concentrated high density townhouses and apartment highrises with little or no compensating open space and services. As municipal and regional studies have demonstrated, Greater Vancouver requires more space efficient developments like PUD if housing costs

are to be kept within reach of the majority of citizens while still preserving some of the area's open space and landscape beauty.²

This study was designed to identify and explore the significant constraints retarding the adoption of PUD by the private land developers in Greater Vancouver. Potential constraints for study were derived both from an extensive literature on innovation adoption and from case studies of PUD in other North American cities. In this study, local developers, with operations at a scale suitable to PUD, were first ranked by their degree of innovativeness following standard adoption research procedures.³ Their behaviour and perceptions were then analyzed in the context of the following constraints, most commonly identified in innovation studies:

1. the developer's information behaviour concerning the number, type and quality of information sources used at the sequential stages of awareness, interest, evaluation, trial and adoption of an innovation;
2. his development status concerning his past development experience and present land, capital, and design inputs which affect his ability to act on information;
3. the developer's perception of the innovation as to its relative advantage, compatibility with existing values and practises, complexity, divisibility and communicability.

However, from a survey of PUD case studies it is clear that a well informed, highly qualified developer may be frustrated in attempts to adopt PUD by external forces operating in the land development process, e.g. community opposition at public hearings of a PUD proposal. Thus,

the study ultimately focuses on the influence of:

4. external conditions and institutions involved in the implementation of PUD through the sequential stages of marketing, land assembly, project design, financing and municipal approval.

At a practical level this study highlights the major obstacles which must be overcome if PUD adoption is to be encouraged or hastened in Greater Vancouver and it can contribute to a general understanding of the values, information and behaviour of both public and private forces controlling the evolution of Vancouver's environment. The study augments a small but growing body of urban research pertaining to the adoption of landuse innovations.⁴

Of necessity, this study has focused on the processes, primarily economic and institutional, which generate certain changes in the urban landscape. The spatial emphasis of geographical inquiry has been understated here because few PUD projects have been constructed. Thus the study does not attempt an analysis of the spatial pattern or diffusion of the PUD innovation in the metropolitan area. Nevertheless, the PUD approach is prominent in the plans and thinking of key decision-makers like developers and planners and could have a significant effect on the future development of residential land in Greater Vancouver. Thus it is geographically relevant to ask what forces and processes are at work inhibiting or encouraging landscape changes like PUD.

Research Design

Data for this study was collected by interviews with key decision-making personnel of those private land development companies who had repeated opportunities to use the PUD innovation prior to 1971. To qualify for an interview a firm had to have designed or constructed two or more residential projects exceeding either, fifty single family detached homes, or five acres of higher density housing. This minimum threshold was adopted on the basis of the Federal Housing Administration's recommendation of a minimum of fifty units for homes association maintenance of the common space and facilities.⁵ The minimum size of PUD recognized by the Urban Land Institute in its comprehensive surveys was six acres in multiple dwelling units. Development companies who meet that criterion but who no longer operated in Greater Vancouver were omitted due to the difficulty of securing data by interview and because they are no longer potential decision-makers with respect to the local landscape.

Municipal governments have been excluded as potential adopters. Conceivably those municipalities with large landholdings, such as Surrey or North Vancouver District, could initiate PUD projects. However, at the time of this study, municipalities limited their residential development activity to selling land parcels to private development companies. One exception is the Champlain Heights development in Vancouver City. However, the public sector generally operates under a somewhat different system of goals and decision-making processes than do private developers. To satisfy time and scope limitations on such a thesis, this inquiry

had to be restricted solely to the adoption behaviour of private developers.

Key personnel interviewed were either the company president or the general manager of a Vancouver branch office. It was assumed that such individuals could best represent the firm's development outlook having been at the apex of information reception and decision-making. In only one case was a middle management staff member interviewed. When factual or "recall-type" data was not possessed by the interviewee, related sources such as company reports and planning consultants were referred to.

The interview schedule consisted primarily of open-ended questions as it was anticipated that there could often be more than a single frame of reference or an unknown range of possible responses. As Lazarfeld, Payne and others have indicated, the open-ended question permits the interviewee's motivation, level of information, and understanding of the question to be explored.⁶ In many cases the interviewee was first asked to rank his response on a five point scale, from "no importance, little, some, very, to extremely important." Then his further remarks were recorded if he elaborated on his answer or gave a conditional response. Interviews were conducted by this writer in a relatively informal, conversational manner, deviating from the schedule to follow topics or attitudes suggested by the interviewee. These diversions sometimes yielded extremely valuable information concerning constraints not identified in previous research. The pilot interview had to be conducted with one of the qualifying firms who expressed willingness to

be re-interviewed if necessary, since the entire population of qualifying companies was to be sampled. In the pilot and the second interview, the interviewer adhered strictly to the questions with limited non-directive probing. These two interviews elicited only brief replies to questions and lasted less than one hour. On the third and subsequent interviews, a more informal, probing approach was adopted and the length of interview increased from one and one-half to almost six hours. Replies were generally exhaustive and the interviewees appeared to be much more involved and eager to volunteer information or opinions. The interviewer did not hesitate to use directive probing or express subjective opinions as stimuli if it was felt that it would increase the flow of information. Lengthy responses do not necessarily provide useful information. However, in such an exploratory study it appeared that the advantages of an informal, probing approach outweighed those of a more standardized, non-directive interview.

Two sources of error were possible, interviewee recall and transmission error. Although efforts were made to record verbatim the interviewee's answer, lengthy or repetitive responses sometimes necessitated editing. Thus the interviewer's cognitive process and familiarity with the subject may have biased the recorded response. However, this effect was gauged to be minimal by this writer. More seriously, the validity of much of the data was dependent upon the interviewee's memory or willingness to divulge information or opinions. For example, when a developer refused to discuss basic details of a proposed project it had to be omitted from the firm's development inventory within the scope of

this study. In some cases interviewees short of time may have oversimplified their remarks while others may have overstated their case. Such factors are difficult to control, although directive probing did aid in minimizing such occurrences when perceived by the interviewer. The interview schedule included reliability checks by repeating some questions in a different manner or in more detail in separate sections of the interview. Generally, more detailed questions elicited more qualified responses than did an earlier general question.

Questions relating to the perceived constraints of PUD and the implementation process were also asked of planning department directors in each city and municipality of Greater Vancouver. These interviews provided additional information and served as another check on the developers' perception of the municipal approval process which they rated as a significant obstacle to PUD adoption.

The area of study, Greater Vancouver, was recognized by Statistics Canada and the Central Mortgage and Housing Corporation in 1971 as consisting of Vancouver City, New Westminster, Burnaby, Coquitlam, Port Coquitlam, Port Moody, Surrey, Delta, White Rock, Burnaby, North Vancouver City and District, West Vancouver, the University Endowment Lands, unorganized lands and Indian reserves.

Out of necessity this exploratory inquiry into PUD adoption has been very open-ended and general. Later studies could concentrate in more depth on specific constraints, and rigorously test formal hypotheses.

Organization of the Thesis

Chapter II describes the PUD innovation concerning its origin and diffusion, its characteristics and, ultimately, its suitability to the Vancouver housing market. In chapter III, adoption theory and PUD literature is reviewed as the background for the potential constraints explored in this study. Chapter IV concentrates on the potential adopters' classification on an innovativeness scale and its relationship to such variables as the developer's information behaviour, development status, and perception of the innovation. Chapter V deals at length with the external constraints in the implementation process. Finally, the reader is referred to chapter VI for conclusions relating to the relative significance of constraints on adoption and for recommendations for further research.

Footnotes: Chapter I

¹ Planned unit developments generally have an overall density of seven to eight units per acre as compared to four to five in conventional single family detached subdivisions. By clustering more units per acre and depending on the layout of the units, overall service costs can be reduced. For examples see William Whyte, Cluster Development, American Conservation Assn., New York, 1964 or Maxwell C. Huntoon, Jr., PUD: A Better Way For The Suburbs, Urban Land Institute, Washington, D.C., 1971.

² Such a goal is enunciated in the Livable Region Plan, Greater Vancouver Regional District, unpublished.

³ Innovativeness is defined here as the degree to which a developer is relatively earlier than others in adopting PUD, i.e., in proposing or constructing two or more PUD projects.

⁴ For examples see numerous Urban Land Institute technical bulletins numbers 40, 47, 50, 52, 57, or William Whyte, op. cit., 1964.

⁵ Planned Unit Development With A Homes Association, Land Planning Bulletin No. 6, Federal Housing Administration, Washington, D.C., December 1963 and 1970.

⁶ See Stanley Payne, The Art of Asking Questions, Princeton University Press, Princeton, New Jersey, 1951.

CHAPTER II

THE INNOVATION: PLANNED UNIT DEVELOPMENT

Origin and Diffusion of PUD

The careful planning of open space and community services within residential areas has been evident in even the most ancient cities of the Mediterranean, Mesopotamia and Asia. This basic planning approach has been ignored or forgotten, however, throughout much of man's urban history particularly during the Industrial Revolution of the Nineteenth Century. The formal rediscovery of PUD concepts had its roots in the principles of the Garden City and New Town visionaries of Britain, such as Ebenezer Howard (1898), Sir Raymond Unwin (Greater London Plan, 1932) and Sir Patrick Abercrombie (New Towns Act, 1946). The goal of the New Towns approach was to create small, self-contained cities enjoying a balanced growth of industry, business, homes and community amenities. Ample green space throughout the city was to bring the country life back to the new towns. Land was to remain under the collective ownership of its users. Several hundred new towns have been developed in Europe and in North America where Clarence Stein (Toward New Towns for America, 1957) and other planners also expounded the concept. However few new towns were able to achieve the ideal of self-containment and balanced growth. In many cases the critics argue that the new towns have also sacrificed the cosmopolitan assets of the older cities.

As early as the nineteen twenties, some planners such as Clarence Perry (Neighbourhood Unit Plan, 1929) recommended that some of the assets of the New Towns approach be applied to residential planning on a smaller scale, the neighbourhood unit. These neighbourhoods, usually defined by the service area of an elementary school, were integrated with commercial and recreational facilities considered adequate for daily needs such as a grocery outlet or playground. Homes were clustered together to conserve more space for recreation and vehicles were confined to small dead-end or loop streets for greater pedestrian safety.

Where planning departments and municipal councils have enforced strict bylaws, some communities have developed according to this planned unit approach. However, the typical situation in North America has been piece-meal, unco-ordinated development of subdivisions. The standard detached home fronting on a 33 or 66 foot roadway has swallowed up the majority of the land around cities at a rapid rate. Natural landscape assets such as a heavily wooded hillside or rural scenes such as small farms may have initially attracted home buyers to a new subdivision. However, within a few years, these features have disappeared into the purely ornamental sideyard and setbacks of new building lots. As municipalities infilled, the costs of acquiring acreage for schools, playgrounds and parks have escalated. With single family homes predominating, many suburban municipalities have polarized into reservations for growing families. The poor, the retired and the young singles are relegated to the urban neighbourhoods and the high-rise

enclaves. It was not until the early nineteen sixties that land scarcity colliding with the ever increasing demand for housing forced North American developers to explore innovative alternatives to the standard single family subdivision:

. . . well organized, competitive builders produce housing at remarkably low construction costs considering the continually rising costs of labour and materials. The cost of land under a housing unit now represents the larger part of the total that could be cut appreciably.¹

It appeared by the nineteen sixties that the Federal Housing Administration, the National Association of Home Builders, the Urban Land Institute and other such agencies had caught up to the planners' visions. These groups began to encourage the use of the PUD approach through pamphlets, promotional campaigns, articles in housing journals, and in experimental developments. Characteristics of PUD such as housing variety, cluster layouts with open space, and community services proved to be a valuable marketing asset if there were no conventional marketing defects such as poor location, poor design or construction, inadequate floor plans or poor merchandising.² Developers were achieving land and improvement cost savings by clustering dwellings and reducing road lengths. Municipal governments were increasingly in favour of the approach. In 1959, only 80 American cities reported having PUD ordinances; however, by 1968, approximately 1,649 cities reported them. Among cities of 50,000 persons or more, 63% had PUD ordinances and 83% of cities over 250,000 in population had them by the end of the nineteen sixties.³

PUD: Assets and Liabilities

Advocates of the PUD approach credit it with host of positive features--social, economic, ecological and aesthetic. The variety of housing may include single family detached and multi-unit dwellings, self-owned or rental, which introduces a wide range of incomes, age groups and life-styles into a community:

PUD'S with their variety of apartments and townhouses can offer both the young family and the older "empty nester" family a viable alternative to the single family detached house. The town gains more money and a more varied, hence stable, population.⁴

Community services include far more than the standard subdivision provision of basic utilities and roads. Generally the recreational facilities of PUD range from a tot lot and swimming pool to tennis courts, golf courses and riding stables, depending on the size of the development. Large projects may provide convenience shopping facilities ranging from a small grocery outlet to a shopping center. Medium to large PUD's of fifty acres or more often provide a community clubhouse and a school site to meet the social and educational needs of their substantial populations. Such residential developments are thus assured of an orderly provision of essential goods and services within easy access of homes. This spares the municipality the cost and the difficulty of acquiring land and raising taxes after an area is built up.

The prime asset of PUD, which has earned it the second title of "open space community," is the jointly shared open space comprising as much as 60% of a project's area exclusive of roads and building sites.

The function of this "non-vehicular liveability space"⁵ is multiple:

1. It preserves natural-landscape assets such as ravines, natural drainage systems, attractive stands of trees, outstanding views, etc.
2. It provides parks, pedestrian paths and recreation areas for the active and passive enjoyment of residents.
3. Stream beds, ravines, etc., provide visual relief from monotonous housing rows and roads.
4. It serves as green space buffers between different land-uses such as townhouses and single family homes, parking and recreation, etc.

Cluster layouts are used most frequently to provide the PUD open space. Clustering involves grouping dwellings closely together around courtyards, cul-de-sac and loop streets as opposed to spreading dwellings uniformly across the entire tract of land. By reducing or eliminating the roadway, sideyard and setback allowances, clustering can serve many purposes:

1. It permits buildings and roads to be arranged according to the unique topography of each site thus avoiding unsuitable or costly building sites and preserving natural landscape assets.
2. Land development costs per dwelling unit can be reduced by lessening site grading and reducing street and utilities lengths. The housing density may be increased by the variety of dwellings, thus spreading development costs over a broader base.

3. Reduced land and improvement costs can be returned to the residents in the form of lower prices and rents or increased recreational, community or open space amenities.
4. Under-utilized road allowances and sideyards are accumulated into useful, larger open spaces available to all residents.
5. Individual yard maintenance is reduced freeing residents for more leisure activities.
6. The design of streets reduces the amount of through traffic near homes and schools.
7. Slightly higher densities such as seven to ten units per acre can be accommodated without a sense of crowding due to the increased open space. Less urban land is consumed than in the standard single family detached subdivisions.

When carefully designed to meet the needs of each project's unique site and residents, clustering can achieve more efficient use of scarce, high cost urban land with the maximum preservation of open space.⁶

Of course there are many liabilities both for the developer and the residents. PUD frequently requires large land tracts exceeding fifty acres in order to achieve economies of scale while providing attractive areas of open space. Such tracts may be extremely difficult to assemble or finance. A good PUD project may require additional investment in design as no standard layout guarantees success for each project. A developer may be required to carry his land costs and overhead for several years while his project is processed through municipal approval channels. Many communities do not have flexible zoning codes

to permit integration of diverse housing types and amenities. The municipality may object to the use of the open space being exclusive to a project's residents, yet reject the maintenance responsibility for public use of the green space. Local government agencies or citizens have at times strongly opposed PUD projects either out of ignorance, misinformation or simply a reluctance to deviate from conventional development approaches. Before a project finally opens, the recreational and community facilities should be completed to satisfy the skeptical eye of the consumer. Thus the PUD approach often involves a higher capital outlay prior to sales than does a conventional subdivision.

When a developer is classified as an adopter of the PUD approach, it does not axiomatically follow that he is producing good housing environments. As yet there are no minimum standards or designs to ensure the right combination of open space, recreation, housing types, or amenities for a successful PUD. However, an increasing number of case studies suggest the following recommendations:

1. When siting the different dwelling types and the non-residential landuses, each unit should have easy access to facilities such as car parking or shopping without sacrificing visual order, privacy, or quiet. For example, high rise apartments grouped around commercial facilities can buffer single family homes and townhouses from the traffic and the noise. Careful siting can hasten sales and raise property values for the developer while providing an attractive and functional environment for the resident. For example a saw-toothed row arrangement of

townhouses can avoid much of the visual monotony and lack of privacy evident in straight row projects (figs. 1 and 2, p. 18).

2. Lack of differentiation and individuality of dwelling units is a too frequent complaint against the "planned unit" in PUD (fig. 3, p. 19). The alternative is not necessarily more expensive materials or design (fig. 4, p. 19). For example, a talented team of designers can play with angles, lines and recesses to achieve the maximum differentiation at little additional cost (compare fig. 5 to fig. 6, p. 20). Trees and shrubbery are the developer's greatest ally in minimizing the standardization and aridity of units (figs. 7 and 8, p. 21). Savings made on design or landscaping costs are usually lost in slower sales or lack of resident maintenance of property.
3. A good PUD layout will arrange traffic circulation so that the car does not dominate the development pattern while servicing residents (fig. 6, p. 20). There are numerous "car-taming" techniques available such as limited access points between arterial streets and project streets, loop streets and cul-de-sacs. Again a good designer can avoid the "asphalt jungle" development without losing residents in a tangle of cul-de-sacs (fig. 9, p. 22).
4. When a project is poorly designed and the overall density exceeds ten units per acre, it generally looks and feels



Figure 1



Figure 2



Figure 3



Figure 4



Figure 5



Figure 6



Figure 7



Figure 8



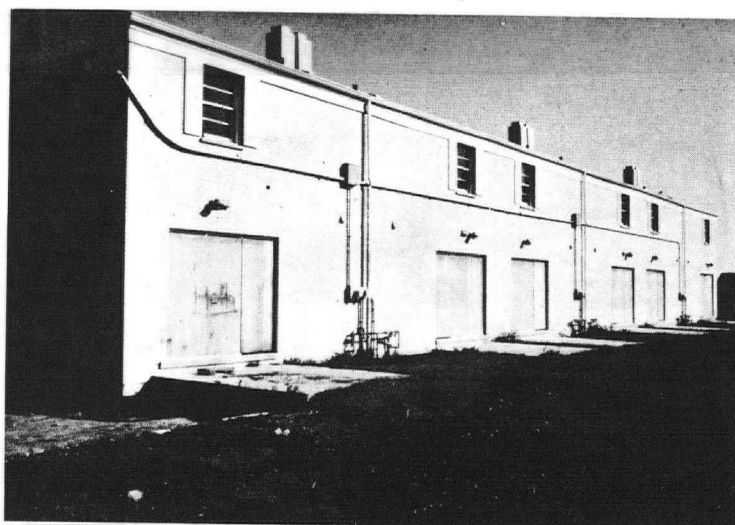
Figure 9



Figure 10

crowded and the longterm sales and property values may suffer. However, the quantity of open space is far less important than the function and distribution of the space. Successful open space usually makes the most of low maintenance, natural landscape features such as streams, woods, or changes in slope (fig. 10, p. 22). It should be set where it can be seen and used by as many people as possible in a network of parks rather than concentrated in one place. This study found that open space was one of the most seriously neglected features of local PUD design. Neither the developers or the municipalities appear to apply the lessons of well designed open space evident in PUD studies (fig. 11, p. 24). Consequently the local market is flooded with townhouse and highrise developments which lack green space to compensate for densities greater than twelve units per acre.

5. Social and recreational services are most successful when they are simple, multi-purpose, and economical to maintain. Resident's leisure patterns and the public facilities already available should be analyzed to avoid the cost of unnecessary facilities. For example, a concrete games court for street hockey, roller skating and bike riding would have kept children in fig. 12 (p. 25) out of danger from cars and received more use than nearby gym equipment, (fig. 13, p. 25). Very often the best siting of services is at the center of the development with safe, interior walkways connecting all homes to the facilities (fig. 14, p. 26).



This is density . . .
No planning, no landscaping, no tenants (Suburbia, USA)



And this . . .
40 units per acre and a four-month waiting list (Woodlake,
San Mateo, Calif.)

Figure 11

Source: John L. Schmidt, Savings and Loan News. Reprint of Washington Savings League, Washington.



Figure 12



Figure 13



Figure 14

6. PUD studies have shown that open space and amenities are best maintained by the residents themselves through automatic homes associations or condominium regulations.⁷ Under these forms of ownership, home owners or renters are automatically responsible for a proportionate share of the maintenance cost. If a municipality demands public access to PUD facilities they may be required to share the maintenance expense.

Housing Market in Greater Vancouver

By the early nineteen sixties there was increasing evidence that Vancouver's municipal planners and home buyers were perceiving the need for new forms of housing. The 1963 survey of metropolitan suburban developments reported that the greatest asset of the fringe suburbs, in the eyes of their residents, was the feeling of open space around them:

. . . the typical fringe subdivision is wholly or partly surrounded by fields, brush or woodland . . . the very nature of fringe development leaves many houses on fairly short, dead-end streets . . . so that the street virtually becomes an extension of the yards as far as the children are concerned . . . but there is a noticeable lack of usable open space (public), equipped playgrounds, parks with general recreational amenities, pleasant walks. The value of the openness of the fringe lies in intangibles: it can be seen and "felt" but not used in a positive sense . . . also the openness itself is only temporary like the safety of dead-end streets.⁸

As the farm lands east of Greater Vancouver and the gentle building slopes on the north disappeared in the nineteen fities and sixties, the cost of serviced land escalated. By 1971 Vancouver was facing the third highest land costs in Canada, after Toronto and Hamilton, Ontario.⁹ Sprawling,

lot by lot development had proven costly to the municipalities. Roads and utilities extensions involved a high capital cost but were under-utilized. Schools, basic shopping facilities, parks and recreational services had to be provided by the municipalities several years after residents had moved into an area, when the land was scarce and more expensive.¹⁰ Metropolitan planning reports such as Land For Living, the Lower Mainland Regional Planning Board, 1963, and Perspective '81, Surrey, 1964, began to include recommendations for experimentation with open space, cluster planning and the PUD approach:

The subdivision and zoning by-laws as they stand today in Surrey, indeed in the vast majority of municipalities across Canada, are of the sort primarily intended to meet the situation of lot by lot development. What is needed in addition is the sort of framework within which a land assembler may comfortably and advantageously operate, serving the municipality's own purpose no less than his own . . . a PUD by-law permits a developer to take on a comprehensive scheme of the kind that will minimize the amount of his financial risk since it will be catering to a mixture of age groups and people in various stages of the life-cycle. PUD will permit single family, duplex, and multi-family structures in close relationship each with the other . . . apart from the opportunity for good aesthetic design and the fact of greater marketability inherent in large scale development there is for the Municipality the very great advantage of being able to lift from the public shoulder some of the burden of providing space for community facilities such as parks and schools.¹¹

Despite this awareness of the need for and the benefits of the PUD innovation, the majority of subdivision developments had not utilized the technique by the nineteen seventies. Townhouse developments with some space and recreational facilities had begun to appear more frequently after the Strata Titles Act of 1966. However, the standard detached home in a subdivision tract stripped of its original foilage, divided by

33 foot roadways into rectilinear lots, and serviced by widely scattered schools and shopping centers still dominated the spreading urban landscape. By 1971 four PUD projects were completed involving less than 200 acres and approximately 2400 units. Five more projects were in various stages of production. However, in the opinion of the developers, only one completed PUD and two in construction truly merited the PUD title as they alone offered commercial and recreational facilities combined with a useful and visually attractive arrangement of open space. A further nine PUD projects had been proposed by developers but for various reasons four of these had not received municipal approval and four had been abandoned or extremely modified. Yet eleven of the thirteen developers capable of using the approach were extremely eager to adopt. The question begs to be asked:

What has held back PUD adoption by private land development companies in Greater Vancouver?

There is some urgency to the question. Situated in a triangular vise between a mountain range on the north, the Gulf of Georgia on the west, and the national boundary on the south, Vancouver does not enjoy ample space in which to correct past housing mistakes. Space efficient residential developments are a necessity if housing costs are to be kept within the reach of the majority of citizens while still preserving open space within the residential environment. PUD offers one possible solution, by no means the best or the only answer. However, a study of PUD adoption may contribute to an increased understanding of the processes by which other new landuse ideas or values can be accepted into the community.

Footnotes: Chapter II

¹ John L. Schmidt, "Is Density Worser or Vice Verser?" in Happiness is Better Housing Environments, Washington Savings League, Tacoma, Washington, 1970, p. 8.

² Carl Norcross, ed., Open Space Communities In The Market Place, Urban Land Institute Bulletin, #57, Washington, D.C., 1966, p. 4.

³ John L. Schmidt, op. cit., p. 4.

⁴ Maxwell C. Huntoon, Jr., PUD: A Better Way For the Suburbs, Urban Land Institute, Washington, D.C., 1971, p. 23.

⁵ Federal Housing Administration, Planned Unit Development With A Homes Association, Washington, D.C., 1963.

⁶ William Whyte, Cluster Development, American Conservation Association, New York, 1964.

⁷ Urban Land Institute, Homes Association Handbook, Washington, D.C., 1963, p. ix.

⁸ Lower Mainland Regional Planning Board, The Urban Frontier, #2, 1963, pp. 37-38.

⁹ Harris Mitchell, Homes edition, Canadian Star Weekly, October 1971, p. 3.

¹⁰ Lower Mainland Regional Planning Board, What Price Suburbia? 1967, pp. 7-20.

¹¹ Surrey Community Plan Series 9, Perspective '81, 1965, pp. 81-82.

CHAPTER III

THE ADOPTION PROCESS: THEORETICAL BACKGROUND

To this writer's knowledge there are no studies presently that focus on either the PUD adoption process or the larger diffusion process which would provide a theoretical framework for this inquiry. However, there was extensive literature reporting adoption research and theory in other fields such as medicine and case studies of specific PUD projects in North America. This literature was selectively reviewed to derive guidelines for inquiry into potential adoption stages and constraints in Greater Vancouver.

In Greater Vancouver the PUD approach can be termed an innovation in residential landuse, when innovation is defined as:

. . . an idea or object perceived as new to an individual . . . it really matters little as far as human behavior is concerned whether or not an idea is "objectively" new as measured by the amount of time elapsed since its first use or discovery. It is the newness of the idea to the individual that determines his reaction to it.¹

At this point a distinction must be made between the processes of adoption and of diffusion. After reviewing 500 innovation studies, Everett Rodgers defines the diffusion process as:

. . . the spread of a new idea or practise from its source of invention or creation to its ultimate users or adopters . . . the four crucial elements in such an analysis are . . . 1. the innovation 2. its communication from one individual to another 3. in a social system which is a population of individuals engaged in collective problem-solving behavior 4. over time.²

The primary focus of geographical innovation research to date has been the diffusion process within a spatial system:

. . . spatial diffusion is . . . the spread (dispersion) of a phenomena within a given area through time . . . ³

As Allen Pred defined it, innovations diffuse in space via two sub-processes. The first, the information-spread, equates to Hagerstrand's conceptual model (1967) of paths of movement of information about an innovation from the node of origin (the place of initial discovery or acceptance) to nodes of destination (places of secondary acceptance). This sub-process has been studied at successively lower levels: from nation to nation, region to region, city to city within the urban hierarchy, and from person to person. The independent variables identified such as distance bias, intervening opportunity, comparative place utility, etc. would be appropriate to an inquiry into the diffusion of the PUD approach from Europe to eastern North American cities, across to the south-western United States and to the prairie provinces and Vancouver.

The second sub-process, as classified by Pred and Rogers, is the adoption process involving the individual information recipient. Rogers has defined adoption as:

. . . the mental process through which an individual passes from first hearing about an innovation to final adoption . . . the decision to continue full use of an innovation.⁴

This study is restricted to the on-going adoption process of individual firms within a single metropolitan area. It could serve as a subset of

a larger inquiry into the diffusion of the PUD approach throughout Canada and the United States.

SELECTIVE REVIEW OF ADOPTION RESEARCH

There is a long tradition of adoption research within cultural anthropology, sociology, medicine, education, industrial economics, and more recently, in marketing research and spatial diffusion studies. These precedents have been most concisely summarized by Everett Rogers (1962) and Lawrence Brown (1968).⁵ The adoption process studies had their conceptual antecedents primarily in educational and decision-making research. Learning theory hypothesized that an individual cumulatively receives various stimuli concerning an innovation from many communication sources until he eventually responds with adoption or rejection behaviour. Hagerstrand followed this school of thought, viewing adoption primarily as a result of a learning process. When the individual received sufficient information to overcome his resistance to adoption, he would accept the innovation. Decision-making is the process of evaluating the meaning and the consequences of alternative courses of action and choosing one. In the case of adoption, it means choosing between a new alternative and previous practises.

Innovativeness: The Dependent Variable

There is a general consensus among researchers that adoption is seldom a rapid "impulse" response and that adopters recognize themselves as passing through distinct stages. Largely due to research in

rural sociology, the series of sequential stages has generally been identified as:

1. At the awareness stage an individual knows of an innovation but lacks complete information or the motivation to seek further information.
2. At the interest stage an individual is interested in the innovation and seeks further information.
3. At the evaluation stage an individual mentally applies the innovation to his present and future situation and then decides whether or not to use it.
4. At the trial stage an individual uses an innovation usually on a small scale in order to determine its usefulness in his own situation.
5. At the adoption stage an individual decides to continue the full use of the innovation.
6. Discontinuance occurs when an individual decides to cease use of an innovation after previously adopting.⁶

Among researchers there has not been complete agreement on the terms, number or the order of the stages. Some researchers argue that the evaluation stage occurs after trial and/or adoption and that further information-seeking can occur after any stage.⁷ For some innovations, small scale trial is impossible and the trial stage may be omitted completely by some adopters.⁸ A further weakness of adoption stage identification has been the dependence on "recall-type" data as reported by the adopters themselves. For example, Menzel checked doctors'

prescription records against the time when doctors reported adopting a new drug. He found that there was a marked tendency to report an earlier date than that of actual adoption.⁹ However, Roger's adoption stage categories may be regarded as a convenient conceptual model which may need to be modified in a specific study.

Adoption research generally classifies adopters in terms of innovativeness, or the degree to which an individual is relatively earlier in adopting an innovation than other members of his social system. Innovativeness is the usual dependent variable in adoption research. It is most often measured by a standard adoption score, which is computed for two or more innovations that are within the jurisdiction of all subjects to either adopt or reject. It has been the general finding that adoption of innovations over time tends to follow a normal distribution curve. Using the mean and the standard deviation, parameters of the normal distribution, the continuum of innovativeness is divided by Rogers into the innovators, the first 2.5% of adopters, early adopters, the next 13.5%, the early majority, the next 34%, the late majority, the 34% to the right of the mean, and the laggards, the last 16% which included those who never adopt. Rogers cautions that the foundations of the normal distribution are not fully understood as yet in adoption research, and in fact, some studies have had a skewed distribution. Parametric statistical analysis is only useful where the sample population is of a size to meet the power-efficiency requirements of parametric statistics. The population of this study falls far below these requirements. The classification system is also of little use

unless there is almost complete adoption of an innovation such that the parameters of the distribution can be accurately estimated or unless a composite measure is taken of a series of innovations. This study avoids this classification system since only one innovation is being analyzed with a small population, almost half of whom have not yet adopted the innovation. Innovativeness was here measured by comparing the year at which a firm entered a stage to the average year of all firms entering.

The time it takes for a firm or individual to pass from first hearing of an innovation to final adoption is known as the adoption period. Rogers has found a considerable number of studies that support the following generalizations:

1. The earlier an individual adopts, the shorter his adoption period. This may be partially explained by the evidence that earlier adopters have more favourable attitudes to new ideas, use more technically accurate sources of information such as direct contact with scientists, and place more creditability in abstract information than do later adopters.
2. The awareness to trial period is relatively longer than the trial to adoption period.
3. Earlier adopters have shorter awareness to trial periods than do later adopters, but they have longer trial to adoption periods.

Independent Variables

In most adoption research studies, innovativeness is correlated generally with three sets of independent variables. The first variable, the potential adopter's information behaviour, tends to receive the most attention. The second variable is the potential adopter's antecedents, namely the background and characteristics of the adopter which affect his ability to act on information. The third variable, often neglected by researchers, is the perceived characteristics of the innovation itself. However, in the case of PUD, a well-informed, qualified developer who is willing to adopt must still operate with a series of constraints imposed by external circumstances and agencies. The land development implementation process requires that a developer's project satisfies local marketing conditions, land supply, financial arrangements, design inputs, and municipal approval. Thus external agents involved in implementation are a necessary fourth variable examined by this study.

Information Behaviour

Information behaviour has generally been analyzed by the sources used at various stages in the adoption process. Sources have been classified by Rogers as localite/cosmopolite and impersonal/personal. Cosmopolite sources such as mass media are more important to relatively earlier adopters than to late adopters and are more important at the awareness and interest stages. Early adopters tend to utilize information sources in closer contact with the origin of the innovation, as well as a greater number of sources than do later adopters. Localite sources originate within the adopters' social system such as the opinions

of peers. They become increasingly more important at the evaluation stage and are more often used by later adopters. Hagerstrand found that the probability of a new adoption is highest in the vicinity of an earlier one and decreases with increasing distance.¹⁰

Impersonal sources involve the mass media like journals, newspapers, and television, and actual displays of the innovation. Personal sources refer to direct, face-to-face communication between recipient and communicator such as peers, existing adopters, change agents or opinion leaders. As was the case with cosmopolite sources, impersonal sources tend to be more important at the awareness and interest stages, and are more often used by early adopters. Personal sources tend to be extremely important at the evaluation stage, particularly as they permit a two-way exchange of ideas so the listener can obtain clarification or additional information. Impersonal sources can be more easily avoided or ignored if an individual is apathetic or resistant to change. Peer influence tends to be most important when a person is late in adopting. In such cases, the persons interacting have similar values and attitudes and are better known to each other, thus are usually regarded as more reliable sources. Change agents are professional persons who deliberately seek to influence the adoption decision, for example, salesmen or government personnel who would encourage the use of a new type of seed. They are generally more influential with early adopters at the trial stage than with later adopters. Another important personal source is the opinion leader, individuals or firms that take the lead in influencing the opinions of others, particularly those of later adopters at the

evaluation stage. Opinion leaders tend to be more innovative than their followers, use more impersonal and cosmopolite sources, are well respected within their social system and generally obey the social norms. In contrast, the innovators (the first 2.5% of adopters) prefer venturesomeness to the respect of their peers.

A development firm may have become aware of and well informed about PUD through impersonal information sources such as the numerous articles in trade and planning journals, or by viewing PUD projects across North America. They may have relied on personal, localite sources such as change agents like a local municipal planner or their peers in the local development market who may have adopted PUD.

Of course, exposure to the same information sources will not guarantee similar levels of information between firms:

How a firm perceives and recalls the information it accumulates will often be contingent upon: its past experience as a business organization, the past experience of its individual decision-makers; the order in which information is received (especially where information is contradictory or conflicting); the timing of acquirement and the size of different information bundles; and personal attitudes toward the private and/or public sources of information . . . that small portion of the total information available that the firm actually processes may also reflect the goals and orientations it has adapted, and the hopes and expectations it holds, are a result of previous experience.¹¹

Antecedents

Once the individual or firm accumulates sufficient information to evaluate the innovation to their satisfaction, many other factors impinge on their ability to adopt. Rogers summarizes these as the antecedents or factors present in a situation prior to the introduction

of an innovation. Pred includes these antecedents under the ability to use information side of his behavioural matrix. This second independent variable includes the economic, sociological and psychological characteristics of the potential adopter and the perceived characteristics of his situation. Characteristics found to significantly correlated with innovativeness are:

1. The dominant values of the individual measured on a security/anxiety continuum ranging from a willingness to take risks, to secure respect, and to maintain past practises (traditionalism). For example, Mansfield and Strassman found that the most innovative firms had workers and management with a positive attitude toward science and change.¹²
2. Goals of the firm or individual may be measured by the perceived profitability of the innovation, although simplistic profit maximization is no longer assumed to be dominant. Most theorists now accept the fact that firms necessarily have a complex system of goals depending on the organizational structure, environment, and personality dominance of the actors in a firm.¹³

. . . a variety of goals are apt to influence the operation of any company in a manner which is not precisely specified or clearly determined.¹⁴

3. An individual's mental ability is usually defined as the ability to think in the abstract. Within firms this has

been reflected by the amount of its resources devoted to research and development.

4. High information reception as indicated by the degree of contact with universities and scientific journals.
5. The degree to which an individual's or firm's orientation is external or cosmopolite to his particular social system. For example, early adopters among industrial firms had extensive worldwide travel by executives and were not secretive to plant visitors.¹⁵
6. Social status within a social system or a firm's position in a market system is considered relevant.
7. Degree of opinion leadership possessed by a firm or individual from whom others seek advice and information.
8. Age of the individual or length of business experience of the firm.
9. Intrafirm politics as indicated by the amount of pressure by management to institute an innovation and effectiveness of the management's ability to persuade others in the firm:

. . . the presence or absence of a few men in the right places who believe strongly in the value of the new technique may make a crucial difference.¹⁶

To understand the firm's decision-making behaviour, most adoption studies have emphasized the ordering of authority and responsibility; the formal and informal rules for

regulating decisions and actions; and the channels for the routing of information within the firm. However, there is as yet no uniform measurement scale of management structure which appears to have sufficient generality for application to diverse industries.

There is some dispute within the various research traditions concerning the value of personality variables such as the adopter's mental ability, self-perception, etc. in explaining the rate of adoption. Harop argues that the effect of personality variables can be cancelled out by a range of sociological variables.¹⁷ Some researchers within industrial economics put the primary emphasis on economic variables. Certainly the range of potential variables is vast. The problem of the researcher is to weigh the relative increase in explanatory power of alternative variables against the relative increase in time and cost involved in accurately measuring them.¹⁸ In this study these nine possible antecedents have not all been explored exhaustively. For example, intrafirm politics could involve a complete study in itself. While acknowledging that such variables may have a significant effect on innovativeness, this study has first concentrated on the perceived characteristics of PUD and the constraints involved in implementing the innovation. When more is known of the overall working of the adoption process and the innovation's suitability to the local market, then further inquiry could focus on more explicit measurement of the relationship between innovativeness and the adopter's social-psychological identities.

Drawing on the case studies of PUD development, the following antecedents or aspects of a firm's development status were considered most important to explore:

1. Local or cosmopolitan extent of a firm's operations; presumably a firm operating beyond the local market has had greater opportunity to view the PUD approach in use.
2. Length of experience and degree of specialization in local residential land development are generally associated with increased understanding of land, market, financial and municipal constraints impinging on the use of PUD.
3. Firm's scale of operations as reflected by the acreage and number of projects assumes importance when the investment required to innovate is large relative to the size of firm or when the size of firm required to use the innovation is large relative to the average size of firms in the industry.¹⁹ For PUD development, less than fifty dwelling units is generally not advised although this will depend on the nature of the common facilities and the cost of maintaining them through condominium or homes association management. The Urban Land Institute recommends that the larger the land parcel, the greater the economies of scale and the greater the potential for achieving a good environment. When the PUD implementation process is analyzed stage by stage, it becomes even more apparent that PUD use is generally limited to the more experienced, medium to large

volume developers, who work with projects exceeding fifty acres.

4. Length of involvement in a project appears to be important since firms interested in quick, speculative profits are not likely to invest for two or more years in a project proposal, which tends to be the norm with PUD.
5. A large land inventory can enable a firm to bypass one of the frequent constraints on a developer, that of the possible shortage of suitable large land tracts.
6. A firm, eager to adopt an innovation which is unfamiliar or untested by lenders, would be able to minimize financial constraints if it was independently well supplied with capital. PUD studies warn of the requirement for a relatively large capital investment prior to sales for suitable land, design and marketing expertise, "front money" for amenities, and the heavy carrying costs while awaiting municipal approval.
7. The firm's staff of diverse design and marketing expertise is also important as no standard layout ensures PUD market success. Qualified professional persons on staff may tend to first introduce new ideas to a firm.
8. A firm's marketing goals whether they be simple profit maximization, an eagerness to keep ahead of market trends, etc. will likely affect how the firm perceives the utility of the innovation and the appropriate timing of adoption.

Perceived Characteristics of the Innovation

Much of adoption research assumes that the innovation is wholly desirable for adoption, neglecting the potential adopter's perception of the innovation for closer analysis of other variables. However, Rogers suggests that an individual's evaluation of the innovation may sometimes differ sharply from the recommendations of experts, significantly delaying adoption. In some cases, the rejection of an innovation may be the more rational and desirable behaviour. In an exploratory study such as this, it was believed that the developer's perception of the innovation should be analyzed at some length because he must deal with PUD in a different market than successful adopters in California, for example, and from a more investment-oriented position than local planners.

Rogers summarizes the perceived characteristics of an innovation as the following:

1. Relative advantage which is the degree to which an innovation appears to be economically or socially superior to the idea or practice which it replaces. PUD has a variety of social, economic and aesthetic advantages over standard housing subdivisions and thus may offer the developer a marketing edge. However, it can be more costly and difficult to implement in some cases, as will be discussed in the implementation section of this chapter.
2. Compatibility is the degree to which an innovation is consistent with the past experience and existing values of the developer. PUD literature shows that common

ownership and maintenance of open space and amenities, for example, may be unattractive to developers accustomed to constructing only one type of dwelling unit and no additional amenities thus avoiding complications with unusual municipal zoning legislation.

3. Complexity is the degree to which an innovation is relatively difficult to understand and use. PUD may in fact be relatively complex to use, requiring successful co-ordination of a suitable land parcel, market appeal, good design, financing and municipal acceptance.
4. Divisibility is the degree to which an innovation may be tried on a limited basis or a small scale. PUD has often been built in successive, small stages, but the larger the overall project the greater the economies of scale up to a point.
5. Communicability refers to the degree to which the results of an innovation may be diffused to other members of a social or market system. In the case of PUD, market acceptance of the innovation is vital but it may be difficult to convince the public of its utility until a development has been operating for several years.

Rogers indicates that an individual formulates his perception of the innovation primarily in the evaluation stage. However, as the individual or firm proceeds from awareness to adoption his familiarity with and understanding of an innovation will likely increase and thus

will alter his evaluation. An initially negative opinion at awareness may be replaced by an extremely positive evaluation after his first trial. Generally the perception of the innovation tends to be a function of the information behaviour and antecedents of the potential adopter. However, it is suspected that in this study the perception will be strongly modified by elements of the implementation process, such as a lender's risk estimate.

SELECTIVE REVIEW OF PUD IMPLEMENTATION RESEARCH

After obtaining information about the innovation and analyzing its characteristics and the firm's ability to act, a developer may decide to use the PUD approach. However, he then confronts a series of conditions and agencies in the sequential stages of implementing his decision which may ultimately cause him to reject or postpone adoption.

Marketing

Before assembling the land, the development firm must first assess the local housing market's short and longterm demand and supply conditions. This may be done on the basis of the firm's own experience and available data or through a professional market analyst. In studies of the home building industry, Maisel and Herzog found that only the largest and most sophisticated firms used professional market consultants.²⁰ However, George Bestor recommends that a developer can afford and will require a detailed, professional market analysis beyond the twenty lot scale, particularly with the PUD approach.²¹ Some of the vital facts that should be known before innovating are the number, price

range and style of dwellings that the market can annually absorb, details concerning the projects to be marketed simultaneously by competitors, the consumer tastes and spending power of the local population. For example, to compete with the privacy of the single family detached home, the PUD project should have compensating features such as lower dwelling prices, green space belts, or a clubhouse and a swimming pool. The Urban Land Institute (1966) recommended that a PUD community be very carefully designed to appeal to people under forty, intelligent and well educated, in the middle to upper middle income range:

. . . they are the people who are first attracted by open space communities and who appreciate them. They will be the pioneers . . . people over 40, many of whom will move to a community later, are inclined to wait and see how things turn out.²²

Within a particular marketing system, the characteristics of consumers and competitors have a significant effect on the marketing strategy which a firm must choose in order to survive and grow. One strategy, particularly relevant to the adoption process, is that of innovistic marketing:

Innovation of a new product is frequently the most successful competitive tactic because it offers the potential of radically changing competitive relationships . . . the injection of newly discovered elements into the existing situation transforms the situation, and a new pattern results . . . the new form generates opposition, forces emulation, and fosters further innovating . . . in short, the innovistic competition is a force which threatens the status quo and as such causes a change in the environment.²³

In a market with innovistic competition norms, PUD would likely be a good marketing strategy and could set off the "bandwagon" or "contagion

effect" where as the number of firms using an innovation increases, the probability of its adoption by a nonuser increases since the experience of others minimizes the perceived risk and is easily imitated.²⁴

Land Assembly

Having ascertained the characteristics of the market, the developer needs to acquire appropriate land. Keeping in mind the residents it wants to attract and the raw land and improvement costs it can afford, the firm must look for a site:

1. with firm ground, good drainage, gentle slope, pleasant surroundings, etc.
2. in a location conveniently accessible to work, shopping, schools and transportation facilities
3. with neighbours and community services of a calibre attractive to the project's clientele
4. and basic roads and utility services of a size and quality appropriate to the project
5. with appropriate zoning regulations for PUD or with a government willing to alter conventional zoning.²⁵

In order to build a good environment with usable open space and recreational amenities, it is recommended that the developer control an extensive parcel of land, over 100 acres if possible.²⁶ In Vancouver, a survey of housing contractors indicated that their major difficulty was securing large tracts of land far enough in advance of their development schedule.²⁷ Compared to six other major metropolitan areas of

Canada, Vancouver has the smallest average farm size, approximately only a third the size of that of Montreal or Toronto and less than one-twentieth the size of those around Calgary.²⁸ Numerous small farms involve longer time for land assembly and ties up a developer's capital, leading to higher costs for development. Thus a scarcity of suitable land tracts can make adoption difficult, if not impossible for some developers.

Project Design

If the developer has acquired suitable land, the next stage is the designing of the number and type of dwellings, roads, utilities, recreation and commercial services and the arrangement of the open space, within a project's marketing, economic, technical and legal constraints. The Urban Land Institute and the U.S. Federal Housing Administration emphatically state that a sophisticated design, produced by a team of competent professionals, is the primary requirement of a successful PUD. Even on a small ten acre site, a good plan by a land planner as well as a civil engineer can save on improvement costs and increase the sale price and the marketability of the project.²⁹ However, as the size of the project increases, so do the hazards involved in achieving market success. For projects exceeding fifty acres, the F.H.A. and the Urban Land Institute studies recommend that the developer work with a team of specialists to create a unified scheme:

1. The professional land planner can imaginatively arrange and integrate the buildings and amenities to create a

functional, economical and aesthetically appealing "total" community.

2. The landscape architect would be responsible for developing attractive green space to preserve the natural landscape and screen some landuses such as car lots and private patios. At medium to high densities of ten to fifteen units per acre, very small but well designed open spaces can relieve crowding.
3. An architect's building designs should have an important influence on the way the streets and landscaping are planned. All research has shown that the buyer chooses the home first, then the environment.³⁰
4. A marketing man should be involved in those aspects of the design which will eventually affect the sales of the project.
5. An engineer can offer technical assistance to implement the design and to weigh the cost constraints of various amenities and layouts.
6. A lawyer's expertise may be required to set up a workable condominium association to maintain the common open space and facilities with minimum cost and difficulty. He can also design covenants to prevent open space from being developed in the future. These two aspects of PUD have sometimes caused local government and buyer resistance which jeopardized a project.³¹

At all times in the design process, the team should be in contact with the relevant municipal agencies such as zoning and building authorities, the financial lenders, the local building tradesmen who will either have to approve or construct the design at later stages. Much delay and costly re-designing may be avoided by preliminary consultation:

Good design team costs may be offset by quicker approvals and faster marketing. Those who have used such a service say it was the best part of their investment.³²

Financing

Having determined the tentative design and the costs of the project, the developer may have to approach institutions or individuals for sufficient financing. The size of the loans, the terms, the amount of holdback and the availability of interim financing are all major constraints on the construction of a project. Herzog, Maisel, and Price all found that financing was relatively easier for large volume builders whose planning horizon is longer than that of the small and medium builders. The lender must be confident that the project is within the developer's capacity to complete within a reasonable time and that it can compete successfully for a continuing demand in the housing market:

. . . in the short term, the developer might be interested in the maximum mortgaging on a badly designed project built to sell fast in a temporarily demanding market. However, the lender's concern is more than simply building shelter that will rent in a hot market.³³

A carefully designed and well presented plan from a team of competent professionals may convince the lender of the project's longterm viability.

The lending institution's level of information and perception of PUD is vital to its adoption of PUD financing, as would be the institution's willingness to take risks and to innovate. Further important factors have been the design expertise of those in the institution who evaluate a PUD proposal and their criterion of evaluation, whether based on past experience of conventional projects or on the individual merits of the proposal:

. . . a major project in residential development cannot be fairly judged by written codes, but should be looked at on its own merits. It follows that approving authorities, whether municipalities granting building permits, or Central Mortgage and Housing Corporation issuing mortgage commitments, must have advisors able to comprehend the quality of the whole design. These advisors must be of such stature that they will be regarded by the architect who designed the scheme as his professional peers.³⁴

Municipal Approval

If an ample and reliable flow of credit is forthcoming, the developer must next obtain municipal approval of the project. Usually the developer takes a preliminary project design to the municipal approving officer, generally the head of the planning department, who in turn submits it to various departments for their comments and possible changes. After perusal by the municipal engineer, parks department, board of school trustees, building department, and the advisory planning commission, the design is passed on for review to the city council and possibly a public hearing if zoning changes are required. If there are no major alterations to the preliminary proposal a development permit may be issued which can involve posting a performance bond or other security guaranteeing the provision of specified services and amenities, according to section 702A, Municipal Act of B.C.

The first potential source of resistance are the technical problems associated with some aspects of a PUD design. By its very definition, PUD is often at variance with standard subdivision ordinances which tend to segregate varied housing types and landuses. Review and changes in the priorities of municipal ordinances usually come about very slowly. Municipalities other than Vancouver City only altered their code in 1968 to allow for special "development areas" (section 702A) where standard zoning and building codes could be waived on the approval of an individual comprehensive development. Municipalities have objected to restricting the public from a project's open space and recreational facilities, labelling such "private enclaves" as undemocratic. However, municipal ownership and maintenance of these facilities has sometimes resulted in inefficient, high cost servicing with a decline in property values within the PUD. The other alternative, common ownership by project residents, requires flexible condominium legislation or incorporation as an automatic, non-profit homes association. The engineering department in a community is often cited as the most traditional obstacle, suspicious of the PUD design on the basis of inappropriate technical criteria.³⁵ The limited access cul-de-sac or loop street pattern of PUD offends the engineer thinking in terms of rapid traffic flow rather than a pedestrian-oriented residential environment to cite a frequent complaint of PUD developers.

The most difficult obstacle of all in the PUD studies appears to be the attitude of the existing community and its elected representatives. Recognizing that pressure for space in a metropolitan area must

bring development into a community, local residents have two preferences, either "clean" light industry to buoy up their tax base or single family residences like their own. Higher density housing, however, is discouraged on the grounds that it will bring in "second-class citizens" and a large number of children to crowd local schools. Attached and high-rise dwelling units may be assessed at lower rates per unit supposedly reducing the community's tax base. However, John Schmidt has demonstrated that well designed PUD's usually have fewer children per unit than single family neighbourhoods, and that the recreational and community amenities increase the per unit assessed value and thus the tax contribution of a PUD.³⁶

William Whyte found that communities accepted the cluster concept with the least resistance if:

1. The local government had been fairly sophisticated in planning matters and had a history of landuse studies and successful fights for other innovations.
2. The cluster idea was advanced initially by the community's planning agency rather than by developers. In some cases, the planners acted as change agents by encouraging the developers to innovate.³⁷

However, both the planners and the developers may still face heavy resistance in public hearings when ignorance and emotionalism run high.

The public tends to suspect the developer's economic motives in supporting PUD and fear that their taxes will escalate and property values fall when PUD brings a mixture of landuses, dwelling types, and

amenity features into their community. Very often the review and approval process of such a non-standard design takes far more time, money and energy than many developers can afford or wish to expend:

If a change of zoning is required, the developer must often preach, teach, and beseech J.Q. and Mildred R. Public to understand his motivations and the desirability of his plan to the community. The frustrating consumption of time and energy in obtaining community approval and official acceptance of a non-standard plan means money to a developer in terms of carrying charges and interest on loans. Public relations and advertising costs might be necessary for brochures and "educational" campaigns and additional legal fees are often incurred along the way.³⁸

The acceptance of PUD depends upon the level of information and understanding of the approach within various municipal departments and in the community, upon community goals for growth, its past experience with developers and similar projects, and its norms on innovation. With objective analysis of the individual design and close consultation between developer, government agencies and the surrounding community, many of the complications of a PUD project could be averted. In summary an innovative developer must be able to appease or compromise with the external influences of the consumers, raw land holders, lenders, designers, politicians and citizens, before a PUD project reaches completion.

Footnotes: Chapter III

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³¹ William Whyte, Cluster Development, American Conservation Association, New York, 1964.

³² Royal Architectural Institute, op. cit., p. 107.

³³ Schmidt, op. cit., p. 8.

³⁴ Royal Architectural Institute, op. cit., p. 149.

³⁵ Whyte, op. cit., 1964.

³⁶ Schmidt, op. cit., p. 4.

³⁷ Whyte, op. cit., p. 27.

³⁸ Schmidt, op. cit., p. 7.

CHAPTER IV

THE ADOPTERS: DEVELOPERS OF GREATER VANCOUVER

ADOPTER TYPOLOGY

Thirteen private land development firms active in Greater Vancouver were identified as potential adopters. Each had designed or constructed two or more residential projects exceeding 50 single family detached homes or more than five acres of higher density housing prior to 1971 in the study area. These firms were then classified as to their position on a six stage adoption continuum from awareness, interest, evaluation, trial, adoption and discontinuance. Within a stage, firms were further differentiated as to early, average, or late trial or adoption by comparing the year at which the firm entered the stage to the average entry year of all firms.

Firms were classified as aware if they recognized the PUD approach but called it by another term. This was considered to be only a semantic problem, rampant in PUD literature where there is much disagreement over suitability of terms such as open space community, cluster community, planned unit development or comprehensive development. The problem was side-stepped by first asking a developer if he was familiar with the planned unit approach. If the answer was negative, he was shown the following diagram and definition of PUD and asked if he was familiar with the approach and under what name. If his response

PLANNED UNIT DEVELOPMENT (RESIDENTIAL)

Land developed on the basis of an a priori plan which integrates different types of residential landuse with neighbourhood services while leaving some portion of the site in open space, shared jointly by residents.

- A. Residential landuse may include a mixture of housing types to cater to a range of age groups and lifestyles
- B. Neighbourhood services involve more than the provision of basic utilities and roads; generally these additional services are:
 - 1. Recreational facilities for leisure time
 - 2. Small convenience shopping facilities
 - 3. Community center or clubhouse
 - 4. Nursery or school site
- C. Open space, owned and maintained jointly by all residents of a project, is to be used for any of the following purposes:
 - 1. Recreational needs
 - 2. Preservation of the natural or original landscape
 - 3. As sites for community facilities
 - 4. As buffers and pedestrian walkways between buildings and other facilities
- D. Cluster planning may be used to maximize the open space savings.

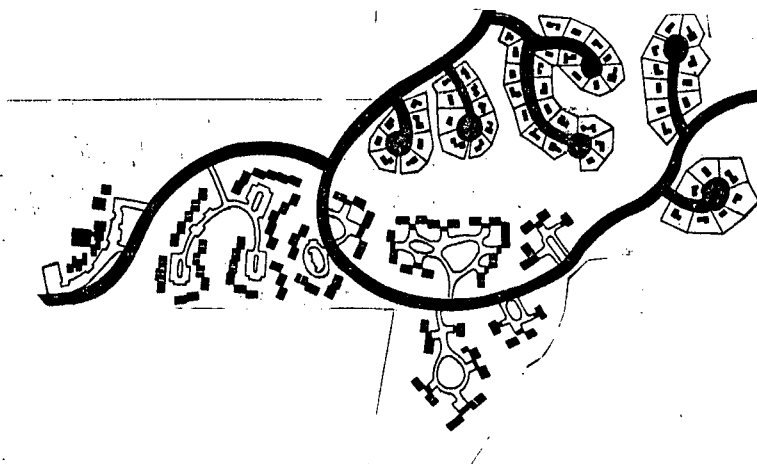
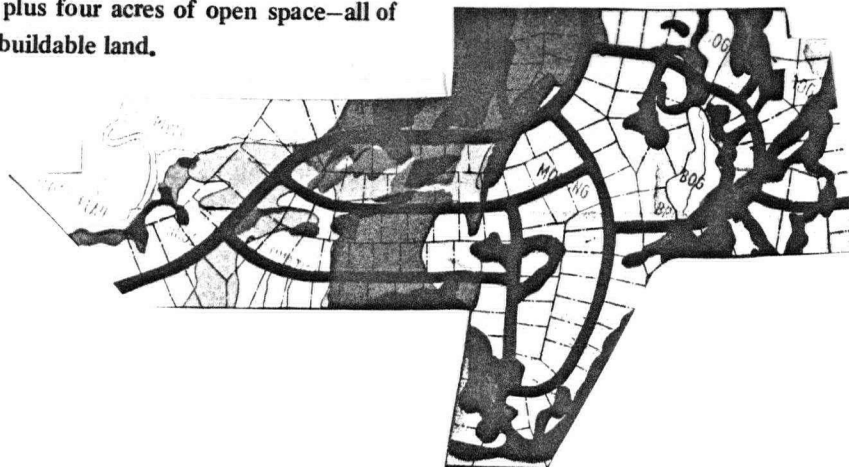


Figure 15

The alternative to a PUD is the conventional subdivision. The streets are curvilinear, but the layout is essentially a grid plan. This layout would produce 163 lots, plus four acres of open space—all of it unbuildable land.



Based on topography, soil condition and tree cover, a chart is constructed to show the best buildable portions of the land. A projected PUD use analysis would place the Village Center in Area 1, multi-family housing in areas indicated by a 2 and cluster housing in areas indicated by a 3.

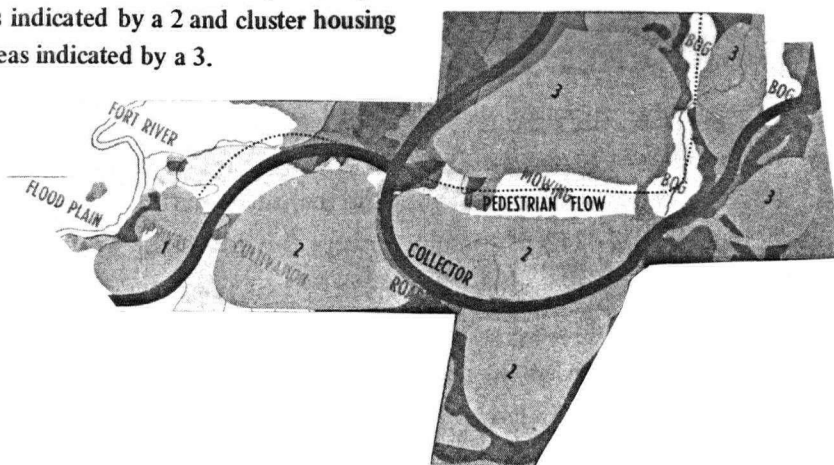


Figure 16

Source of illustrations: Urban Land Institute, The Pros and Cons of Cluster Housing, Washington D.C., 1968, pp. 14 and 16.

to the first question had been positive, he was asked what he understood the PUD approach to involve. Then he was shown the interviewer's diagram and definition, which was used throughout all interviews as a common base for discussion. Four firms out of thirteen were unfamiliar with the term, planned unit development or PUD, but all firms were aware of the concept. The most frequently used title locally was "comprehensive development."

The conventional definitions of trial and adoption had to be modified somewhat for this study. Rogers defines trial as first use of the innovation while adoption is repeated use. In the case of PUD, a developer may have proposed a project after some investment in market analysis and design, but external constraints may have prohibited or delayed construction. Thus in this study, use was taken to mean either a design proposal or actual construction. This definition had a significant affect on innovativeness, as the majority of developers had planned PUDs but seldom completed construction of the design by 1971.¹

The developers did appear to have passed through sequential stages from awareness to adoption in accordance with Rogers's format outlined in Chapter III. The exact timing and duration of the stages were, of course, based on the interviewee's potentially fallible recall. Developers did not pretend to be able to be more specific than the year in which they first entered a stage as they were recalling back at least a decade. First awareness, trial and adoption were easily recalled; however, interviewees did not fix a specific time when interest gave way to evaluation. They did recognize sequential stages when information

seeking and then evaluative behaviour was the major preoccupation, after awareness and prior to trial. As other researchers have shown, information seeking or evaluation is not totally exclusive to one stage. These developers in a highly competitive market are constantly forced to reassess their development methods and stay informed of the latest trends.

Classification by Innovativeness

The average length of the adoption period from awareness to repeated use of the innovation was six years. By 1963 the average developer would have first heard of the PUD approach and then would have passed through the interest and evaluation stages over a lengthy period of five years. In 1968 this firm would have proposed its trial PUD, and within one year it would have begun a second project. Thus, in 1969, the average developer would formally enter the adopter category. Actual developers will be identified alphabetically in order of innovativeness ranking, thus providing an immediate check on their adoption status while preserving developer anonymity (Table 1).

Seven of thirteen developers qualified as adopters, having used the innovation two or more times. Of these seven, developers A and B adopted prior to the average year, 1969, thus qualifying as early adopters. One firm, C, qualified as an average adopter having proposed its second PUD in 1969. Four developers were classified as late adopters. Of the four, firms D, E, and F adopted simultaneously in 1970, so were further differentiated by comparing the dates of their first trial.

TABLE 1
ADOPTION PERIODS

Firms by Innovativeness		60	61	62	63	64	65	66	67	68	69	70	71
early adopters	A				Xx		X						
	B						X	x	X				
average	C			X		x					X		
late adopters	D						X	x				X	
	E					X				x		X	
	F						X					xX	
	G	X										x	X
early trial	H						X	x					
late trial	I	X									x		
	J									X			x
	K	X											x
		1960	61	62	63	64	65	66	67	68	69	70	71

X indicates approximate date of awareness

x indicates approximate date of trial

X indicates approximate date of adoption

68 average year of trial

69 average year of adoption

TABLE 2
LENGTH OF TRIAL AND ADOPTION PERIODS

Category	Developer	Awareness to Trial (in years)	Trial to Adoption (in years)	Total Adoption Period (in years)
early adopters	{ A	<1	2	2
	B	1	1	2
average	C	2	4	7
late adopters	{ D	1	4	5
	E	4	2	6
	F	5	<1	5
	G	9	2	11
	Average	3.3	2.1	5.4
early trial	H	1		
late trial	{ I	8		
	J	3		
	K	<u>11</u>		
	Average	6		

Four of thirteen developers had just reached the trial stage, having used the innovation only once. Developer H was classified as early to trial having used PUD before 1968, the average year of trial for all developers. Firms I, J and K were late to trial. From Table 1 (p. 64) it is obvious that both trial and adopter firms were skewed toward later than average use of the innovation. Firm L claimed to be earlier than average in awareness. However, at the evaluation stage, the innovation was rejected as unsuitable to the company's predominant interest in industrial and commercial land development and to their "new town" scale of operations. The final developer, M, rejected PUD at the awareness stage when it perceived PUD as a purely suburban development approach unsuitable to the firm's central city land tracts. The firm had not sought sufficient information at that point to be aware of the frequent inner city use of PUD.²

Characteristics of the PUD Adoption Process

Early awareness of PUD was found to correlate negatively with early adoption or trial behaviour. Of the five firms who were aware of the approach by the nineteen sixties, one was late to adoption, two were late to trial, and two were rejectors at awareness or evaluation. These firms had longer than average periods from awareness to trial or adoption. In comparison, early adopter A was first aware in 1963, the average year for all firms and early adopter B and early trial firm H only became aware in 1965. Thus early awareness appeared to be no advantage for early use of PUD, contrary to the experience of much innovation research.³

A recurrent generalization of adoption theory is that the earlier an individual adopts, the shorter is his adoption period.⁴ This generalization held true for the majority (five of seven) of PUD adopters. In particular, the early adopters had adoption periods of only two years, far less than the average period of 5.4 years. A second adoption theory finding is that earlier adopters have shorter awareness to trial periods, but longer trial to adoption periods than do later adopters.⁵ In this study only the first part of the generalization held true. Earlier adopters did have shorter awareness to trial periods. Seemingly they gather their information quickly, perceive the innovation as appropriate to their situation, and move rapidly to test the innovation. The majority of late adopters take four to nine times as long to act on information concerning the innovation. However, early adopters were also relatively quicker to adopt after trial. Very often they were into the planning or construction of their second PUD before the trial project was completed.

A third generalization of adoption theory is that awareness to trial is relatively longer than trial to adoption. Thus adoption researchers recommend that efforts to hasten trial of an innovation could shorten the adoption process. This appears to be true in the case of the PUD innovation. For the late adopters, awareness to trial was from two to seven years longer than trial to adoption. Late trial firms I and K had awareness to trial periods two to three times as long as average. In contrast, the awareness to trial period of the early adopters was slightly shorter than their trial to adoption period.

Possibly efforts to hasten trial of a landuse innovation like PUD could shorten the adoption period. Certainly it appears that the more innovative developers move rapidly to gather information and to assess the utility of the innovation, despite the fact that they generally learned of PUD later than the less innovative developers.

INFORMATION BEHAVIOUR

Due to the attention paid to this variable in most adoption research, a series of relationships were available for analysis concerning the number, type and quality of information sources used by firms.

Sources by Innovativeness

Past adoption research had found that more innovative individuals tended to use more cosmopolite, impersonal sources than did later adopters. In this study, cosmopolitan was defined as sources external to Greater Vancouver. Impersonal sources were defined as relating to media such as journals and newspapers, or actual examples of PUD, while personal sources referred to face to face contact between communicator and recipient. In the case of PUD, developers regardless of differing degrees of innovativeness, tended to use impersonal and personal sources almost equally and to use more cosmopolitan than local sources. The exception was average adopter C who relied heavily on local, personal sources. Use of local sources tended to increase with decreasing innovativeness and longer than average awareness to adoption or trial periods.

This is understandable since local examples of and local information concerning PUD became increasingly more available in the latter half of the nineteen sixties for the use of less innovative developers. However, the less innovative firms still utilized almost as many cosmopolitan sources as had early adopters. The two most frequently used information sources, consulted by twelve of the thirteen developers, were housing journals and actual PUD projects built in some areas of North America. These sources were both cosmopolitan and impersonal. The next most popular sources were interaction with cosmopolitan developers, local design consultants, and the firm's own marketing staff. These three sources were all personal.

Sources by Stage of Adoption

Adoption research has demonstrated that more innovative individuals use more cosmopolitan, impersonal sources at the awareness and interest stages, while local, personal sources are more often used at evaluation. This generalization was also rejected for the PUD adoption process. There was no significant difference in the information behaviour at these stages between developers with varying degrees of innovativeness. Cosmopolitan, impersonal sources were most frequently utilized at the awareness stage with diminishing influence at the interest stage. However, at the evaluation stage, these sources were still used more frequently than local, personal sources.

At the awareness stage, there was no significant difference in sources used by early or late adopters, trial or rejector firms. Eight

of twelve developers responding relied on cosmopolitan sources exclusively. Only the average adopter, C, relied solely on local sources. Housing journals and PUD projects in Ottawa, California, England, Austria and Hawaii were quoted by the majority of developers as their first information source at awareness. Those five firms who claimed to be aware of PUD before 1960, were first exposed to the innovation through the New Town movement in Europe and in Britain.

At the interest stage, local, personal sources were used almost as frequently as cosmopolitan, impersonal sources by developers regardless of differing innovativeness. Personal local sources assume importance earlier in the adoption of PUD than is suggested by previous adoption research. This may be partially explained by the fact that PUD is a relatively complex innovation with various marketing and design pitfalls. Personal information sources may be sought out to directly clarify opinions or obtain specific information,⁶ while local sources allow firms to probe into local market and design peculiarities related to PUD use. Usually this is the role of such sources at the evaluation stage. However at PUD evaluation, impersonal, cosmopolitan sources were consulted more than personal, local sources by the majority of developers. The importance of impersonal, cosmopolitan sources continued into trial and adoption stages also, as frequent updating on housing trends elsewhere is required of developers in a highly competitive market.

A firm's own staff was the most frequently used local, personal source by both adopter and trial firms at interest and at evaluation stages. In-firm information sources appear to have a considerable positive

TABLE 3
NUMBER AND TYPE OF INFORMATION SOURCES

Developer	Cosmopolitan	Local	Personal	Impersonal	Total
A	3	0	2	1	3
B	6	1	3	4	7
C	1	4	2	3	5
D	3	1	2	2	4
E	2	3	2	3	5
F	2	2	2	2	4
G	3	0	2	1	3
H	3	3	3	3	6
I	5	2	3	4	7
J	4	2	3	3	6
K	1	2	1	2	3
L	4	2	2	4	6
M	NR	NR	NR	NR	
Total	37	22	27	32	59
Average	3	2	2	3	5

influence on PUD evaluation. In nine of ten cases, in-firm sources gave a very favourable recommendation of PUD. This study was not able to probe into details concerning information spread within the firm, however, it is definitely recommended for further landuse adoption studies.⁷

Change agents who seek to positively influence the adoption decision were the second most frequently used local personal source at the evaluation stage. Half of the firms received a recommendation to use PUD from local municipal officials of four municipalities. The recommendations ranged from somewhat to very positive and were directed almost exclusively at average and late adopters (Table 4). Early adopters claimed to receive "no impetus" from municipal authorities; on the contrary, they believed that they first introduced the PUD concept to some municipalities. In the experience of developers regardless of their degree of innovativeness, few municipalities appear to take on the role of change agents at the evaluation stage. It is only during the implementation stage, to be discussed in Chapter V, that change agents within the municipality play a significant role. However, this perception was contradicted by planning departments in nine of twelve municipalities who claimed to have recommended PUD to some developers (unspecified), offering inducements such as rezoning and removal of certain site restrictions. Either the developers' recall is poor or the recommendations were not clearly received. The information spread between public and private sectors is highly recommended for future studies because firms generally saw the municipalities as a significant constraint delaying adoption.

TABLE 4
RECOMMENDATION OF CHANGE AGENTS

Developers	Municipality	Recommendation
C	Vancouver	somewhat positive
D	North Vancouver District	little positive
E	Burnaby	very positive
F	Richmond	somewhat positive
G	Richmond	somewhat positive
K	Richmond	very positive
	North Vancouver District	somewhat positive

The third most frequently used source at evaluation was local marketing and design consultants whose attitude was favourable to PUD. However, these sources were only used by one-third of the developers at this stage. Contrary to most adoption research, peers and opinion leaders were not rated as important in influencing the evaluative decisions of almost all firms. Only two firms mentioned that PUD had been recommended to them by their peers, other local developers. In both cases these were late trial firms who were anticipating a joint venture on a PUD project with early or late adopters. Both these adopters were more innovative, used more cosmopolitan impersonal sources, and were recognized as large volume builders in the local market, which are some of the usual characteristics associated with opinion leaders. The late trial firms relied on their greater experience with PUD to successfully launch a trial project.

In a competitive market situation it seems highly unlikely that developers are not extremely sensitive to the behaviour of competitors. In response to marketing questions, the majority of developers appeared to be well informed about the local projects of competitors. From their statements, it would appear that information between peers and opinion leaders is not usually spread by direct, personal communication at management levels. Rather it spreads from observation of their projects (impersonal) via indirect, personal channels such as design consultants or their own marketing staff. Analysis of other questions showed that almost all adopters, trial and rejector firms had interacted directly or indirectly with one or more competitors although they may not have

acknowledged this influence in information behaviour questions. Indirect interaction may have been through the loss of employees to a competitor. For example, one early adopter lost its general manager to a late adopter, coincidentally in the same year that the latter firm began its trial of PUD. Two late trial firms initiated their first PUD proposals in a design competition with an experienced late adopter. Direct interaction was in the form of a joint venture, e.g., between an early adopter and a late trial firm; in sub-contracting a portion of a PUD design, e.g., one late adopter built the townhouse portion of an early adopter's PUD; or through silent partner financing as in the case of the rejector at awareness investing the major portion of funds in an early trial firm's PUD. The rejector, however, did not see this project as comparable to its own land situation. Certainly such interaction can be presumed to influence PUD adoption to some degree, although its influence is not acknowledged by the developers directly. Further studies should probe deeper into the methods and effect of information spread between competitive firms.

Number of Sources

Adoption research has usually found that increasing innovativeness correlated positively with use of a larger number of sources. However, in the case of PUD, there was no significant difference in the number of sources used by developers regardless of differing innovativeness. The average number of sources utilized was five.

Technical Accuracy of Sources

More innovative firms are usually expected to make increasing use of more technically accurate sources according to many adoption studies. In this study technically accurate sources were defined as those sources with closest actual experience of PUD. The majority of trial as well as adopter firms each used two or three sources that qualified as technically accurate. Four developers, one an early adopter, one late adopter, one early trial, and one late trial firm, annually made a tour of PUD projects and developer conventions beyond Greater Vancouver to obtain the most current information. As with many other relationships found in other adoption research, there was no clear correlation between innovativeness and use of more technically accurate information sources during the PUD adoption process.

Summary

It appears that most firms at all stages of adoption tend to use similar types and numbers of information sources. Thus information behaviour, as generally analyzed in standard adoption research, is not a significant constraint impinging on the rate of PUD adoption. Certainly exposure to similar sources does not ensure similar levels of information between developers, due to selective editing and retention. However, to assess the quality of information at various stages of the adoption process would require repeated testing of subjects over a number of years. In future adoption studies, it may prove extremely valuable to concentrate on the information spread within firms, between competing firms, and between the private developers and the public sector.

DEVELOPMENT STATUS

The second set of variables to be analyzed was the firm's ability to act on information concerning PUD as a function of a firm's development status. As discussed in Chapter III, the following characteristics were expected to be associated with the more innovative developers:

1. cosmopolitan extent of operations
2. lengthy experience in the local market
3. specialization in residential development
4. large scale development
5. longterm project involvement
6. inventory of medium to large land tracts
7. ample supply of capital
8. uses talents of a wide variety of marketing and design consultants

Presumably these characteristics would permit firms to overcome some of the constraints impinging on PUD implementation as discussed in Chapter V.

Cosmopolitan Extent of Operations

Analysis showed that the majority of developers, regardless of degree of innovativeness, have a cosmopolitan range of operations, namely, involvement in projects outside of British Columbia (Table 6 p.90). Six firms were either branches of or affiliated with large national or international companies. A further two were Vancouver companies, however,

they were involved in projects beyond British Columbia. Local companies were represented equally with cosmopolitan companies in the early adopter and trial categories. Both rejectors were cosmopolitan companies. Thus it appears there is no direct relationship between cosmopolitan operations and increasing innovativeness.

Generally the cosmopolitan firms did have some experience of PUD or its larger scale antecedent, the New Towns approach, in other areas of Canada or Europe. A late adopter and an early trial developer had constructed or planned a PUD in Alberta. A further four cosmopolitan firms, early adopter A, two late adopters and one rejector at evaluation, were involved in the construction of new towns in Winnipeg, Manitoba; Calgary, Alberta; Bramlea, Ontario; and Australia. Within British Columbia, one cosmopolitan late adopter and the local average adopter also had experience in designing recreational communities with characteristics similar to PUD.

When a firm was locally based there appeared to be other ways in which they compensated for their limited extent of operations and their limited experience of PUD. The presidents of one late adopter and one late trial firm had personally observed the mechanics of the New Towns approach in Europe before building up their companies in Vancouver. The president of a local early adopter firm devoted a month annually to touring new developments and meeting experienced developers across North America. This could partially explain why local firms compared favourably with cosmopolitan developers in degree of innovativeness.

Lengthy Experience in the Local Market

Increasing innovativeness was found to be associated with decreasing length of local experience. However, most firms had a relatively long experience in the local market, the average being eleven years. The adopter group was slightly below average, having an average of nine years of experience as compared to the trial group whose average was eleven years. The rejectors were long established firms with an average experience of fifteen years.

Only three firms in this study had a relatively brief experience of less than five years in Greater Vancouver. Yet two of these firms had achieved late adoption, while the third developer was at the late trial stage. These three, all cosmopolitan firms, had compensated for their inexperience locally in several ways. Late adopter E had located its head office in Vancouver in 1964 while building outside of the city. Thus it had been in a good position to observe local market conditions prior to beginning an active building program here in 1968. At that time it was joined by the general manager of an early adopter firm with eight years of local experience. A second late adopter, F, studied the local market intensively for two years prior to its entry in 1967, so that it effectively had six years of local experience. The third firm, I, entered a joint venture with early adopter B in order to compensate for its inexperience. Thus it appears that a relatively long period of experience was not a significant characteristic of more innovative developers.

Specialization in Residential Development

The majority of respondents (eight of thirteen) had specialized in residential land development, acknowledging it as the firm's primary source of income. Residential specialization tended to be associated with more innovative developers, with the exception of average adopter C and late adopter F. Both rejectors did not specialize in residential development. The rejector at evaluation was primarily involved in commercial and industrial land development.

Large Scale Development

In this study a developer's scale of operations was not measured by the annual number of dwelling units produced. Instead, the number of projects and the average acreage was considered as more important to PUD use. PUD research has shown that the larger the land parcel, the greater the economies of scale and the greater the potential of achieving a good environment. Thus a firm that works with medium (over fifty acres) to large (over one hundred acres) acreages would likely find it more to their advantage to use the PUD approach than would small scale developers. In Greater Vancouver, of the eighteen proposed or constructed PUDs, the vast majority were at the medium to large scale. Five were 200 acres or larger and three were in the 100 to 199 acre range. Six projects fell within the medium scale of 50 to 100 acres. Thus PUD at this time appears to be predominately a medium to large scale development approach. Nine of eleven municipalities in Greater Vancouver indicated that the majority of residential developments

TABLE 5
 PROPOSED OR CONSTRUCTED PROJECTS BY SIZE
 (1960-1971)

Firm	5-49 acres	50-99	100-199	200+	Total	Average by Innovative-ness
A	2	4		1	5	9
B	5	2	2	1	10	
C	3	2		1	5	5
D	1	partners in 2	1	1	4	5
E	4	partners in one of 3	1		8	
F	1	2		1	4	
G	1	2			3	
H	1	1			2	2
I				1	1	
J	4	1			5	3
K	2	1			3	
L	1			1	2	2
M	2	1			3	
PUDS BY SIZE						
	4	6	3	5	18	

were less than ten acres in size. They stated that the small scale of most residential development was an "important" to "very important" constraint delaying the use of PUD in Greater Vancouver.

The more innovative developers did tend to operate at a larger scale than less innovative developers. As a group, the adopters built an average of four times as many projects in the medium to large scale range than did trial or rejector firms. Early adopters were involved in more projects overall (nine) and in more projects at the medium to large scale (five) than were the average and late adopters. The latter had an average of three projects at the medium to large scale and five projects overall. Trial firms were only involved in an average of three projects overall, and only one project at the medium or large scale. Rejectors have averaged two projects overall and only one at the medium to large scale. Thus it appears that early adoption is associated with large scale developers; average and late adoption with medium scale developers; while trial and rejector firms are small scale developers when measured by the number of projects from fifty to over one hundred acres.

Longterm Project Involvement

The length of project involvement tends to increase with the increasing innovativeness of a firm, with the exception of the rejector at awareness. The developer's interest and persistence as reflected by longterm (over two years) project involvement tends to be the greatest with early and average adopters and gradually declines with decreasing

innovativeness. However, the longest involvement by any firm was the eleven year design and approval process which the rejector at awareness was continuing to date with one project.

The vast majority of projects took over two years and were usually designed and built in successive stages over a period of many years to meet financial and marketing limitations and to achieve municipal approval. Fifteen of the twenty-two longterm involvements were in PUD projects and eleven of the fifteen were still ongoing indefinitely. The majority of firms found that the municipal approval process is longer with PUD than with a conventional project. For this reason early adopter A found that carrying costs during approval negated many of the savings of clustering. This highly innovative firm believed that only a firm with a longterm profit horizon and good building expertise could benefit from the PUD approach. This opinion was repeated by developers at every degree of innovativeness. For example, late trial firm I advised that only the large firm which could afford to wait for longterm gain would be able to build amenities into a good PUD project. Thus it appears that a firm interested in short-term, speculative profits are not likely to be involved with PUD.

Development Goals

The need for a longterm profit horizon introduces the subject of a developer's goals and their influence on the decision to use PUD. This study did not directly attempt to question the developers regarding their marketing goals but allowed the developer to introduce them himself

as he discussed his perception of PUD's suitability to his development situation. As has been shown, a firm's goals are often extremely complex and it may not wish to or be able to articulate them clearly for public scrutiny.⁸ However, both adopter and trial firms voluntarily claimed to have a corporate goal to produce good housing environments. In order to remain successful in Greater Vancouver, all firms appeared to be alert to the quality of their corporate image in the eyes of local consumers and municipal officials, particularly as ecology was becoming a popular cause. An early adopter said that one poor project could mar a company's development prospects for a long period in such a small market as Greater Vancouver.

Simplistic profit maximization was definitely not their stated goal, although several adopters acknowledged that in the past many local developers were guilty of producing poor housing environments for the sake of quick profits. The majority of firms claimed to be interested in a reasonable profit (not explicitly defined) after a longterm involvement in fairly large projects. They felt they could satisfy this goal with PUD while providing a good environment for consumers. One of the inducements of the PUD approach was the slightly increased densities possible through clustering which could lower improvement costs and spread high land costs over a broader base.

Large Land Inventory

Analysis showed that the more innovative developers tended to have a larger inventory of larger land parcels than later adopters and

trial firms. The majority of developers had experienced some to extreme difficulty in securing large tracts of serviced land on schedule for their projects. The reasons for the difficulty will be discussed in detail in Chapter V. Certainly if a firm inventoried large land parcels in advance of construction it could avoid this serious constraint of the PUD implementation process. Both early adopters had inventoried between 300 to 500 acres in parcels over 100 acres each, which early adopter B considered to be the threshold size for a good PUD project. The average adopter held one tract of 300 acres. Of the late adopters, E and F held extremely large land inventories. Both of these firms believed that landbanking was fundamental to maintain an active development program in the future decades. Developer F indicated that "the larger the land area we're able to buy, the bigger the concept we can integrate in housing, shopping, recreation, and road patterns."

Late adopter G had no land inventory and its future PUD projects were delayed in the process of assembling suitable tracts. Late adopter D was involved in projects with late adopters E and F where they supplied the land out of their inventories. Within the trial category, only one late trial firm held a large land tract. The five firms, both trial firms and late adopters, without large inventories all identified the land shortage as a major impediment to their continued use of PUD. Land inventory was not a problem for the rejectors, one of whom held over 4,000 acres while the other inventoried approximately 300 acres. Their reasons for rejection relate to other areas such as information level, goals, or limitations they perceived in the innovation itself.

Adequate Supply of Capital

Financing was not identified as a problem by any of the developers regardless of innovativeness. Although nine firms utilized equity capital in some of their projects, only four developers relied solely on in-house financing for their projects. Consequently very few firms were able to act independently of external financial agencies whose influence will be discussed in Chapter V. Early adopter A, average adopter C and late adopter F were independent of lenders.

Early adopter B relied on a variety of agents such as banks, federal government, and mortgage companies depending on the type of housing. Between the late adopters, there was no uniformity of financial sources which were either banks, joint venture partnerships, insurance companies, public stock issues or the provincial government. Only the late trial firm I enjoyed full in-house financing, the others relied on mortgage companies, joint ventures, credit unions, municipalities or the federal government. The rejectors relied on those sources and on wealthy parent companies. There was no significant relationship between type of sources used and the degree of innovativeness. In spite of the reliance on external lenders, no developer indicated difficulty in achieving an adequate supply of capital as of 1971. Presumably if a project appeared to have potential for success on the market lenders would be available.

Diverse Marketing and Design Expertise

Almost all developers regardless of innovativeness, utilized diverse marketing and design expertise. All firms relied on their own

staff for marketing analysis. In addition approximately half of the developers employed local marketing consultants from time to time while approximately one-third of the firms used cosmopolitan consultants on large projects particularly when new methods like PUD were being tried. Within the adopter group, only the average adopter and the late adopter G relied solely on in-house staff. The remainder used either local or cosmopolitan marketing consultants to supplement their staff particularly when using new development methods. Developer F, a cosmopolitan firm, also used its staff from another province. Only late trial firm, K, and the rejector at evaluation, L, relied solely on in-house marketing staff. The remainder employed local marketing consultants. All firms studied the marketing success of local firms' projects. A further nine firms at differing levels of innovativeness observed the experience of cosmopolitan projects as well. Thus it appears that the majority of firms regardless of innovativeness used several sources of marketing expertise to supplement their own staff and experience.

When designing projects, the majority of firms utilized a diversified team of architects, planners and engineers, either on staff or consultants. Most firms also stressed the importance of keeping design consultants and staff in close contact with the marketing staff through all phases of a design. Only four firms limited their design expertise to one or two types of professionals such as an architect and engineer. The majority of firms regardless of innovativeness appeared to act on the principle expounded by late adopter E that "in today's complex market, the successful developer must have a host of professionals supporting him."

Summary

In the PUD adoption process, increasing innovativeness was associated with:

1. increasingly longterm project horizons
2. larger scale of development as measured by a larger number of projects overall and more medium to large acreage projects
3. inventory of large land tracts

The remainder of development status characteristics were not associated solely with the more innovative developers. A majority of developers (nine of thirteen) regardless of innovativeness were cosmopolitan. The few local firms compensated for their lack of cosmopolitan experience in various ways and were well represented at various levels of innovativeness. The vast majority of developers had long experience in the local market. The few relatively new firms compensated for their inexperience in several ways and were already at late adoption and late trial stages. In fact, degree of innovativeness tends to decrease as experience increases above the average for all developers.

Both residential specialization and use of diverse marketing and design expertise were characteristics of the majority of developers. Three of the firms that did not specialize in residential development and used only a limited marketing and design talent had still reached average and late adoption and late trial respectively. All firms claimed to have ample capital although only three adopters were actually independent of external lenders. All developers appeared to share the same marketing goals of producing a good housing environment, to maintain a

positive corporate image with consumers and local governments, and to achieve reasonable profits over the longterm. Thus it appears that the developer characteristics which facilitate PUD adoption are those that are directly connected with significant constraints in the implementation process, namely scarcity of suitable land tracts and lengthy project delays at the municipal approval stage. Developers with large scale land inventories and large projects capable of sustaining the costs of longterm involvement appear to find PUD adoption easier and more attractive.

PERCEPTION OF THE INNOVATION

In much adoption literature the innovation is regarded as being the same phenomena to all potential adopters. However, in the case of a complex landuse approach like PUD, potential adopters may actually perceive it very differently. Following Rogers' categories, it was anticipated that more innovative developers would perceive:

1. greater relative advantage of PUD over other development approaches
2. greater compatibility with the firm's past practises and corporate goals
3. decreasing complexity in understanding and implementing PUD
4. increasing divisibility into small scale trial projects
5. increasing ease of communicating PUD results to the public and approval agents.

TABLE 6
DEVELOPER PROFILE

Firm by Innova- tiveness	Range of Operations	Length of Local Experience (years)	Special- ization in Residential Development	Number of projects over 50 acres	Number of Projects	Average Length of Involve- ment (years)	Land Inven- tory in Acres	Financ- ing Difficulty	Market Expertise	Design Expertise
early adopter										
A	cosmo.	8	spec.	5	7	5+	300	indep.	diverse	diverse
B	local	8	spec.	5	10	5+	500	none	diverse	diverse
average adopter										
C	local	16	other	3	6	4.5+	300	indep.	limited*	limited**
late adopter										
D	cosmo.	11	spec.	3	4	3.5+	<100	none	diverse	diverse
E	cosmo.	3	spec.	4	8	3.5+	1500	none	diverse	diverse
F	cosmo.	4	other	3	4	2	800	indep.	diverse	diverse
G	local	12	spec.	2	3	3	<100	none	limited	limited
early trial										
H	cosmo.	23	spec.	1	2	4	0	none	diverse	diverse
late trial										
I	cosmo.	2	spec.	1	1	3+	300	indep.	diverse	diverse
J	local	8	spec.	1	5	2	0	none	limited	limited
K	local	21	other	1	3	1.5	0	none	diverse	diverse
rejector at evaluation										
L	cosmo.	11	other	1	2	3+	4000	none	diverse	limited
rejector at awareness										
M	cosmo.	20	other	1	3	7+	300	none	limited	diverse

* limited here means a developer relied only on his own staff

** limited here means a developer relied on less than two types of design professionals.

Relative Advantage

The interests and prejudices of top and middle management have been identified as an important influence in marketing decision-making by other adoption studies. In the case of PUD, a strong belief in the relative advantage of this approach over others at the top management level was instrumental in bringing the innovation to adoption despite the constraints to be detailed in Chapter V. Of the adopters, all but one head of firm appeared to believe strongly in the relative economic and environmental advantage of PUD. Although the more experienced early adopters had a slightly more negative or qualified evaluation of PUD than did less innovative firms, they were the most adamant in their overall appraisal of PUD as the superior development approach. With this conviction they had persisted with many PUD proposals before the public or the municipalities were well informed or favourable to the new concept. The average adopter doubted the advantage of the PUD approach and its assessment of the innovation was often opposed to the consensus of adopter opinion. This developer also differed from adopters in terms of development status. Its negative attitude appears to be reflected in the nature of its two projects which just barely qualified as PUDs under the necessarily broad definition used in this study. Only two of four trial firms were as strongly convinced of PUD's relative advantage. Both rejectors were just as firmly decided that PUD was of "no advantage" in their particular development operations.

Almost all adopter and trial firms appear to have appraised PUD positively from the earliest stages of the adoption process. However,

there was no way to assess the possible influence of experience on the developer's recall of his initial attitude to PUD. According to their memory, all trial and adopter firms perceived "some" advantage of PUD over other approaches upon first hearing of the innovation. At that time one-half of the developers perceived PUD as "suitable" to their projects. The remainder felt that at least "some aspects" of PUD were suited to specific projects. At the awareness stage both rejectors had already formed a negative opinion of PUD. Through the interest and evaluation stages these early opinions remained essentially unchanged for all developers.

By the evaluation stage, two advantages were repeatedly stressed, namely superior housing environments through preservation of open space and diversity of housing types, and the possibility of slightly increased densities which was more profitable to a developer in a period of rising land costs. Few disadvantages were identified. After trial and adoption, the more experienced developers were very aware of the difficulty in actually implementing a PUD proposal. However, they had not changed their opinion of PUD's superiority to other approaches. Thus it appears that a positive opinion of the innovation is formed very early in the adoption process, contrary to Rogers finding that the perception is formed primarily in the evaluation stage. A negative attitude at the early stage of awareness corresponded with early rejection of the innovation before a firm has full information or actual experience of the innovation.

Compatibility

The more innovative developers did perceive increasing compatibility of the innovation with their background and goals. As discussed earlier, a good PUD project demands a medium to large scale land tract to achieve economies of scale, to support recreational and commercial amenities, and to provide useful amounts of open space. This aspect was better suited to medium to large developers who tended to be the more innovative firms. Almost all developers regardless of innovativeness had previous experience developing various types of housing from single family detached to multi-unit apartment buildings which prepared them to some extent for the dwelling variety associated with PUD. Almost all firms regardless of innovativeness had also been acquainted with some provision of PUD amenities such as recreational facilities and open space through their previous experience of either new towns, recreational communities or townhouse developments. The scale of PUD, combined with its housing variety and amenities were perceived as more appropriate to the corporate marketing goals of the more innovative developers, namely to provide a better housing environment while attaining efficient use of costly land through slightly higher densities. All trial firms perceived the innovation to be compatible with those same goals, but they lacked the land inventory to attain it. In contrast, rejector L was "more interested" in commercial and industrial properties or the larger scale of the New Towns approach thus the PUD innovation held little advantage for this developer. Rejector M perceived the innovation to be a purely "suburban" approach, with "no advantage" in a central city

setting. As Rogers had stated, the perception of PUD compatibility was primarily a function of a firm's development status and information level. However, the implementation constraint of land scarcity in Greater Vancouver also influenced the perception of compatibility of late adopter G and trial firms H, J and K.

Complexity

External factors in the implementation process such as zoning restrictions prior to amendment 702A, 1968, had a strong influence on the perceived complexity of the innovation. For this reason the more innovative firms with greater experience in implementing PUD projects perceived the innovation as more complex to use. They perceived greater difficulty in satisfying market tastes, in educating a suspicious and poorly informed municipal council and public, and in designing the appropriate arrangement of roads, dwellings, open space and services to satisfy the municipality without raising costs excessively. Particularly prior to the late nineteen sixties, the more innovative developers perceived greater carrying costs and time loss in PUD implementation, and municipal familiarity with PUD made it appear less complex to use, particularly for later innovators.

Divisibility

The usual finding of adoption research is that standard trial of an innovation is on a smaller scale than is subsequent use, particularly in the case of earlier adopters. All firms regardless of innovativeness perceived PUD to be an easily divisible innovation but the

majority of developers trialed PUD at scales of over fifty acres.

Early adopters had the largest trial projects of over 200 acres. One late trial firm began its first project at the 300 acre scale but this was under the supervision of its partner, early adopter B. Large scale projects were usually built in successive, smaller stages to meet the market absorption rate or the developer's building capacity. Thus divisibility does not appear to be an important characteristic for more innovative developers.

Communicability

The more innovative developers did not perceive PUD to be easier to communicate to others than did less innovative firms. Most firms perceived that a PUD design would require more time and money to communicate and justify to municipal officials and the public than did conventional projects. Early adopter B had found that PUD required "very much more" time to communicate. This firm had already spent two years "educating" a municipal council as to the merits of using the PUD approach on a large scale, joint-venture with the late trial firm I. The average adopter perceived "somewhat more cost" in justifying PUD when a municipality lacked firm development guidelines or was frequently changing its mind during the approval process. Late adopter E perceived PUD as requiring "more explanation" only because it was new to the public. Late adopter D and the late trial firm J perceived the degree of difficulty to be a function of project size. Projects larger than 100 acres could take a minimum of one to two years to process through government approval

channels; however, such large projects could better support the heavy carrying costs, in late trial firm J's opinion. Late trial firm K perceived "some additional cost" varying with the particular project and municipality. Only early adopter A, late adopter G, and both rejectors agreed that PUD would not be more difficult to communicate. In their experience, all projects required a great deal of time to be processed through the various municipal departments, the civic design panel and council. However, the majority of firms perceive PUD as requiring more time and money to communicate to the public and the government. Developers did not perceive such difficulty with the consumer, largely due to their confidence that a completed PUD project could sell itself via the demonstration affect.

Summary

Developers at all degrees of innovativeness concurred on the divisibility of PUD and the difficulty of communicating the nature of the innovation to the municipality and the public. The more innovative firms, however, perceived PUD to be more compatible to their scale of operations and had a stronger belief in its relative advantage. These two positive perceptions seemed to override greater complexity in implementing PUD which the more innovative developers had experienced. Certainly in this study the PUD innovation was not perceived as the same phenomena to all potential adopters. Perceptions formed at the awareness stage persisted throughout the later stages of the adoption process. While compatibility was largely a function of a firm's

development status and information level, the perception of the other characteristics was definitely a function of external constraints such as land supply and municipal approval within the implementation process which will now be explored in the following chapter.

Footnotes: Chapter IV

¹ If only the construction of a PUD qualified as use of the innovation, the distribution would have been changed to three developers at adoption, eight at trial, and one at evaluation, one at awareness, one at rejection at evaluation and one, a rejector at awareness.

² See for example "The Centre-City PUD: a Profitable Venture" in House & Home, July, 1970, pp. 48-55.

³ E. Rogers, Diffusion of an Innovation, Free Press of Glencoe, New York, 1961, p. 110.

⁴ Ibid., p. 111.

⁵ Ibid., pp. 113-116.

⁶ Ibid., p. 22.

⁷ For further discussion, see Allan Pred, Behavior and Location Part I and II, Royal University of Lund, Sweden, 1967 and 1969.

⁸ D. Rothwell, Marketing Strategy and Its Effect on Retail Site, M.A. Thesis, University of B.C., 1970.

CHAPTER V

THE PUD IMPLEMENTATION PROCESS: EXTERNAL CONSTRAINTS ON ADOPTION

Implementation of a decision to use the PUD approach introduces a series of external conditions and agencies which can effectively delay, alter, or curtail a PUD project. These potential constraints are:

1. demand and supply conditions of the local market
2. availability of appropriate land tracts
3. design inputs and their cost
4. attitude of lenders toward innovation
5. municipal approval processing

It was anticipated that these external factors may be the most significant constraints on adoption of PUD, affecting the less innovative developers more seriously than the highly innovative firms.

MARKET CONDITIONS

Before risking capital and land on the PUD approach, a developer needs to evaluate PUD's marketing assets and liabilities in the context of local market preferences and the behaviour of competitors. Eleven potential problems and advantages were analyzed related to the variety of dwelling types; recreational, commercial, and open space amenities; reduced costs; maintenance problems and degree of regulation inherent in the approach. More innovative developers were expected to perceive greater marketing suitability of PUD.

Reduction of Marketing Risk

More innovative developers tended to have an increasingly negative or conditional estimate of the reduction in marketing risk due to the variety of dwelling types. The majority of developers believed that there would be "some" to "very much" or a reduction, however, almost all firms carefully qualified their opinions. Among adopters, half of the developers saw no reduction in marketing risk or were extremely qualified in their opinions. Early adopter B felt that risks could be reduced only if lower down-payment or dwelling prices were passed onto the consumer from savings made with higher densities per acre. The average adopter and the late adopter F perceived "no risk reduction" because they believed that, in the short term at least, single family detached homes were still the most popular form of housing and the only housing type selling well in suburban locations. Late adopter G was "uncertain" of any reduction unless a project was promoted heavily with advertising. Three firms, early adopter A and late adopters D and E expressed confidence that a wider range of housing types would cater to a broader range of age, income and lifestyle groups, contingent upon the number of each dwelling type chosen.

Early and late trial firms were more positive than adopters with three firms perceiving "some" to "very much" of a reduction in marketing risk. Late trial firm I saw "no reduction" through a variety of dwelling types, believing that lower prices and a wider range of prices could offer more marketing safety. The rejector at evaluation perceived "some

reduction," while the rejector at awareness did not know if a variety of dwelling types would help. In summary, it appears that more innovative developers tend to be more skeptical of a risk reduction due to housing variety.

Prejudice Against Higher Density Housing

Single family residents either within or adjacent to a PUD project have often expressed dislike for or opposed the inclusion of higher density dwellings such as apartments in a PUD project.¹ In Greater Vancouver, almost all firms regardless of innovativeness perceived little or no problem with potential PUD dwellers if different housing types were screened from each other by open space and other amenities, or if potential consumers were informed of the housing variety before purchase. Developers generally agreed with William Whyte that it is often the single family homeowners of conventional subdivisions adjacent to PUD who protest the loudest against the "intrusion" of higher density housing types.²

The early adopters perceived "no prejudice" if a project was well designed and buyers were warned of the location of higher density dwellings prior to sale. The average adopter, who was also a major single family realtor in the local market, rated this prejudice as "very strong" and a major constraint against combining different dwelling types. However, this developer noted that in the past this dislike may have been a function of poor design and poor screening of single family homes from townhouses, etc. Two late adopters D and F rated this prejudice

as "very strong" also. However, they made it clear that it was not project residents who were disturbed, but the residents of nearby single family neighbourhoods in suburban municipalities such as Richmond. Firm F felt that its project residents were not prejudiced against townhouse and apartment units because incomes were largely homogeneous throughout the development. Late adopter E perceived "some prejudice" and believed that many people still retain a concept of the city as consisting of neat, quiet, single family neighbourhoods. Late adopter G had experienced "no prejudice" from residents of his suburban single family-townhouse development. He believed that it was the zoning-minded planners who were most sensitive to conflict. In fact, half of the municipal planners considered citizen prejudice to be an "important" to "very important" reason for the delay in PUD adoption. They were frequently confronted with the hostility of ratepayers in single family subdivisions adjacent to proposed PUDs.

Almost all trial firms perceived "little" or "no prejudice." Early trial firm H had experienced "little prejudice" in its Vancouver City townhouse and high-rise apartment complex and felt that there would be no problem if buyers saw all the units laid out before purchase. Two of the late trial firms perceived "some dislike" which could be reduced however if designers maintained some separation of dwelling types within a project. The third late trial firm was "uncertain" of degree of prejudice but expected little problem. The rejector at evaluation responded conditionally, suspecting that only some single family buyers would see recreational facilities as compensation for

proximity to higher density dwellings. The rejector at awareness had anticipated "very strong dislike" conditional on the layout of dwellings. When the qualifying remarks are considered, almost all developers regardless of innovativeness do not perceive single family prejudice to be a marketing problem.

Competitive Edge of Amenities

In the Greater Vancouver area, ten developers believed that various amenities such as open space and recreation were an "important marketing advantage," although they were uncertain how useful these amenities would be to consumers. Nor were they yet sure of the arrangement of or the specific type of amenities that would be important. The more innovative developers did not perceive any greater advantage than did less innovative firms.

Early adopter A rated amenities of "some advantage" particularly in creating a central focus for a project, but he suspected that these amenities may not be as popular with the municipal departments as with the consumers. Early adopter B perceived an "extremely important" marketing advantage in amenities. In one suburban community "without much to offer," this adopter felt that the PUD open space and recreational facilities would be a "fantastic pull." In sharp contrast, the average adopter saw "no advantage," perceiving the single family homeowner as only concerned with elementary schools. This adopter did not consider any other groups of residential consumers.

All late adopters saw a positive marketing advantage in PUD amenities. Both late adopters D and E, who were jointly constructing

one PUD project, shared the opinion that leisure amenities were "important attractions," expected by the middle class consumer with abundant leisure time. They believed that open space attracts buyers even if it is never used. Late adopters F and G were also not convinced of the actual usefulness of amenities, but felt they might simply be a "selling tool" to compensate for reduced private open space. Developer F felt that efficient provision of high calibre amenities could only come at the larger scale of the new town or the entire municipality.

Three trial firms saw the amenities as giving PUD projects "some" to a "very good" edge over other choices on the local market. Early trial firm, H, felt these amenities to be "very important" particularly before other developers use them. This statement highlights one marketing strategy, that of introducing an innovation to upset the status quo and gain a short-term edge on competitors. Later, more specific questions concerning recreational facilities firmly established this role for amenities. The rejector at evaluation perceived the amenities as offering a "very important" competitive edge, particularly to compensate for long commuting distances to suburban projects. However, the rejector at awareness perceived "little advantage" although it was providing open space and recreational facilities in its proposed projects. In summary, almost all firms regardless of innovativeness perceived PUD amenities as a definite advantage in the Greater Vancouver market. This opinion had remained largely unchanged from the evaluation stage.

Increase in Property Values

The developers were also asked if, in the longterm, the extra amenities would increase the property values of PUD dwellings over those of similar dwellings in conventional neighbourhoods as had been observed elsewhere:

. . . residents of older, established open space communities have found one advantage that can be measured in dollars and cents. The resale value of their homes has remained high.³

Analysis of responses showed that the more innovative developers were more uncertain of the effect on property values. Both early adopters were uncertain at this point if the extra amenities would generate a relative improvement in property values. They believed that any improvement was "conditional" upon the municipal amenities already in the existing neighbourhood, on the interests of residents who purchased homes in the project, and on the cost of maintaining the PUD amenities. The average adopter foresaw "no improvement" in property values because he believed that residents would see the maintenance charges as yet another annoying tax. Only one late adopter F was uncertain whether the majority of local consumers would value or use the extra amenities. The other three late adopters perceived "some" to "very much" of an increase in property values.

The trial group all felt "very positively" about this advantage of PUD amenities. The rejector at evaluation saw amenities of "some value" if a project was large enough to create a community. The rejector at awareness was "uncertain" what effect amenities would have unless they

were properly operated and maintained. Generally those developers who were uncertain of the effect on property values were concerned about proper maintenance of amenities over time, which will be discussed in more detail in relation to municipal approval.

Advantage of Recreational Facilities

Four developers who had rated PUD amenities as an important advantage on the market did not respond to the more specific evaluation of recreational facilities. The remaining developers at all levels of innovativeness were more conservative in their evaluation of recreational facilities alone. This suggests that no one type of amenity is in itself a very strong marketing advantage, but that a combination of recreational, open space, and community services is the strongest asset of PUD, which substantiates survey findings elsewhere in the United States.

Early adopters were more guarded in their opinions than in preceding general questions concerning amenities. Early adopter B rated recreational facilities as of "some importance" as a "sales tool" provided that the facilities did not force up dwelling prices and provided that they were maintained by some form of automatic residents association. Early adopter A rated their importance as "conditional" upon their utility and their attractiveness to residents. This developer noted that all firms had to provide a "standard set" of facilities as a competitive "selling tool." From this study's survey of local projects, the "standard set" consists of young children's play equipment, swimming pool and saunas, and then possibly a tennis court, games room or clubhouse.

Both early adopters stated that it was too soon to judge which specific facilities were most useful to residents. Early adopter A preferred to contribute funds to the municipality for more efficient, large scale provision of facilities. However, when this developer had offered a contribution to the municipality while planning its first PUD project, the offer was rejected. The municipality at that time was not prepared to either match the contribution or to take the initiative in utilizing the funds. Average adopter C also believed that efficient provision of recreational facilities comes at the municipal level and thus rated PUD facilities as of "little importance" to sales. This developer foresaw maintenance problems unless condominium responsibility for the facilities was specified in advance of sales. He also doubted the actual utility of PUD recreational facilities since people did not appear to make full use of existing parks and community services.

Of the three late adopters responding, developer G saw "some" sales advantage, while developers D and F were "uncertain" of the importance of recreational facilities, although they had both rated such an amenity very highly in the general question. All three late adopters repeated that scale efficiencies were best achieved at the municipal level. They noted that the developer confronts maintenance problems, a more limited budget for recreational facilities, and the fact that such facilities went unused by project residents unless they had a low mobility radius such as the very young or old. However, one late adopter commented that involving the municipality in the provision of recreational amenities often results in higher costs and slower bureaucratic action.

Only two late trial firms, J and K, responded, still rating recreational facilities of "some importance" as they had in more general questions. Developer J repeated the theme that these facilities were only a standard "selling tool" which takes away individual initiative to create one's own diversions. The other late trial firm indicated that the quality of recreational facilities was a function of the number and value of the housing units which must support them. Presumably, the higher the dwelling unit value or the greater the number of units, the higher the quality of facilities. The rejector at awareness also rated facilities such as a swimming pool to be of "some advantage" as a standard "selling tool" which people expect to see but which they may never use.

In summary, it appears that of the firms responding, the more innovative developers were slightly more skeptical of the utility of the recreational facilities, reasoning that efficient provision of highly useful facilities comes at the municipal level. However, some facilities appeal to the eye of the consumer and will be available at a competitor's project. Consequently the "bandwagon affect" takes hold when a developer adopts the "standard set" of facilities which he sees competitors using. Few projects as yet have explored an unique feature of the project site such as wooded ravines or a stream to achieve an unusual recreational asset for strolling or for play. Such features appear to be presently overlooked either through inexperience or the lack of imaginative design. With empirical study of local consumer recreational habits and a little design ingenuity, popular, low cost,

and low maintenance recreational facilities may be developed in future.

Commercial Convenience

PUD commercial services may be a marketing asset when their proximity offers greater shopping convenience to residents than do existing facilities in the area. Again the more innovative developers were more qualified in their opinions on this feature than were less innovative firms. The majority of developers did perceive commercial services as offering "some" to "very much more" shopping convenience to project residents. However, this opinion was usually qualified with the insistence that PUD commercial services must satisfy a real need generally for low-order goods and services such as a barber or drug store.

Early adopter A noted that convenience was conditional upon a real need for the service within the development, otherwise, they were simply an over-rated "selling tool." Early adopter B rated the services as of "some convenience" to residents, however, he felt this was based on the Californian experience and not yet proven in the Vancouver market. The average adopter followed this reasoning, rating project facilities as "no added convenience" because shopping by car at regional centers was the predominant pattern of Vancouver consumers, in his opinion.

The late adopters unanimously rated PUD commercial facilities "somewhat" to "very favourably." Developers D and E saw them as being "very convenient" if they offered low-order, everyday necessities such as groceries. In their joint venture on one PUD project, the municipality

rejected such amenities preferring to see commercial facilities concentrated in a few centers. The developers, however, felt such a policy only encourages more cars, not the foot traffic which they wished to generate within their project.

Three of four trial firms perceived commercial facilities to be a "positive marketing asset." In the single PUD project of early trial firm H, services like a beauty salon and drug store had encouraged foot traffic to develop and provided another meeting place for project residents. The rejectors also rated commercial services favourably. The rejector at evaluation saw them as "very convenient" in a large project or in a suburban municipality which was undersupplied with commercial outlets such as Delta. The rejector at awareness perceived them as "somewhat more convenient" if they were well situated within a project. In summary, most developers evaluated commercial services favourably provided that they satisfied a real need for low-order goods and services. The more innovative adopters were more guarded in their evaluation than late adopters, trial and rejector firms.

Advantage of Open Space

One of the most important features of PUD is the open space which can preserve much of the natural landscape of a site. The vast majority of respondents agreed that a PUD approach enabled a firm to conserve more of the natural landscape than did a conventional subdivision. There was no significant difference in perception between developers regardless of differences in innovativeness.

Early adopters perceived "some" to "very significant" savings of the natural landscape with the PUD approach. In its first PUD proposal, developer A could have reduced road surfaces by fifty per cent if it avoided the standard sixty-six foot road allowance that would have obliterated stands of trees and buried ravines. However, the municipality would only approve the standard road layout. In its latest PUD proposal, developer B reduced roads to fifteen per cent of the site while public walkway system alone occupied twenty per cent of the site. Broad strips of tree cover and ravine parks were also saved. This developer strongly believed that in order to preserve adequate green space and a pedestrian walkway system, a project should exceed 100 acres in size.

The average adopter felt that PUD could not preserve open space without clustering homes on smaller lots than the standard subdivisions offered. However, this developer felt that reduced individual lots would conflict with current consumer preference. The two PUD projects put forward by this firm have been notably lacking in open space within the development. The developer had "piggy-backed" on nearby public open space, such as a golf course and municipal park, giving the impression of an open space development.

Of the four late adopters three rated the PUD approach as providing "some" to "extremely significant" savings in open space. They noted that "significant" savings could be made if higher density dwellings such as townhouses are included in a development. Late adopter D cautioned that natural landscape attributes could be saved only if tree

root systems, the water table and supporting plant life were not damaged or altered and this was supported by the early trial firm. In its PUD project, fifty per cent of the site was left in open space, retaining many of the original tall fir trees. However, within the first year of construction, the water table fell below the root systems, killing all the mature trees. These trees then had to be hand cleared at extra expense and replaced by trees with a very different root system. Another late trial firm had encountered numerous other hazards in conserving original plant life on a site and rated open space savings as "minimal" with use of the PUD approach. Late trial firm J rated savings as "conditional" upon the acreage and natural endowments of each particular site. Late trial firm I rated savings as "very significant" particularly when a developer has a large salaried staff which is generally more attuned to environmental considerations than to profits.

The two rejectors perceived savings as "some" to "very significant" depending on a particular site's characteristics and a good layout of homes and roads. In summary, most developers regardless of degree of innovativeness perceived a greater possibility of landscape savings with the PUD approach than with conventional subdivision designs. However, many perceived the savings as dependent upon either municipal approval of higher density dwellings, reduced road allowances, or a firm's careful handling of a site's unique ecological balance. Half of the eleven municipal planners interviewed saw clustering as permitting "some" to "very great" savings of a site's natural landscape. However, most planners indicated that this advantage of clustering depends upon a good design of

dwellings and open space layout and only secondarily on the use of higher density dwellings.

Almost all firms regardless of innovativeness perceived the natural landscape to be a positive marketing asset in Greater Vancouver. Only one early adopter responded directly to this question, perceiving the natural landscape of "some value" as it served as an attractive backdrop to homes and noticeably cooled the neighbourhood micro-climate in summer. However, this developer stressed that at this point they are only assuming that people will appreciate the landscape savings. The average adopter saw it as of "no marketing value" because of its concern with maintenance cost and responsibility. As a group, the late adopters rated the marketing advantage of the natural landscape slightly higher than did others.

Three of the trial firms perceived the natural landscape to be "somewhat" to "very" valuable as a marketing advantage although they noted that its value has not yet been proven in Greater Vancouver. Only late trial firm K saw it as of "little value" unless landscaping costs could be kept low. Both rejectors agreed that it was of "some advantage" as a marketing tool particularly to a growing minority of ecological-minded consumers.

Large Lot Preference

One drawback of increased project open space is sometimes a reduction in individual lot size which may be a negative sales feature in some communities. In the Greater Vancouver market, eleven developers

rated the preference for large individual lots to be "somewhat" to "very strong" although almost half of the firms indicated that individual home ownership was becoming less feasible economically for a growing portion of the local consumers. More innovative developers tended to share the same opinions as the less innovative firms.

Both early adopters perceived "somewhat" to a "very strong" preference for individual large lots over jointly shared open space. However, developer B indicated that a small but a growing minority of consumers in Greater Vancouver were prepared to "trade-off" reduced lot maintenance for additional benefits such as recreational facilities and lower dwelling prices. However, he noted that if the consumer could afford the large lot this would usually be his choice. The average adopter perceived an "extreme preference" for large lots, observing that condominium housing with little personal open space was selling poorly in three suburban municipalities, Richmond, Surrey and Port Coquitlam. This developer had been selling single family detached housing locally for over ten years and firmly believed that the market was not yet ready for cluster housing unless it was aimed only at renters. He felt that clustering and shared open space was contrary to the individualist philosophy of most North Americans.

Only one late adopter perceived "little" to "some preference" for large private lots. The other three perceived the market preference for large lots to be "very strong." However, both late adopters D and E anticipated a land shortage in the nineteen seventies in Greater Vancouver which would compel the public to adapt to decreased private open space.

Developer E also perceived the development of a group of young buyers and renters whose priorities for travel and leisure activities were well suited to the lower dwelling costs, low home maintenance, and additional recreational amenities of PUD. This group corresponds to the ULI observation of the "pioneer" group for new housing concepts like PUD, i.e., the under forty, well-educated, upper and middle class groups.

Of the trial firms, only early trial firm H perceived "no preference" for large lots because of the high land and mortgage costs which created a definite need to share facilities and costs. The late trial firms perceived "some" to "very much" of a preference for large lots, particularly if the consumers were raised in the country or had recently immigrated from more crowded nations. Both rejectors also felt that the majority of consumers still sought large lots when they could afford them. The rejector at awareness noted prestige has not yet been imparted to townhouses and other high density housing in contrast to the experience in San Francisco.

In summary there appeared to be little difference in perceptions of firms at differing degrees of innovativeness. From the remarks, it appears that clustered housing, condominium open space and services, and reduced dwelling prices has an appeal to two growing market segments: those who find large lot ownership increasingly more expensive and difficult to achieve, and those who welcome lower housing costs and reduced individual home maintenance which enables them to divert savings and energy into leisure activities such as travel. Further research

being conducted on the lifestyle groups within the local housing market will likely add specific detail to the consumer profiles outlined by these developers.

Reduced Yard Maintenance

All twelve firms responding to this question perceived reduced personal maintenance to be "somewhat" or "very much" of a marketing asset, appealing to a growing segment of the market who shared a leisure-oriented lifestyle. One firm summarized the advantage perceived by all, indicating that the Greater Vancouver market was in a "shakedown phase" where developers were shifting away from low quality, low priced condominium developments to higher priced, better quality projects appealing to the people who preferred to spend their time and money on activities not centered around the home. One early adopter observed that the majority of persons attracted to the reduced maintenance of condominium PUD projects were originally accustomed to maintenance free apartment living.

Reduced Improvement and Dwelling Costs

Well planned cluster layouts have often reduced a project's improvement costs by reducing street and utility lengths and the amount of site clearance and grading. The majority of firms believed that clustering would result in "some" to "very significant" savings in improvement costs in Greater Vancouver. However, two of these firms associated the savings with higher densities of seven to sixteen units per acre which are not always the norm for PUD. The trial firms were generally more conservative than either adopters or rejectors in their

estimate of savings. The five firms who perceived "little reduction" in improvement costs indicated that savings from clustering would largely be offset by new costs such as landscaping of open space or building recreational facilities.

Reduced improvement costs are important to marketing when they are passed on to the consumer in lower lot or dwelling prices. The trial firms again were generally more negative than either adopters or rejectors in their perception of reduced dwelling costs. The adopters were divided in their perception of reduced dwelling costs, half perceiving "little" or "no reduction." Early adopter A explained that the dwelling unit price is largely a function of land and construction costs thus improvement savings would have little effect on the final price. Developers J and K were skeptical that developers would pass on lower prices to the consumer, believing that the profiteering philosophy of North American business would cause them to ask whatever price the market would bear. However, developer K advised that some reduction is necessary to draw the market away from conventional single family housing. The rejector at awareness also suspected that the developers would be reluctant to pass on savings. This developer repeated the explanation of early adopter A that land costs largely determine dwelling prices, not the improvement costs.

Overplanning PUD

Some PUD projects in the United States have been criticized for appearing too well planned and regulated to the consumer. In the Greater

Vancouver market, one-half of the developers gave only conditional replies to this problem, while the remainder were equally divided in their opinions, regardless of differences in innovativeness. Generally the consensus of opinion was that overplanning or over-regulation is a function of project size, site terrain, project design, and ultimately, on the method of PUD maintenance. The larger the project, the more inward looking and uniform it may become. On a level site such as in Delta or Richmond, building and road patterns tend to dominate the landscape. In contrast, a wooded, hilly site in Port Moody or North Vancouver would break up the pattern of buildings and increase the variety of vegetation. Variety in setbacks, finishing materials or roof angles obvious in a good design can relieve much of the monotony of a project. However, one firm noted that even a team of talented designers still leaves their stamp on the landscape of a large project. Initially the rules for maintenance of shared amenities may appear restrictive to many consumers if they are unfamiliar with condominium or homes associations.

The early adopter A felt that the danger of overplanning was dependent on the design and number of the units. However, this developer noted that breaking up the row look of clustered housing costs more and developers who choose to do this would have to be reaching a high priced market. Early adopter B perceived "little problem" if every inch of space was not developed as he noticed in some Californian PUDs. However, open space left in its natural condition tended to worry mothers in his projects who preferred safe, planned play areas for their children.

The average adopter also perceived the problem to be "conditional" on the size of the project, larger projects being particularly prone to overplanning and regulation.

The late adopters were divided in their opinions. Developers E and F both anticipated "some" to "very much danger" in overplanning as project size and density increased. In contrast, late adopter G expected "no problem," perceiving some uniformity as necessary for ease of maintenance. Late adopter D was "undecided," but believed that variety could be designed into a project so that only one or two persons in a hundred would feel uncomfortable. In these cases, this developer intended to refund the money of all dissatisfied consumers.

Only one trial firm perceived "some problem" conditional on the project terrain. Early trial firm H saw "no danger" of PUD overplanning while developers J and K kept their opinions "conditional" upon an attractive design and common sense regulations for the use and care of jointly shared facilities. The rejector at evaluation felt that there was "some danger" of overplanning as he had perceived this to be the major consumer complaint against townhouse developments on the metropolitan market. However, this developer indicated that some people had already accepted regulations for the sake of better environmental management. The rejector at awareness perceived any problem as "conditional" upon the type of people that a project was designed to attract.

Summary

The vast majority of developers regardless of their degree of innovativeness perceived PUD to be positively suited to the residential

TABLE 7
MARKET CONDITIONS

Firm by Innovativeness	Market advantage of reduced personal maintenance	Reduction in improvement costs	Reduction in dwelling costs	Possibility of over-planning	Reduced market-ing risk	Dislike of Multiple family dwellings	Compet-itive advantage of PUD amenities	Increase in property values	Market advantage of recreational facilities	Market advantage of commercial convenience	Savings of natural landscape	Market advantage of natural landscape	Preference for large lots
early adopter A	very	little	little	cond.	cond.-none	cond.-none	some	DK	cond.	cond.	some	NR DK	very
B	some	some	some	little	some	-none	extreme	DK	some	some	very	-some	some
average adopter C	some -conditional	some	NR	some	none	very	none	none	little	none	none	none	extreme
late adopter D	some	some	some	DK	very	very	very	some	DK	very	some	extreme	very
E	some	little	little	some	some	some	extreme	very	NR	very	extreme	very	very
F	some	some	DK	very	none	very	some	DK	DK	some	some	some	very
G	some	some	some	none	cond.-DK	none	some	some	some	some	very	very	little -some
early trial H	some	little	NR	none	very	little	very	very	NR	very -some	some	very	none
late trial I	NR	little	little	some	none	little	very	some	NR	some	very	some	some
J	some	very	none	cond.	some	cond.	NR	some	some	cond.	cond.	very	very
K	some	little	little	cond.	some	some	some	very	some	some	little	little	very
rejector at evaluation L	some	some	some	some	some	cond.	very	some	NR	very	some	some	cond.
rejector at awareness M	some	very	little	some -cond.	DK	cond. -very	little	DK	some	some	very	some	very

market in Greater Vancouver. They perceived a marketing advantage due to the following:

1. PUD amenities such as recreational and commercial facilities
2. increased savings of the natural landscape
3. reduced personal property maintenance
4. lower improvement and dwelling costs

However, it appeared that the more innovative developers were more qualified or skeptical in their evaluations of several marketing advantages, namely reduction of marketing risk, increase in property values, and the advantage of recreational and commercial facilities. The less innovative developers who trialed or adopted PUD in the late nineteen sixties appeared to find the market conditions better suited to the PUD approach. At that time, a growing segment of the local market was demonstrating a preference for the low maintenance and lower dwelling prices often associated with condominium and PUD projects. More and more consumers were beginning to appreciate extra environmental amenities like commercial services and strip parks provided with the home. Some of these amenities such as the swimming pool and tot lots were becoming standard selling "tools" although their actual utility was not yet established. With the rapidly rising costs of land and construction, more consumers were being forced to consider cluster housing despite the local market preference for large individual lots. The more innovative developers had begun their adoption of PUD before the market conditions were favourable to many of its features. As consumer tastes shifted in the late nineteen sixties, the less innovative firms perceived more of a marketing advantage

with the PUD approach than with conventional subdivision practices. Thus it appears that market conditions were not a significant constraint retarding the adoption of PUD.

LAND ASSEMBLY

In contrast, the second stage of the implementation process involving the assembly of suitable tracts of land for a PUD project was perceived as a significant constraint on adoption by nine of the respondents. More innovative developers tended to perceive slightly less difficulty in securing appropriate land than did late adopter G and most trial firms. This was due in part to their existing inventory of suitable large land tracts as discussed in Chapter IV.

The three most frequently perceived problems were a scarcity of large land tracts in the metropolitan region, lack of adequate services of basic roads and utilities for many available tracts, and the high cost of suitable land. Three firms also noted the difficulty of securing adequate land ahead of project schedule. Two of these firms had not maintained a land bank for future building. The gradual disappearance of large land tracts for building has been largely the result of the triangular vise of Lower Mainland geography and the rapid growth of the urban population of Greater Vancouver. However, some developers feel that the scarcity has been aggravated by the activity of land speculators, either private or governmental.

The early adopters perceived "some" to "very much difficulty" in securing suitable land. Early adopter A attributed the difficulty

TABLE 8

IMPLEMENTATION CONSTRAINTS

Developer by innovativeness	Difficulty in land assembly	Difficulty obtaining lenders' approval	Importance of design team	More rapid municipal approval	Zoning as an obstacle	Best Method of Maintenance
early adopters						
A	very	none	NR	no	very	condominium
B	some	little	very	no-little	some	condo./automatic association
average adopters						
C	none	none	some	no	some	municipality
late adopters						
D	extreme	some	cond.	no	some	municipality
E	some	some	cond.	extremely	very	uncertain
F	some	none	cond.	cond.	some	auto./condo.
	none-					
G	some	none	none	DK- uncertain	very	municipality
early trial						
H	extreme	none	some	very	some	automatic
late trial						
I	very	some	some	little	very	DK-uncertain
J	very	little	extreme	extremely	some	condominium
K	very	some	very	some	very	automatic association
rejector at evaluation						
L	none	some	very	very	some	condominium
rejector at awareness						
M	none	little	very- extreme	very	NR	municipality

to the scarcity of large land tracts suitably serviced for residential development. This developer had been unable to utilize the major portion of its large land bank for eight years because the land was not yet within the municipality's sewage treatment system. The developer condemned the high cost of suitable land which it believed was being driven up by the real estate speculators interested primarily in highly profitable rapid turnover of land. The other early adopter attributed its difficulty primarily to a scarcity of land tracts exceeding 100 acres, which it considered the minimum size for a good PUD. This developer also had difficulty finding serviced land with a good location convenient to schools, shops and transportation combined with appropriate terrain for building. This was a definite problem in Surrey, Coquitlam and Pitt Meadows. In sharp contrast, the average adopter had "little difficulty" assembling land although it was not always serviced with basic roads and utilities. The close association between this development company and its large real estate arm may have facilitated land assembly.

The late adopters acknowledged "some" to "extreme difficulty" in assembling suitable land and all developers agreed that the primary problem was the scarcity of large land tracts in Greater Vancouver. Late adopters E and F also noted the scarcity of adequately serviced land and its high cost. Both developers were building large land banks in order to bypass this problem in future. Late adopter D blamed the land squeeze on the configuration of Lower Mainland geography and on the lack of a rapid transit system connecting the central city to the outlying suburbs. Late adopter G had "no difficulty" locating suitable

tracts of land, however, it had "some" difficulty supporting the cost of the land which it saw rising at ten per cent per annum. This developer recommended that the municipalities should own all land so that speculators could no longer drive up values.

Three of the four trial firms had no land inventory and had "very much" to "extreme difficulty" securing suitable land tracts. Only one late trial firm with a large land inventory faced "no difficulty." Two developers attributed the problem to high land costs and a scarcity of large tracts available when they were ready to commence a new project. Late trial firm K also had faced a lack of appropriate zoning for available land parcels. Both rejectors perceived "no difficulty" due to their large land bank. However, when they wished to add land to their existing inventories, most firms perceived a land shortage in Greater Vancouver.

In the longterm, the land shortage may hasten the adoption of PUD as consumers find the supply of individual large lots to be increasingly costly and scarce and developers experience the need to utilize land more efficiently. However, in the short term, the scarcity and the high land costs have been largely responsible for prohibiting late adopter G and trial firms H, J and K to repeatedly utilize the PUD approach in spite of their willingness to adopt. Nine of the eleven firms willing to adopt PUD have found the scarcity of suitable land to be a major constraint against adoption.

The vast majority of municipal planners concurred with the developers, perceiving the scarcity of large land tracts as an "important

reason" for the delay of PUD adoption in two municipalities and as "very important" in seven. Several developers identified the municipalities of Surrey, Burnaby, and North Vancouver as holding large inventories of highly desirable development land. However, these firms were unanimous in their opinion that the municipalities were as eager as the private speculators to make maximum profits off these properties rather than to provide properly serviced land at or near cost. The developers believe that the municipalities are sometimes contributing to the inflationary rise of land costs, contrary to the goal of the federal and provincial land assembly plans.

PUD DESIGN NEEDS

After the assembly of appropriate land, a further recommendation for a successful PUD is a diversified team of specialists in marketing, planning, architecture, engineering and landscape architecture.⁴ The majority of developers rated a diversified team as of "some" to "extreme importance" as compared to the design staff necessary for a conventional project. In marked contrast to early adopters and the trial and rejector firms, the late adopters were guarded in their opinions of the value of a diverse team.

Only one early adopter responded directly to the question, rating the design team as "very important." However, this developer added the qualification that it is possible to combine many talents in several persons, and that the range of talents needed will vary with each project and its site. The average adopter rated a diverse team as of "some

importance," although architects dominated its project design process.

Three late adopters would give only "conditional" replies while the fourth did not see a need for a diverse design team. Late adopters D, E and G felt that the developer must retain central authority on design decisions to insure the ultimate marketability of the project. Adopter E was one of the two developers who recommended the use of sociologically-oriented designers who could analyze residents' needs. Late adopter F felt that the need for a diverse design team was "conditional" on project size and he perceived some danger of creating a too sheltered, total community through too much planning.

In contrast, the trial firms rated a diverse design team as of "some" to "extreme" importance. Three of these developers also believed that they had to retain strong central authority over designers who were not as sensitive as the developer to cost-return relationships. The early trial firm was alert to the value of landscape architects and one firm also recommended that sociologists be more involved in the design process. The rejectors also rated a diversified team as "very" to "extremely important" to a good PUD project.

Almost all developers regardless of innovativeness saw "little" or "no additional" cost in PUD design as compared to conventional projects because they found that good planning lessened other costs. For example, early adopter B perceived "very much" of an increase in design costs due to the increased time and thought given to indepth planning. However in his opinion, the additional cost was compensated for by the "showcase effect" of each project because any mistakes in a project would

always haunt the future activity of the developers. This developer found that good planning could achieve lower improvement costs, faster project sell-out and lower lot and housing costs. The other adopters and late trial firms either perceived "little additional" design cost or were "uncertain" of the difference depending on a particular project. The rejector at evaluation noted that there was "possibly" a reduction in costs by co-ordinating various talents at the right time thus reducing mistakes and costly alterations later. The rejector at awareness also perceived "little additional" cost with PUD as he thought that most projects of the nineteen sixties required more extensive design investments if they were at the multi-million dollar scale. Thus it appears that the design process is not viewed as a significant constraint on the use of PUD by any developer regardless of degree of innovativeness.

FINANCING THE PUD PROJECT

After preparing a tentative design the developer may need to seek financing from sources external to the firm. Eight of the thirteen developers felt that PUD would be "little" or "no more difficult" to finance than would a standard design in spite of high interest rates and a tight money market. Generally, the more innovative developers perceived less difficulty than did less innovative firms. The majority of developers were confident that lenders had sophisticated staff, well informed and well qualified to judge PUD designs, partially as a result of the success of innovative projects in eastern Canada. The only requirement of the lender was that the innovation be reasonably suitable

to local market trends. Most developers did perceive growing lender confidence in the superiority of a PUD approach and its competitive advantage over conventional single family housing by the late nineteen-sixties.

Only two late adopters and two late trial firms perceived "some-what more" lender reluctance to finance PUD, due to the complexity of factors impinging on its marketing success and the frequently large scale of PUD requiring co-ordination of several different lenders to distribute financial risk. However, they were beginning to perceive increasing lender awareness of and confidence in quality PUD development. Thus increasing lender support, a growing market preference for certain PUD attributes, and the need to maximize the use of scarce, high cost residential land were converging by the late nineteen sixties to facilitate PUD adoption in Greater Vancouver.

MUNICIPAL APPROVAL

However, after a developer had gone through the steps of acquiring information concerning PUD, judging the market conditions, securing land and financing, and tentatively designing the project, he sometimes had to abandon the PUD or alter it significantly if it was rejected by the municipality. Lengthy approval processing had delayed many projects and increased the carrying costs thus jeopardizing its market success. When a firm's first PUD project was delayed longer than two years from time of design, the chief cause of delay in five of eight cases was the length of the municipal approval. According to developers, municipal

resistance had been the primary cause of the delay, alteration or abandonment of eleven of the eighteen PUDs planned at the time of this study. Three projects had been rejected outright. Two were altered so significantly that the developers did not consider the finished project to be a true PUD. A further two projects were only partially approved and their last stage has been postponed for five to six years. Four projects had been waiting for municipal approval for periods of two to six years.

Rate of Approval Processing

In some areas in North America, PUD projects have received municipal approval more rapidly than standard designs. Slightly less than half of the developers agreed that a PUD layout would receive "some" to "extremely more" rapid approval in Greater Vancouver. However, the more innovative developers perceived slower municipal approval. Later users of the approach in the late nineteen sixties were beginning to notice a change in the attitude of municipalities who were becoming increasingly eager for the environmental amenities promised by innovative subdivision approaches like PUD. Five of twelve municipalities stated that they were using more rapid approval as an incentive for using the PUD approach.

Both early adopters saw "little" or "no hastening" of the municipal approval process through the use of PUD. Both developers have had large projects held up by municipal debate for longer than three years. They felt they had to "educate" the council and other municipal officials concerning the merits of their PUD projects. In

both cases the projects were in relatively undeveloped sections of a municipality which had not set a development policy for these areas. The average adopter also perceived "no hastening" of municipal approval processing. It had waited six years for full approval of its trial project and was anticipating more than two years of processing for its second project.

Of the late adopters, only one developer anticipated "extremely rapid" approval with PUD, expecting that municipalities would be more receptive to its environmental amenities. However, this developer noted that municipalities tended to be slow in considering and judging any project. They had found municipal approval processing generated one of the highest costs of a project, the carrying costs on large development loans. In contrast, his partner on one PUD project, developer D, perceived "no more rapid" approval for PUD having found that the rate of approval was dependent upon the size of a project and the type of facilities it offered. Late adopter F believed that approval was "conditional" upon the municipality's guidelines and on the mixture of dwelling types in the project and in the surrounding neighbourhood. Late adopter G felt that the developer could never predict the outcome of the approval situation with any kind of approach.

The trial firms were almost unanimous in their perception of faster approval with the PUD approach. The first PUD project of the early trial firm had been delayed by lengthy approval. However, since that project proved successful, the municipality had swung to the other extreme and now expected the additional amenities of PUD from all future

developments. Two late trial firms anticipated "somewhat" to "extremely more rapid" approval because PUD projects could be easier to regulate and their development impact on an area could be more easily predicted. They noted that some suburban municipalities were finding that conventional single family subdivisions could not sustain costs of services and community amenities. Only one late trial firm perceived "little hastening" of the approval process because there were so many factors for a municipality to evaluate in a PUD project. Both rejectors perceived "very rapid" approval with PUD as municipalities were insisting on "fancier" methods of subdividing and on large scale projects that could improve the tax base of their communities. Thus it appears that the less innovative the firm, the more optimistic it is concerning the rate of municipal approval.

Reasons for Municipal Resistance

The vast majority of developers, regardless of innovativeness perceived considerable public fear and resistance to PUD for a combination of reasons. The most frequently expressed reason (by ten of thirteen developers) was municipal opposition to the mixing of dwelling types within a project. None of the municipal planners opposed a variety of housing types. However, nine of twelve planners indicated that either their council or citizens could be expected to strongly oppose the addition of PUD's multiple family housing into their community. In many municipalities planners found that residents of multiple family housing were perceived by existing citizens as being "second class

citizens" who would strain the community's services without contributing equally to the tax base. Developers stated that in most municipalities the public was reactionary and fearful that residents of multiple family housing would be noisy or transient citizens. A late trial firm recounted a common experience with a community first introduced to PUD. He found that ratepayers reacted to his proposed project with a wave of emotionalism, not with rational objections, while the council, counting votes, accepted these emotional reactions as their guideline. In the opinion of one late adopter, D, eighty per cent of council members were single family homeowners who would oppose PUD simply because it was new and different. Several adopters indicated that planning departments were highly receptive to the PUD approach but they were only advisors to council who are politically sensitive to public opinion. In six municipalities, planners approved PUD but the council had opposed it while planners in a further five municipalities perceived "some" to "a great deal" of resistance in public hearings. This is a familiar situation in PUD case studies, and may be overcome gradually if the planning departments deliberately educate their citizens with facts on the PUD approach.⁵ Ultimately the strongest argument will be the demonstrated effect of early PUD projects in Greater Vancouver.

The second most important reason for resistance as indicated by nine of the developers was the public's fear that schools would become over-crowded with children from higher density housing. In half of the municipalities, councils had expressed some opposition to PUD because they felt that residents of multiple family housing would be a burden on

municipal services in general. Although school crowding was not specifically mentioned, nine municipal planning departments had experienced public resistance based on the fear that PUD projects would attract too many people to a community.

Three other reasons were mentioned by slightly less than half of the developers: fear of a drop in the property values and the tax base in the community surrounding a PUD project and a deep mistrust of a developer's intention to build a good residential environment. As an example, one member of a suburban council had claimed to a late adopter that he always voted against anything a developer proposed, suspecting that developers must have only a profit margin as their design goal. Late adopter F amplified this comment, stating that the public seemed to feel particularly threatened by large developers. Generally he felt that the developers in Greater Vancouver have a poor reputation and have made little effort to become contributing members of their communities or to present a better public relations image. This developer felt a communications breakdown between developers and the public was the primary constraint against PUD adoption in Greater Vancouver. However, four adopters maintained that some municipalities were just as guilty — as any developer when they developed municipal lands for speculative profit rather than the community good.

In summary, it appears that the major reason for resistance within the municipality was the public's fear of a strain on community services and property values due to the addition of multiple family dwelling units to the usual single family housing. Very often this fear

was the result of emotionalism and a lack of accurate information concerning the overall project density, the number of school children in the project and the effect on property values and the tax base. However, nine planners indicated that within five years the municipalities may require that all developers provide neighbourhood services and open space in developments because the cost of services would be too much for the municipality alone to provide. Thus a PUD approach could provide a good environment, not depressing, but rather improving property values and easing the strain on municipal facilities and the public purse. Overall densities can be limited to avoid overcrowding and the landuse contract amendment of the municipal act provides the appropriate legislation to ensure that a developer creates the environment that a community desires.

Zoning Obstacles

Unless a community has enacted special PUD legislation, existing zoning bylaws can be a major constraint on PUD use. Seven of eleven municipalities noted that the lack of appropriate zoning was an "important constraint" on the use of PUD prior to the 1968 landuse contract amendment. Of the twelve developers responding, five perceived zoning as a "very significant" constraint prior to 1966 while the remaining seven developers perceived zoning as of "some significance" in retarding PUD adoption. All firms regardless of degree of innovativeness perceived zoning as a "significant problem" before the Strata Titles Act of 1966 offered a vehicle for condominium ownership and maintenance of open space and services. With the 702A amendment in 1968, the municipalities and

developers could negotiate an unique variety of dwellings and amenities to suit a particular site. However, the majority of municipal planners cautioned that this legislation was still in the experimental stages as late as 1971.

The early adopters indicated that zoning had been "somewhat" to a "very significant" constraint prior to 1968. Two of their three PUD projects proposed before this time met opposition on zoning grounds. The average adopter perceived "some difficulty" with zoning. Even in Vancouver City with its lengthy experience with a comprehensive development zoning category, this developer had learned never to try to change a site's zoning to comprehensive as the process was usually lengthy and unsuccessful.

All late adopters and trial firms agreed that zoning was "somewhat" to a "very significant" obstacle prior to 1966. Developer D felt that more amendments were necessary to avoid the spot zoning tendency of many municipalities and late adopter E felt that many municipalities were too restrictive concerning housing variety even after 1968. Late trial firm K agreed with the average adopter that prior to 1966 it was difficult even in Vancouver City to have zoning changed to comprehensive development categories. The rejector at evaluation also perceived zoning to be of "some significance" in thwarting PUD use prior to 1966. The rejector at awareness did not respond to the question.

Maintenance Responsibility

Ownership and maintenance responsibility for open space and recreational amenities is often a primary source of dispute between the

private developer and a municipality. Seven of thirteen developers felt that an automatic homes association or condominium ownership was the most satisfactory method of maintaining facilities. In British Columbia, condominium ownership is very similar to homes associations which are recommended most highly in PUD studies in the United States. Four firms, however, preferred to see the municipality administer the facilities, while a further two firms were uncertain of the best solution. The early adopters and trial firms were in disagreement with average and late adopters as to the best method of maintaining PUD amenities. Both early adopters preferred condominium or automatic homes association maintenance. They felt that the residents themselves had the strongest motivation to do a good job, whereas the "bureaucrats" from the municipalities would operate at higher costs and easily lose interest in the quality of maintenance. In contrast, the average adopter preferred municipal ownership to avoid the envy and tension which he had perceived in some communities where PUD projects were private, patrolled "enclaves." Two late adopters, D and G also wanted to see all the residents of a community share in PUD amenities through municipal ownership. However, developer D noted that municipal ownership and maintenance is seldom successful. Late adopters E and F were undecided whether municipal or condominium ownership were superior.

Three of four trial firms preferred condominium or homes associations in their developments, finding residents to be more concerned about the quality of maintenance. One developer also stressed that municipal maintenance is often more costly to residents. The fourth late trial

firm was "undecided" at this time as to the best method of maintenance. The rejector at evaluation felt that the municipalities would only want the use of the amenities but not the cost of maintaining them. The rejector at awareness was firmly decided that municipal ownership was superior. As was the case elsewhere in North America, higher costs and less concern with quality maintenance were often associated with municipal maintenance such that many developers prefer to set up condominium ownership of PUD amenities.

SUMMARY OF IMPLEMENTATION CONSTRAINTS

It appears that municipal approval is an extremely time-consuming and costly process for almost all developers. The first four adopters considered municipal resistance to be the "primary" obstacle to their adoption of PUD. The degree of difficulty perceived tends to decrease with later adoption or trial as the zoning laws and the municipal attitudes gradually changed in favour of PUD in the latter half of the nineteen sixties. Generally the problem lay with the public and the politicians who tend to be poorly informed and skeptical of residential innovations in contrast to developers and municipal planners. The public was highly suspicious of change in their community through introduction of multiple family housing and of the developers' intentions in proposing an innovative design.

Scarcity of suitable land for a PUD project was the second most significant constraint in Greater Vancouver, perceived as serious by nine of thirteen developers. For three trial firms and one late adopter it

was perceived as their "primary" obstacle to PUD adoption. Financing and designing PUD were not perceived as significant constraints by local developers.

Satisfying local market trends was a more demanding and complex problem. However, the majority of developers regardless of degree of innovativeness were confident of market acceptance of certain PUD attributes by the late nineteen sixties and early nineteen seventies. Thus, two aspects of the implementation process, land assembly and municipal approval, were perceived by local developers to be the most significant constraints on PUD adoption in Greater Vancouver.

Footnotes: Chapter V

¹ William Whyte, Cluster Development, American Conservation Association, New York, 1964.

² Ibid., 1964.

³ Better Homes and Gardens, March 1968, p. 22.

⁴ Urban Land Institute, Open Space Communities in the Market Place, Wash. D.C., 1964 and PUD: A Better Way for the Suburbs, Wash. D.C., 1971.

⁵ Whyte, op. cit., 1964.

CHAPTER VI

CONCLUSIONS AND RECOMMENDATIONS

Delay in the adoption of planned unit development or PUD in Greater Vancouver was primarily caused by external conditions and those local institutions involved in implementing the PUD approach. This was consistent with the findings of PUD research in the United States. In contrast to adoption research findings in other fields, a firm's information behaviour, antecedents and perception of the innovation were of secondary importance. The majority of developers were equally well informed about the PUD approach by 1966 and were eager to utilize it in their local projects. However, trial and adoption of PUD were often postponed for five years or longer primarily because of two external obstacles. Firstly there was a serious shortage of suitably large land tracts zoned for residential development. Assembly of such tracts for PUD took several years while land costs were sharply escalating. Secondly all developers had experienced lengthy delays or serious opposition in securing municipal approval for PUD. Prior to 1966 and 1968 there was a lack of suitable zoning provisions for a project that clustered together various types of housing, services and open space. When appropriate legislation was developed, there still remained considerable public opposition based largely on ignorance of the PUD approach and fear of change in their community. However, the influence of these

external constraints on the developers was sometimes minimized by closely related developer status characteristics such as a large land inventory, large scale operations and a longterm investment horizon. A firm conviction of PUD's relative advantage and compatibility with corporate goals at the top level of a firm's management also contributed to the persistence of the more innovative developers in their efforts to adopt.

Adopter Typology

As of 1971, less than one-half of the developers surveyed (seven of thirteen) were adopters, having either proposed or constructed two or more PUD projects. Four firms still remained at the trial stage due to the lack of suitable land for a second PUD. One firm rejected the innovation at the evaluation stage as inappropriate to their scale of development. Another developer rejected the innovation at awareness as unsuitable to its central city landholdings before fully learning of PUD's use in such locations.

Early awareness of the PUD approach did not appear to hasten trial or adoption. In contrast, the highly innovative developers generally heard of PUD later than average, but moved twice as rapidly as later adopters or trial firms to gather further information, to evaluate PUD's suitability to their projects, and then to test the approach. Often they were proposing a second or third project before they had constructed their trial proposal.

Implementation of the Innovation

A well informed, well qualified developer eager to adopt PUD was confronted with two serious obstacles generated by external conditions and/or institutions, namely scarcity of suitable land tracts and municipal delay and resistance. Almost all developers had experienced a serious shortage of large serviced tracts of land at reasonable costs throughout Greater Vancouver. One late adopter and three trial firms had to postpone adoption of PUD for two or more years due to this shortage. Unlike the earlier adopters, they had no large land inventories to allow them to bypass this constraint. However the more innovative adopters were likely to face this same problem in the nineteen seventies as their inventories were reduced. Nine of twelve municipal planners concurred with developers, in judging the scarcity of suitable large land tracts as an "important" to "a very important" constraint on PUD adoption. In these municipalities,¹ the majority of developments were less than ten acres in size. The majority of developers preferred to utilize the PUD approach on a medium (fifty to 100 acres) to large (over 100 acres) land parcel already zoned for comprehensive development and serviced by essential utilities. A good location convenient to existing schools, shops and the transportation system was also sought to increase the market appeal of an innovative project.

However, as Price's study of the building industry has also shown, Greater Vancouver is experiencing a scarcity of large land tracts, adequately serviced by roads and basic utilities, appropriately zoned for residential development and within a reasonable commuting distance

of less than one hour from Vancouver City.² Rapid population growth and the narrow configuration of the Lower Fraser Valley have generated the scarcity. However, some developers indicated that the scarcity has been aggravated by the activity of land speculators, either private or governmental. Several suburban municipalities, namely Surrey, Burnaby and North Vancouver District were criticized by some developers for attempting to obtain the maximum profit on their large inventories of highly desirable development land.

At the time of this study most municipalities with the exception of New Westminster, Surrey, and West Vancouver, had two or three PUD projects proposed or constructed in their jurisdiction. PUD did not appear to be a "suburban" phenomena as one rejector had indicated. Developers proposed the PUD approach wherever they had assembled a large land tract and where they had anticipated a market demand for a variety of housing types and services. Suburban communities such as Delta or North Vancouver District often had more agricultural or undeveloped land available than did highly urbanized municipalities like Vancouver. However, the land ownership pattern in such areas was sometimes more fragmented or the zoning was inappropriate for large residential developments. This study was unable to develop a full or accurate picture of potential locations for future PUD projects, as developers were reluctant to disclose specific details on their land assembly or development plans.

Municipal Approval

The earliest adopters, possessing sizeable land inventories, found that the primary constraint to PUD adoption was municipal delay

and resistance in approving PUD proposals. Eleven of the eighteen PUD projects proposed by 1971 were either delayed, altered considerably or abandoned during the municipal approval process. In the opinion of the developers, municipal approval is always a slow process of two or more years with large projects of any kind. However, PUD faced special opposition and the earlier a developer proposed PUD, the longer was the approval process. In this respect there was no difference between municipalities.

In general, municipal planning departments favoured more frequent use of the PUD approach. However, they could only advise not legislate, its use. The vast majority of planners and developers perceived the greatest obstacle to PUD approval to be public fear and resistance for a combination of reasons. In most municipalities, particularly where single family housing was predominant, developers and planners had incurred citizen and council antagonism to the multi-family housing in PUD proposals. Citizens were fearful that higher density housing would attract noisy and transient "second class" residents who would flood community services and schools without contributing equally to the tax base. They anticipated that property values would fall in areas surrounding a PUD project and so moved quickly to oppose "the threat" to their homes. Very often ratepayers responded to a PUD proposal with a wave of emotionalism, not with rational objections based on fact. However the council, counting votes, gave considerable weight to public fears in evaluating a PUD proposal.

Early adopters or firms trialing the first PUD project in a municipality had invested several years "educating" the local councils and citizens as to the characteristics and assets of PUD. Very often the public was not prepared to believe that a PUD project could have the same overall density as surrounding single family homes or that its open space and amenities could in future generate higher than average property values. Half of the developers had experienced a deep, sometimes irrational, mistrust of a developer's intention to build a good environment, and were alert to the need to change the public's image of shoddy, speculative development. This antagonism is common in North American PUD studies, in spite of the fact that PUD has demonstrated that it often increases property values of adjacent areas, adds desirable taxpayers, provides some amenities at no cost to the municipality, and may generate fewer school children per household than standard single family neighbourhoods.³ Within the next few years the few PUD projects presently completed can be fairly evaluated as to their assets and failings. Already by the late nineteen sixties, developers were beginning to notice a change in attitude of the municipal officials who were better informed and increasingly eager to have the environmental amenities of PUD. The experience of this study suggests that the public "information lag" will likely generate further problems for landuse innovations in future unless the developers and the planners actively educate and involve the public at the earliest stages of planning.

The second most important obstacle to municipal approval, perceived by all developers regardless of degree of innovativeness, was the lack of

appropriate zoning laws prior to 1966. Then the Strata Titles Act encouraged joint ownership of open space and services within a project. The landuse contract legislation of 1968 further permitted developers and municipalities to negotiate a flexible arrangement of services, open space systems and a variety of dwelling types for each unique site. However, use of the legislation was time-consuming and remained only experimental as late as 1971. The developers and municipalities still disagreed as to the best means of maintaining the services. Slightly more than half of the developers preferred to see condominium ownership and maintenance. The remainder preferred municipal maintenance although they acknowledged that this was often more costly and inefficient. Approval was slower when a municipality lacked firm development guidelines.

Market Approval

Appealing to the local market was not considered a problem by most developers, particularly in the late nineteen sixties. A small but growing minority of consumers preferred the sometimes lower dwelling costs and reduced personal property maintenance of PUD which freed them for a leisure-oriented lifestyle. Current research being conducted on lifestyle groups within the local market will likely add specific detail to the consumer types attracted to PUD. The preservation of open space through clustering was perceived by most developers as a definite marketing asset. This feature and the recreational amenities compensated for reduced private outdoor space, although developers were not yet convinced that all amenities would be useful to residents. With the rapidly rising

costs of land and construction, more consumers were being forced to consider clustered housing despite the local market preference for large individual lots. The less innovative developers who trialed or adopted PUD in the late nineteen sixties appeared to find market conditions better suited to the PUD approach than did the earlier adopters.

Design and Financing PUD

The designing and financing of an innovative PUD project were not perceived as constraints against adoption by any developer regardless of innovativeness. The majority of developers felt that a diversified design team was "somewhat" to "extremely more important" for a PUD project than for a conventional project. Almost all developers regardless of innovativeness saw little or no additional cost in PUD design, because they found that good planning could lessen other costs. Lenders appeared to be increasingly well informed about the PUD concept and were gaining confidence in its local market appeal by the late nineteen sixties. Generally more innovative developers perceived less difficulty in financing than did later users. The latter perceived somewhat more difficulty in co-ordinating several lenders to spread risk and in predicting market success based on many complex factors. However, they did not perceive this financing difficulty to be a constraint against PUD adoption.

Information Behaviour

In much adoption research, the subject's information behaviour has received extensive analysis, however, in the case of PUD, it was

not a significant constraint. The sole exception was developer M who rejected the approach at awareness without seeking full information. There was no significant difference between developers of varying degrees of innovativeness as to the type of sources used at different stages of adoption or to the numbers and the technical accuracy of sources. The most frequently used sources at all levels of innovativeness and at all adoption stages were housing journals and observation of PUD projects beyond Vancouver, both impersonal, cosmopolitan sources usually associated with early adopters. The firm's own staff and local marketing and design consultants were the next more frequently used sources, who had a considerable positive influence on PUD evaluation. Approximately half of the municipal planning agencies claimed to have acted as change agents, actively encouraging PUD use by the late adopter and trial firms. However, their influence was generally perceived to be minimal by the developers. Yet it was apparent to both groups that municipal change agents could hasten adoption by assisting firms in shortening the period of information gathering, assessing the innovation, assembling land and achieving municipal approval for the first trial project.

Future adoption research could benefit by concentrating on the information spread within a firm, between competing developers and between the public and private sectors. Such a focus may highlight misinformation and communications breakdowns that impede rapid adoption. For example, developers and municipal planners are generally better and earlier informed of development innovations than the community and politicians who

must eventually approve them. REsistance due to ignorance could possibly be minimized if a planning department or a developer actively promoted community education by such means as a monthly newsletter.

Development Status

The second standard variable in adoption research is the potential adopter's economic, sociological and psychological traits. In the case of PUD only three development status characteristics were found to be positively associated with increasing innovativeness. These three characteristics, namely a large land inventory, large scale operations and a longterm project investment horizon, assisted developers in overcoming the primary constraints of PUD implementation. The remaining development status traits were not associated primarily with the more innovative developers. A majority of developers at varying levels of innovativeness were cosmopolitan in operations, long experienced in the local market, specialized in residential development and used diverse design and marketing expertise. All firms claimed to possess ample capital although most relied on external lenders. Developers lacking local market experience or a cosmopolitan range of operations were able to compensate in other ways to achieve early adoption. However, a lack of land on inventory or the inability to sustain a longterm involvement in large projects were aggravated by the dominant constraints of implementation, namely, land scarcity and lengthy municipal approval.

Perception of the Innovation

As Rogers suggested, the innovation was not perceived as uniformly alike by all potential adopters. In the case of PUD, the more innovative

developers had a more negative or cautious assessment of many PUD characteristics than did less innovative developers. For example, early adopters perceived greater complexity in implementing PUD and greater difficulty in communicating its advantages to the public and to municipal governments. Early adopters had to spend considerable time and money "educating" the politicians and the public, while later adopters encountered a better informed, more favourable market and governments.

However, the top management of the more innovative firms were adamant that PUD still remained environmentally and economically superior to other development alternatives. This opinion had been formed in the early stages of awareness and evaluation and had persisted in spite of numerous implementation difficulties. Earlier adopters had also perceived the PUD approach to be highly compatible with their medium (fifty-100 acres) to large (over 100 acres) scale projects, their longterm investment horizon, and the corporate goal of providing "quality" residential environments. In contrast, the rejectors perceived PUD as incompatible with either developer L's commercial and industrial interests and "New Town" scale of development or with the central city location of developer M's landholdings.

Recommendations to Facilitate Adoption

This study showed that most developers, municipal planners, lenders, and a certain segment of housing consumers perceived definite advantages to the PUD approach. It was perceived as providing an attractive

residential environment, reducing individual home maintenance, reducing the municipal services burden, and lowering housing costs by distributing land costs over slightly higher densities. Yet, in the case of most attempts to implement the approach, one or more obstacles had delayed, deferred or halted construction.

If PUD or similar landuse innovations are to be encouraged in future, several recommendations are apparent from this study. More detailed research is required concerning the pattern and rate of information spread within the development firm, between potential adopters, and between the latter and influential external agencies such as council or ratepayers organizations. Then the patterns of communication could be improved or hastened wherever necessary. In the case of PUD, reducing the public information lag could minimize one of the principal causes of municipal delay.

After the analysis of developer status, has identified those characteristics most closely related to implementation problems, potential adopters could be assisted by change agents such as government departments to overcome their particular shortcomings. Change agents should be sensitive to creating a good first impression of an innovation at the earliest stage of awareness, since the first impression appears to persist through later stages and sometimes prejudiced information gathering and evaluation behaviour. This observation may hold true for the public's first impression of an innovation as well as for that of developers.

The value of the demonstration effect of the first several trials of an innovation should not be overlooked by potential adopters or change agents. A few developers who are best qualified and most eager to

innovate should be assisted in overcoming as rapidly as possible the external sources of resistance to the implementation of several trial projects. For example, a municipal planning department could possibly exert its influence on council and other departments to hasten the standard approval procedure. It could contact potential opponents amongst community organizations and discuss the innovation with them. The success or failure of these first trial projects should be closely observed and monitored by the community, government officials, design and marketing firms, and competing developers. If the trial proves positive, change agents could again help less innovative firms to overcome information, development status, or external obstacles to hasten trial. For example a municipality could offer its own land to private developers if they would use the innovative approach, as North Vancouver City did in 1971, resulting in the first trial PUD proposals of two developers. Since late adopters and trial firms had longer than average awareness to trial periods, efforts to hasten trial could shorten the full adoption process.

Ultimately the continued use of an innovation depends on the satisfaction of residents with their environment as well as on the developer's satisfaction with the cost-benefits return on a project. At this time this study has had to concentrate primarily on the developers' and land planners' perception of PUD. As more projects are constructed and lived in during the nineteen seventies, future research can begin to evaluate community and consumer satisfaction with the innovation. If PUD does provide open space, valuable amenities and a desirable residential environment at acceptable densities and costs, its continued use may be assured.

Footnotes: Chapter VI

¹ North Vancouver District, North Vancouver City, Coquitlam, Burnaby, New Westminster, Surrey, Delta, Richmond and Vancouver.

² Edmund Price, Housebuilding Industry in Metropolitan Vancouver, U.B.C., M.B.A. Thesis, 1970.

³ For example see: John L. Schmidt, "Conventional Zoning or PUD: Look at the Economics" in Happiness is Better Housing Environments, Washington Savings League, Tacoma Washington, 1970, p. 4., or Carl Norcross, ed., Open Space Communities in the Market Place, Urban Land Institute Bulletin #57, Washington D.C., 1966, p. 4.

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APPENDIX

PLANNED UNIT ADOPTION INTERVIEW SCHEDULE

PLANNED UNIT ADOPTION INTERVIEW SCHEDULE

Respondant's Name:

Firm:

Address:

<u>RECORD OF VISITS</u>	<u>DATE</u>	<u>TIME</u>	<u>COMMENTS</u>
-------------------------	-------------	-------------	-----------------

First:

Second:

Third:

ADOPTER CATEGORY:

1. Aware
2. Interest
3. Evaluation
4. Trial
5. Adoption
6. Discontinuance

The following questions are intended to obtain some background information concerning your company's residential land developments in the Greater Vancouver Area. If the answer categories provided are not appropriate, just write in your own replies. Otherwise, circle the number of the appropriate answer.

1. Has residential land development always been the primary source of income for your firm"

- | | |
|-----------|--|
| 1. Always | 3. Has not always been primary but it is now |
| 2. Never | 4. Has been primary but it is not now |

If it has not always been primary, in what year did it either become primary or cease to be the primary source? year: _____

2. What residential developments, if any has your firm developed outside of the Greater Vancouver area?

Projects:

Location:

Acreage:

Total # of Units

In the chronological order of their development or design (if project undeveloped), could you list the names of your company's residential land developments or designs for projects in the Greater Vancouver Metropolitan area since 1960. All developments under five acres may be excluded as can be any developments completed before 1960. The succeeding questions all refer to these projects that you list, but for the ease of recording they will be referred to by the number to the left of the project name.

- | | |
|----|-----|
| 1. | 9. |
| 2. | 10. |
| 3. | 11. |
| 4. | 12. |
| 5. | 13. |
| 6. | 14. |
| 7. | 15. |
| 8. | 16. |

For those projects under the appropriate column number, could you give the following detail:

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

Year completed
or designed:

Location:

Total acreage:

Number of
Number of units
or lots by type:

a. single family

b. duplex

c. townhouse

d. low-rise apt.
(1-3 floors)

e. medium-rise
apt. (4-7)

f. high-rise apt.
(over 7)

Gross sales
or Rental by
Unit Type:

a. single family

b. duplex

c. townhouse

d. low-rise apt.
(1-3 floors)

e. medium-rise
apt. (4-7)

f. high-rise apt.
(over 7)

If your company has ever included any of the following items in any project or design could you tick the appropriate space under the project's number?

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

Recreational
Facilities

Playground

Tennis court

Swimming pool

Bicycle Path

Golf course

Stable

Other:

Community
Services

Grocery store

Laundromat

Service Station

Regional Shop-
ping center

School site

Community
Center

Restaurant

Other:

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

Open space
exclusive of
private lots
or roads:

% of Acreage

Park

Pedestrian Path

Lake

Stream/River

Ravine

Stand of Trees

Landscaped greenbelt
between homes

between homes & road

other:

Non-Residential
land use:

Office building

Warehouse

Light mfg.

Agriculture

Other

In any of your projects, has your firm ever clustered dwelling units or lots closely together around cul-de-sacs, loop streets or courtyards thus reducing individual lots, sideyards, set-backs and road lengths?

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
Clustered dwellings

A. on cul-de-sacs

B. on loop streets

C. on courtyards

D. other:

To what degree has your firm ever experienced difficulty in securing adequate land suitable to your projects:

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
 to
 None

Little

Some

Very much

Extremely

What were the reasons for the difficulty on the projects?

- 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
1. Scarcity of large tracts of land in Greater Vancouver
 2. Lack of assembled land in advance of project schedule
 3. Lack of land with a location convenient to schools, shops or transportation
 4. Lack of site serviced by basic roads and utilities necessary to project
 5. Lack of site with a neighbourhood of a calibre to attract project's clientele

(continued)

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

6. High cost of raw land suitable to project

7. Physical site conditions unsuitable to economical development

8. Other:

Prior to designing any of your projects, what sources of market analysis did your company use for each project?

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

Firm's local staff

Firm's outside
staff

Local market
consultants

Outside market
consultants

Staff on lending
institutions

Other:

What was the basis of the market analysis for each project?

A. Past experience of local projects developed by your firm

B. Past experience of local projects developed by other firms

C. Past experience of projects outside Vancouver developed by your firm

D. Past experience of projects outside of Vancouver developed by other
firms

E. Other:

In designing each of your developments what type of design personnel did you use on each project?

[illegible]

On each of your designs or developments, to what extent has any municipality been difficult to obtain project approval from:

1. Not at all 2. Little 3. Somewhat 4. Very 5. Extremely

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

West Van.

North Van. City

Port Moody

Port Coquit.

Coquitlam

Burnaby

New West.

Surrey

Delta

Richmond

Vancouver

White Rock

(If any difficulty) what were the reasons for the difficulty?

1. Required change in zoning bylaws

2. Didn't meet utilities requirements

3. Other

What sources does your firm generally use to finance its developments?

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

Equity Capital

Banks

Trust companies

Federal Gov't.

Provincial Gov't.

Other:

The questions I would like to ask you refer to a particularly comprehensive approach to residential land development, which is often called "Planned Unit Residential Development"

1. Are you familiar with the planned unit approach to residential developments?

1. No

2. Yes

3. Maybe, sounds familiar

If Yes or Maybe, What do you understand that approach to involve?

(Hand the definition and the diagram to the respondent)

Here is a summary of the characteristics often associated with the approach. For the ease of recording I'll use the term, planned unit approach, in the remaining questions to refer to such a comprehensive development outlined there.

2. What other term, if any, do you use for that development approach?

1. Comprehensive development
2. Open space community
3. Cluster development
4. Community unit plan
5. Neighbourhood unit plan
6. Other:

3. What examples of the planned unit approach, if any, is your company aware of in North America?

- 1.
- 2.
- 3.
- 4.
- 5.

4. According to that definition, which of your projects or designs for projects would you classify as a planned unit approach? (Include only those built in Greater Vancouver in first category)

- | | |
|------------------|----|
| 1. Planned Units | 1. |
| | 2. |
| | 3. |
| | 4. |
| | 5. |
| | 6. |
| | 7 |

2. Planned units but omitting some feature of the definition (specify which)

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.

3. Planned units outside of the Greater Vancouver Area:

- 1.
- 2.

SECTION A: AWARENESS

1. In what year did your firm first learn of the planned unit approach to residential land development?
2. From what sources did your company first learn of this approach?
 1. Members of the firm's staff
 2. Local professional design consultants
 3. Outside professional design consultants
 4. Local planning department officials
 5. Local developers
 6. Outside developers
 7. Developers' convention
 8. Local planned unit projects

(continued)

9. Outside planned unit projects
 10. Journals and papers concerning land development
 11. Other
3. After your firm was first aware of the planned unit approach, what did the firm think about it?
1. It was interesting
 2. Firm wanted further information on it
 3. Thought it was NOT suited to our company's projects
 4. Thought it MIGHT BE suited to our company's projects
 5. Thought SOME ASPECTS were suited to our company's projects
 6. Other

SECTION B: INTEREST

1. After first learning of this comprehensive approach, did your company try to obtain more information on it?
1. No
 2. Yes
 3. Intended to but haven't yet

If NO, proceed to #1, Section C . . . EVALUATION

If Yes, Continue:

What sources did your firm use for further information?

1. Advice of design staff
2. Advice of local design professionals
3. Advice of outside design professionals
4. Advice of marketing staff

(continued)

5. Advice of marketing professionals locally
6. Advice of outside marketing professionals
7. Consulted with banker or other financial source beyond the firm
8. Consulted local builders and developers
9. Consulted outside builders and developers
10. Studied local planned unit projects
11. Studied outside planned unit projects
12. Journals and reports relevant to land development
13. Consulted with local planning departments
14. Other

SECTION C . . . EVALUATION

1. After learning about the planned unit approach, did your firm consider the possibility of using such a comprehensive approach in developing the company's residential land?

1. No
2. Yes

IF YES, continue to #2, Section C

IF NO, what were your company's reasons for not considering the approach any farther?

1. Present development approach is successful enough
2. Too busy to seriously consider it
3. Did not have land for development
4. Not financially prepared to consider it
5. Other

2. When your company was considering the use of a planned unit approach how well recommended was it by the following persons:

PERSONS

Not at

All Little Somewhat Very well Extremely

1. Local Municipal officials
2. Members of your firm
3. Design professionals locally
4. Local market authorities
5. Land developers in metro area

3. What advantages did the planned unit approach appear to offer your firm as compared to conventional residential development?

Not at

All Little Somewhat Much ly Extrem- Condi-
tional

1. Lower improvement costs due to clustering
2. Rapid project approval by the municipality
3. Reduced marketing risks by the appeal to a broader market
4. Amenities and services give a competitive edge over other projects
5. Can be produced in successive stages
6. Other

4. What advantages did it appear to offer to buyers or renters over conventional residential choices?

	None	Little	Some- what	Very Much	Extremely	Condi- tional
1. Reduced individual yard maintenance						
2. More of the natural landscape retained near to their homes						
3. More convenient access to local convenience shopping						
4. Increased property values due to extra amenities						
5. Convenient access to recreational facilities						
6. Other						

5. What disadvantages did it appear to hold for the firm as compared to conventional projects?

	None	Little	Some- what	Very Much	Extremely	Condi- tional
1. Required large acreages over 50 acres						
2. Higher capital investment necessary						
3. Higher marketing risks						
4. Greater difficulty getting municipality to approve non-standard design						
5. Problems settling ownership & maintenance of amenities						
6. Requires higher design costs in terms of time & effort						

(continued)

- | | None | Little | Some-
what | Very
much | Extremely | Condi-
tional |
|--|------|--------|---------------|--------------|-----------|------------------|
| 7. Requires zoning bylaw changes | | | | | | |
| 8. Requires more time and money to explain and justify to lenders, public & municipality | | | | | | |
| 9. Other | | | | | | |

6. What disadvantages did the planned unit approach appear to hold for buyers and renters?

- | | None | Little | Some-
what | Very
much | Extremely | Condi-
tional |
|---|------|--------|---------------|--------------|-----------|------------------|
| 1. Smaller individual yards | | | | | | |
| 2. Reduced privacy through sharing open space and amenities | | | | | | |
| 3. Proximity to higher density housing types | | | | | | |
| 4. Too regulated and planned for some people's tastes | | | | | | |
| 5. Other | | | | | | |

FOR THOSE WHO REMAIN AT THE EVALUATION STAGE, ask the advantages and disadvantages questions, prefaced by:

From the past experience of your company perhaps you could give me some further opinions on certain advantages and disadvantages that are sometimes associated with the planned unit approach:

SECTION C: EVALUATION

7. After evaluating the planned unit approach what decision did the company come to on using the approach in its projects?

1. Decided NOT to use it at all
2. Decided to use some of its features in their projects
3. Decided to wait some time for appropriate circumstances
4. Decided to design a PUD
5. Decided to build a PUD
6. Other

FOR THOSE WHO DECIDED NOT TO USE IT OR ARE WAITING, ASK THE FOLLOWING:

A. What conditions would be necessary before your firm would reconsider the possibility of using a planned unit approach?

1. Competing firms were using it successfully
2. We had more information on it
3. The firm was in a better financial position
4. We had suitable tract of land
5. Other:

B. For all those stopping at evaluation ask them the following hypothetical PUD questions, Section E:

From the past experience of your company, perhaps you could give me some further opinions on certain advantages and disadvantages that are sometimes associated with the planned unit approach.

SECTION D: TRIAL

1. In what year did your firm first design a planned unit project?
2. Did your firm build this proposed project"
 1. As your first planned unit project
 2. Only after building other residential projects
 3. Not at all
 4. Other

FOR THOSE WHO NEVER BUILT IT OR ONLY AFTER OTHER PROJECTS:

What were your firm's reasons for not building the project at the time it was first designed?

1. Lack of adequate financing
 2. Lack of suitable land
 3. Proposal rejected by the municipality
 4. Design did not appear to fit the housing market
 5. Other
3. In what year did your company begin to build its FIRST planned unit development?

(INTERVIEWER COMPLETE THE FOLLOWING:)

1. In the same year that the firm evaluated the PUD
2. The next year
3. Two years later
4. More than two years later

(IF MORE THAN TWO YEARS LATER:) What were your company's reasons for taking more than two years to construct the project?

(continued)

1. Housing market not ready for the planned unit project
 2. Inadequate financing
 3. Suitable land not available
 4. Length of time necessary to design project
 5. Length of time needed to get municipal approval
 6. Other
4. After the first use of the planned unit approach, to what degree was your company satisfied with the approach?
1. Undecided
 2. Not at all
 3. Little
 4. Somewhat
 5. Very much
 6. Extremely
 7. Conditional on:
5. What aspects of the project were satisfactory?
1. Rapid sell-out
 2. Return on investment was good
 3. Lower improvement costs
 4. Other:
6. What aspects of the approach were not satisfactory?
1. Return on investment did not meet expectations
 2. Slow sell-out
 3. High capital investment

(continued)

4. High design costs
5. Difficulty in getting municipal approval
6. Difficulty in getting adequate financing
7. Other:

7. After this initial (design or project) did your company definitely decide to:

1. Use the planned unit approach again in a later project
2. Seek further information before using it again
3. Decided not to use it again
4. Undecided
5. Other:

(IF FIRM USED IT AGAIN EITHER IN DESIGN OR BUILDING GO ONTO ADOPTION, SECTION E)

(IF FIRM DECIDED TO REJECT, ASK FOLLOWING:)

A. After making the decision not to use the planned unit approach, has your company ever reconsidered the usefulness of the approach in their projects?

1. No
2. Yes

(IF YES, ASK FOLLOWING:)

B. In what year did you reconsider the approach?

C. What decision did your firm come to about it?

1. Will not use it again in any projects we can foresee
2. Will look into it further before deciding
3. Will use it again if the conditions are appropriate
4. Other:

(IF FIRM HAS REJECTED OR NOT YET BEGUN A SECOND PROJECT, ASK THE FOLLOWING)

C. What conditions must be met before your company would try the planned unit approach again?

1. Other competing firms were using a planned unit approach successfully
2. Firm was in a better financial position
3. Had suitable tract of land
4. The company had more information on the approach
5. Other:

(IF FIRM HAS REJECTED, IS UNDECIDED, OR HAS NOT YET BEGUN A SECOND PROJECT, ask the advantages and disadvantages questions, ~~Section E~~ Section E. hypothetical FUD question)

From the past experience of your company, perhaps you could give me some further opinions on certain advantages and disadvantages that are sometimes associated with the planned unit approach:

SECTION E: ADOPTION

1. After your first planned unit project, what other such projects has your firm either designed or constructed?

STAGE TO COMPLETION:

PROJECT NAMES:

1. Firm considering project for a site
2. Designed probable layout
3. Proposed to municipality
4. Approved by municipality
5. Construction in process
6. Sell-out in progress
7. Sell-out completed
8. Other:

ADVANTAGES TO THE FIRM:

1. To what extent could your company reduce improvement costs by clustering dwelling as compared to the conventional layout patterns?
 1. Don't know
 2. Not at all
 3. Little reduction
 4. Some reduction
 5. Very much reduced
 6. Extremely reduced
 7. Conditional On:
2. To what degree might municipal departments and councils give more rapid approval to a planned unit project than to conventional designs?
 1. Don't know
 2. Not any faster
 3. Little faster
 4. Somewhat faster
 5. Very much faster
 6. Extremely faster
 7. Conditional on:
3. To what extent would your marketing risks be reduced by the wider range of dwelling types available in a planned unit project?
 1. Don't know
 2. No reduction
 3. Little reduction
 4. Some reduction

(continued)

5. Very reduced
 6. Extremely reduced
 7. Conditional on:
4. To what degree would your firm have a competitive edge over many other choices on the residential market due to the addition of various amenities such as open space and recreational facilities?
1. Don't know
 2. No edge
 3. Little edge
 4. Some edge
 5. Very much more
 6. Extremely more
 7. Conditional on:

ADVANTAGES TO CONSUMERS

5. To what extent would reduced individual yard maintenance be a positive sales feature for a planned unit development?
1. Don't know
 2. Not at all
 3. Little positive
 4. Somewhat positive
 5. Very positive
 6. Extremely positive
 7. Conditional on:

6. To what extent could your firm retain more of the natural landscape of a site by a planned unit approach than by a conventional development?
1. Don't know
 2. No more
 3. Little More
 4. Somewhat more
 5. Very much more
 6. Extremely more
 7. Conditional on:
7. To what extent would natural landscape features be a valuable asset in attracting residents to a planned unit project?
1. Don't know
 2. Not valuable
 3. Little value
 4. Some value
 5. Very valuable
 6. Extremely valuable
 7. Conditional on:
8. By clustering the dwellings or lots, to what degree could dwelling or lot prices be lowered as compared to those in conventional developments?
1. Don't know
 2. No lower
 3. Little lower
 4. Somewhat lower
 5. Very much lower

(continued)

6. Extremely lower

7. Conditional on:

9. By providing local commercial services within a development, to what extent would the planned unit project offer more convenience to its residents than do standard projects?

1. Don't know

2. Not at all

3. Little more

4. Somewhat more

5. Very much more

6. Extremely more

7. Conditional on:

10. To what degree could the extra amenities of a planned unit development increase the property values of its dwellings over those of conventional neighbourhood?

1. Don't know

2. No increase

3. Little increase

4. Some increase

5. Very much increased

6. Extremely increased

7. Conditional on:

11. How important would it be to sales or rentals to provide recreational facilities within a project?

1. Don't know

2. No importance

(continued)

- 3. Little importance
- 4. Some importance
- 5. Very important
- 6. Extremely important
- 7. Conditional on:

12. To what extent has reduced individual yard maintenance been a positive sales feature in the project

- 1. Don't know
- 2. Not positive
- 3. Little positive
- 4. Somewhat positive
- 5. Very positive
- 6. Extremely positive
- 7. Conditional on:

13. To what extent would a planned unit approach be more difficult to obtain lender's approval for than for a standard design?

- 1. Don't know
- 2. No more
- 3. Little more
- 4. Somewhat more
- 5. Very much
- 6. Extremely more
- 7. Conditional on:

IF MORE, WHY WOULD IT BE MORE DIFFICULT?

1. Lenders poorly informed of PUD
 2. Lenders don't have the design staff qualified to judge relative merits of PUD
 3. Tight money market
 4. Assume higher marketing risks are higher
 5. Lenders are too conservative to innovate PUD
 6. Other:
14. In planned unit projects, what would appear to be the most satisfactory method of resolving the ownership and maintenance of common amenities for both developer, municipality, and the residents?
1. Company retains ownership and maintenance
 2. Municipality always retains ownership and maintenance
 3. Municipality has an easement for public use
 4. Voluntary resident's association
 5. Voluntary resident's association hires professional management
 6. Automatic residents' association
 7. Automatic residents' association hires professional management
 8. Other
15. How important is a diversified design team, trained in marketing, land planning, architecture, and engineering to a planned unit approach as compared to the design staff necessary for a conventional development?
1. Don't know
 2. No more important

(continued)

3. Little more
4. Somewhat more
5. Very much more
6. Extremely more
7. Conditional on:

16. To what extent would the planned unit approach involve higher design costs in terms of time and/or money compared to the costs of conventional projects?

1. Don't know
2. No higher
3. Little higher
4. Somewhat higher
5. Very much higher
6. Extremely higher
7. Conditional on:

17. To what extent have zoning bylaws been an obstruction to building a planned unit project?

1. Don't know
2. No obstruction
3. Little obstruction
4. Somewhat
5. Very much
6. Extremely serious
7. Conditional on:

18. To what extent would the planned unit approach require more time and money to explain and justify to the municipality, lenders or the public?

1. Don't know
2. No more
3. Little more
4. Somewhat more
5. Very much more
6. Extremely
7. Conditional on:

19. For what reasons might the municipality be expected to offer some resistance to the planned unit approach?

1. No resistance
2. Against mixing housing types in a predominately single family area
3. Fear of overcrowding schools with children from higher density housing
4. Anticipated a drop in tax revenues
5. Fear that property values would fall in adjacent areas
6. Other

DISADVANTAGES TO RESIDENTS:

20. To what extent would local buyers or renters prefer large individual lots over jointly owner open spaces?

1. Don't know
2. No preference
3. Little preference

(continued)

4. Some preference
5. Very much preferred
6. Extremely preferred
7. Conditional on:

23. To what extent might single family dwelling residents dislike having higher density dwellings adjacent to them?

1. Don't know
2. No dislike
3. Little
4. Some
5. Very much
6. Extreme
7. Conditional on:

24. To what degree would the planned unit approach appear to be too planned and regulated for any people's tastes on the local market?

1. Don't know
2. Not at all
3. Little too much
4. Somewhat
5. Very much so
6. Extremely
7. Conditional on: