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Market and Financial Strategies

For

Housing Developers

by

David E. Dowall

July 13, 14 1988
Bangkok

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PROFESSIONAL TRAINING COURSE ON

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COURSE READER

PREPARED BY

DAVID E. DOWALL
UNIVERSITY OF CALIFORNIA, BERKELEY

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CASE STUDIES

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CHARACTERISTICS OF VARIOUS ECONOMIC STUDIES

by Anthony Downs

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James D. Vernor, ed., Readings in Market Research for Real Estate. Chicago: American Institute of Real Estate Appraisers, 1985.

Characteristics of Various Economic Studies

Anthony Downs

Farmer Jones owned 160 acres of fertile land right on the edge of a fast-growing metropolitan area. For years he had made a decent living raising vegetables; however, he was well aware that the city was creeping out toward his farm. Finally, after new homes and shopping centers began to spring up all around him and a giant super-highway was routed past his back 40, he decided that it was time to make his move.

Being a shrewd twentieth century citizen, he would not accept any offers for his land until he first "had a study made" of its potential. So he called in Appraiser Smith to do the job.

Smith's assignment seemed simple—just appraise the land. But the more he thought about it, the more perplexing it became. Should he start with a market analysis, or a highest and best use analysis, or a land use study? Or should he use a feasibility analysis, or perhaps a marketability study? Or maybe even a cost-benefit analysis? Every time he asked a colleague for advice, he learned another term which he had a hard time distinguishing from the ones he had already heard. Even consulting the textbooks was not much help, since most of these words were not mentioned at all.

Smith's confusion illustrates a growing problem in the appraisal profession. Today more and more real estate appraisers are making studies that go far beyond the bounds of normal property valuation. The complexity of current transactions means that they must devote more attention than ever to general market conditions—sometimes as much as they devote to the characteristics of the particular parcel or parcels being appraised.

As this need for broader studies of markets has grown, a confusing crop of terms to describe them has come upon the appraisal scene. Concepts of "feasibility study," "market analysis," "economic study," and "marketability study" frequently are used as if they all meant the same thing. Moreover, academic economists are further littering the verbal landscape with such terms as "cost-benefit studies" and "land use studies."

To clear a path through this terminological jungle, I propose to set forth definitions of these terms and a few others. These definitions will enable every appraiser and econo-

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mist to distinguish among the terms. The definitions are based upon the application of rigorous logic to the normal meanings of the words involved, augmented by considerable experience of Real Estate Research Corporation in carrying out all of these types of studies.

Even if not all appraisers agree with these definitions, at least they will serve as a focus for debate which, it is hoped, will eventually lead to widespread acceptance of standard meanings.

Specific Kinds of Studies and Their Traits

The terms to be discussed are: appraisal, cost-benefit study, economic study, economic base study, feasibility study, highest and best use study, land use study, land utilization study, market study, marketability study, and reuse appraisal.

To differentiate among these terms, I have identified eleven different characteristics that any given study might conceivably exhibit. . . . Each of these "fingerprint" traits can be described as follows.

Viewpoint

Some studies are conducted from the viewpoint of a private developer or investor; others from the viewpoint of the government, the public at large, or a detached observer. The viewpoint embodied in a study need not be that of the person making the study or the person sponsoring it. Thus, a government agency can sponsor a feasibility study conducted from the viewpoint of a private profit-oriented investor.

Use of a General Supply-Demand Analysis

Some studies concentrate solely upon the characteristics of a particular piece of property; others embody an analysis of the general supply-demand situation for the entire class of properties encompassing the subject property.

Consideration of Multiple Uses

In some studies, the analyst scans the economic horizon for any land uses which might prove practical at the subject site; in other cases, he considers only two or three alternative uses; and in many studies, he confines his attention to a single use—especially if the property is already improved so as to best serve that use.

Use of a Preexisting Development Concept

Many studies require the evaluating or testing of the market for a specific proposed development, such as a 25-story high-rent apartment building, or a shopping center containing 500,000 square feet including two department stores. Others require evaluation of a site for which no particular developments have been proposed, or analysis of the desirability of a general type of land use, such as housing or retail, at the site. Although the latter studies may require the analyst to assume a specific development concept, he is not given a preconceived notion from which he must build the study.

Explicit Calculation of Rate of Return on Investment

In certain studies, the analyst must carry out a complete financial analysis of capital costs, operating costs, and revenue flows in order to determine the financial rate of return that the investor or owner can achieve.

Estimation of Value

Some types of studies require the analyst to make a definite estimate of market value, but most do not.

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Allocation of Costs and Benefits to Different Persons or Groups

Studies conducted from a single viewpoint, such as that of an investor, need not distribute costs and benefits among different persons. But studies involving multiple viewpoints must take into account the fact that the persons who pay the costs do not always receive the benefits, and vice versa.

Calculation of Absorption Rates

In some cases, the analyst must determine how fast the land uses contemplated can be marketed, and convert that rate-of-sales into a schedule of land and improvement absorption over time.

Programmatic Content

Programmatic studies must specify what concrete actions can—or should—be taken at various periods in the future. An example would be a description of the steps to take before marketing a given property. Whereas a plan indicates what should or can be done, a program also provides practical recommendations about how to do it.

Consideration of Nonpecuniary Factors

Whereas some studies consider only financial or monetary costs and benefits, others take into account nonpecuniary factors. Examples of such factors are aesthetic effects, compatibility with surrounding land uses, and employment impacts upon the community as a whole. This is related to whether the study embodies one or many viewpoints.

Focus on a Specific Parcel or Property

Most of the studies which we are considering focus on particular properties, or on a single property. However, some are analyses of entire communities rather than any one part thereof. Still other studies may exhibit either type of focus.

A Short Discussion of Each Type of Study

To define the studies considered herein and to illuminate the differences among them, let us briefly examine each type, placing emphasis on the characteristics set forth above. These definitions, then, will differ somewhat from the more traditional definitions and explanations of each.

Appraisal

An appraisal is an estimate of value—usually market value. Hence it must concern a specific property, and must involve sufficient detailed analysis to arrive at quantitative answers. This means that a specific type of land use must be assumed when an appraisal of land per se is made. In some cases, it is relatively obvious which type of land use is both legal under existing zoning and will produce the highest return on the land. In that case, no detailed highest and best use study must be made. But in other cases, such a study is required as part of the appraisal, since it may not be clear just what type of use would be most profitable. Similarly, many appraisals require a detailed market study; others do not.

Whether or not an appraisal deals with a pre-existing development concept depends upon what is being appraised. If the land alone is being appraised without reference to particular improvements, then such a concept should not be used. But if vacant land is being appraised as if already developed in accordance with some concept (including

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cases where the envisioned improvements already exist on the land), then the concept must be used.

An appraisal requires estimates of absorption rates whenever it involves such a large property that marketing it is likely to take a considerable amount of time. This is typical of land on which new improvements are being constructed in units that can be sold or rented individually, such as apartment units, blocks of office space in a single building, or sites in an industrial park.

Since appraisals usually are economic in character, they do not consider nonpecuniary factors except insofar as such factors influence market value; for example, extreme ugliness may reduce the value of a home. Similarly, appraisals estimate the value of a property to a hypothetical well-informed buyer or seller; hence no allocation of costs and benefits among different parties normally is required, unless a partial interest is involved.

Finally, an appraisal per se is a specific estimate of how the market currently values a property, or would do so as of a certain date; hence it usually does not embody recommendations for action, which are essentially a part of a consultation rather than an appraisal. However, in some cases the appraiser's client may ask him to include marketing recommendations along with the appraisal, even though technically they are not part of the appraisal itself. (We will discuss this further under Reuse Appraisal.)

Cost-Benefit Study

Cost-benefit studies generally are used by public agencies to help in their decision of whether or not to construct certain capital improvements, such as expressways, shipping canals, or irrigation systems. Usually, the analysts calculate all of the benefits that a proposed improvement will create (often including nonpecuniary benefits) and weigh them against the cost of creating the improvement. Then they calculate a benefit-to-cost ratio, which must exceed 1:00 for the improvement to be considered "desirable." The benefits and costs considered sometimes include secondary impacts upon surrounding properties, as well as direct user benefits. Since cost-benefit studies reflect the effects upon many people, they embody multiple viewpoints; hence the costs and benefits should be allocated to different groups.

Economic Study

This term encompasses any analysis involving economic variables; hence it is so general that every one of the other eleven studies considered herein could be considered a particular type of economic study. Therefore, when appraisers encounter the term "economic study" in discussions or contracts, they should ask to have it replaced by a less general term, or at least have it defined very specifically to fit the particular situation.

Economic Base Study

This type of study is designed to analyze the entire economy of a given nation, region, or metropolitan area. (A single city within a metropolitan area usually is too integral a part of the whole area to be analyzed separately.) It is most frequently used to establish the framework within which city planners can develop specific comprehensive or community plans. Several approaches can be employed in making an economic base study; however, each involves classifying all of the economic activities carried out in the area into a number of categories which are then utilized in the detailed analysis. The simplest classification distinguishes "basic" activities—those with outputs primarily intended for export to other areas, such as a steel mill—from "nonbasic" or "local" activities—those with outputs mainly consumed within the subject area, such as a grocery store. The most complex classification occurs in the "input-output" approach, which requires a detailed breakdown of activities into specific industries or nonindustry group-

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ings. An economic base study does not focus on particular properties or even on particular industries, nor does it involve market analysis in the usual sense. Moreover, it is always conducted from the viewpoint of the community as a whole or a detached observer. Since it does not usually involve consideration of any specific policies, an economic base study does not describe costs and benefits of various action programs.

Feasibility Study

A feasibility study is any analysis aimed at discovering whether a specific project or program can actually be carried out successfully. Hence, every such study involves a particular development concept on a particular site. The precise nature of the analysis depends upon what is meant by "successful" accomplishment of the proposed development. In almost all situations which the appraiser might encounter, "success" implies a sufficient return on the capital required to attract private investors to carry out the development. Hence, feasibility studies nearly always involve computing the likely rate of return on investment for the one or more uses envisioned on the land involved. In many cases, this implies that a marketability study must be done as part of the feasibility study in order to discover just what uses are plausible, and what revenue flows could be expected from marketing those uses. However, a project can be *marketable* but not *feasible*. For example, analysis might show that 200 apartment units proposed for a given site could be rented quickly at the planned rental levels, but the difficulties, expenses, and time lags involved in purchasing and clearing the site would reduce the profitability of the project below acceptable levels. In some situations, such as broad urban renewal studies, feasibility studies are aimed at discovering whether a given project is "plausible" in concept (that is, seems likely to have a possible chance of success) rather than "successful" as an investment.

Highest and Best Use Study

This type of study seeks to ascertain what particular use of a given parcel will provide the maximum return on investment, within the constraints of zoning laws and other legal limitations. Hence it always involves a particular parcel, and never employs a single pre-existing development concept. In theory, the analyst "scans the horizon" for all conceivable uses and analyzes each to determine its likely rate of return. In practice, analysts mentally consider many uses but immediately reject most of them as inappropriate for relatively obvious reasons, such as incompatibility with surrounding uses, inappropriate parcel size, improper accessibility, etc. Then they study the remaining small set of uses more intensively, perhaps through market or marketability studies. This step usually eliminates several more possibilities, leaving only two or three for detailed feasibility analysis.

The necessity of considering so many uses, and carrying out so many analytic steps, makes highest and best use studies among the most complicated and difficult of all of the economic studies that appraisers must perform. As a result, many highest and best use studies are done in very abbreviated form, containing only cursory consideration of all but one or two uses, and perhaps incomplete feasibility analyses of these. Yet a true highest and best use study requires a complete financial analysis of "prototype" improvements for several uses so as to arrive at probable rates of return on investment. Such studies normally are made from the viewpoint of a single investor and do not take nonpecuniary factors into account.

Land Use Study

A land use study normally is a complete inventory of the parcels in a given community or other area classified by type of use, plus (in some cases) an analysis of the spatial patterns of use revealed by this inventory. It does not embody the viewpoint of

any particular investor, nor does it focus on any one parcel. Furthermore, no considerations of markets and feasibility normally are included in a land use study, although they may be added as supplements. In some cases, the term "land use study" is used loosely to indicate a highest and best use study, since the latter also analyzes the use of land. Confusion may also arise from the similarity of the terms "land use study" and "land utilization study," as described below. However, the distinction will remain clear if the term "land use study" is used only to denote the type of inventory described above.

Land Utilization Study

This is a specific type of highest and best use study required by the Urban Renewal Administration as part of a land utilization and marketability study, or LUMS. It has all of the characteristics of a normal highest and best use study except two. Whereas a normal highest and best use study takes into account all land uses which appear both legal and economically feasible, a land utilization study considers only those uses approved by the local public agency in charge of the renewal program. The agency may rule out certain economically feasible uses because of nonmarket constraints imposed upon the development of the land, so that it will fit into some larger plan for the surrounding area. The second difference is that a land utilization study may not involve detailed calculations of the rate of return on investment. Such calculations are not essential when the local public agency has narrowed the range of possible uses down to so few alternatives that it is relatively easy to determine whether they are appropriate to the site and which will yield the highest rate of return.

Market Study

Any analysis of a real estate market in general is a market study. Examples are a study of the demand for office space in downtown Cleveland, and an analysis of the demand for high-rise apartments in Beverly Hills. Although every market study is general because it involves more than one piece of property, it also considers only properties within certain geographic boundaries. These boundaries differ in size depending upon the type of property being considered. Usually those which are not directly competitive with some geographic area of focus are excluded. Thus, even a general market study must have some geographic referent, although it is always broader than a single property, as the above examples illustrate.

It is true that some studies that are called "market studies" consider the general market first, and then "zero in" upon the market for a specific property. However, such specifically focused studies really are marketability studies, even though each includes a general market analysis. It is the general analysis which constitutes the market study, not the focus on one property.

Every market study involves an analysis of two items. One is the present and future demand for a certain type of land use. The other is the present and future supply of competitive facilities of that type in the area. It may be conducted from the viewpoint of a detached observer or that of a private investor, but it does not involve calculating return on investment. Nor does it normally involve nonpecuniary factors (except insofar as they affect demand) or any allocation of costs and benefits. A market study often includes a land absorption analysis. It may even involve recommendations about how a certain type of improvement or a particular improvement can best be marketed under existing conditions.

Marketability Study

This type of study involves determining to what extent a particular piece of property can be marketed. Every such study analyzes the likely present or future demand

for that property and the existing and likely future supply of closely competitive facilities. It then formulates three kinds of conclusions:

The first concerns various prices at which the particular property might be sold or rented.

The second estimates the quantity, such as apartment units or square feet of office space, likely to be sold or rented per year, or other time period, at those prices.

The third discusses specific conditions, such as financing terms, sales techniques, or certain amenities, which would encourage relatively rapid sale or rental.

As noted above, almost every marketability study includes a market study of the general class of property being considered. In some cases, particularly those involving vacant land, marketability cannot be determined until some prior analysis indicates which particular possible uses should be analyzed. But such prior determination cannot be made through a complete highest and best use study. That type of study inherently requires a determination of the marketability of the property in each of several possible uses before the "optimal" use can be chosen. Hence, many marketability studies require an initial scanning of possible uses and a narrowing down to a few seemingly feasible ones without performing a full feasibility or highest and best use analysis.

Marketability studies differ significantly from feasibility studies. The former consider only the way in which the property concerned can be marketed. The latter also consider whether such marketing will be sufficiently profitable to make the deal successful. Thus, a marketability study is more complex than a market study since it includes a market study and "zeros in" on one property; it is less complex than a feasibility study since it does not involve calculating likely return on investment.

Reuse Appraisal

A reuse appraisal is an appraisal of a specific parcel based upon some use to which it is assumed the parcel will be put once the existing improvements thereon have been demolished. Reuse appraisals are almost all conducted as part of a federally financed urban renewal program; hence their nature and contents are greatly affected by the regulations and practices of the Urban Renewal Administration and local planning agencies. In most cases, the specific future use or uses assumed are furnished to the appraiser as a result of prior studies—specifically, land utilization and marketability studies. Hence, reuse appraisals generally do not include determining what uses to consider. In fact, the nature of the particular reuses considered is often significantly influenced by nonmarket constraints imposed by local planning agencies, as mentioned earlier. Moreover, reuse appraisal reports generally include specific suggestions for methods of marketing the parcels involved after they have been cleared. Hence, the typical reuse appraisal really combines an appraisal with elements of a marketing consultation. In other respects, it has the same characteristics as any other appraisal.

Characteristics Table

Table 1.1, a summary of the preceding discussion, indicates which of the traits used in this analysis are exhibited by each of the eleven kinds of studies we have considered. A "yes" indicates that a particular type of study always possesses the trait concerned; a "no" means that it never does. The other items cover most of the possibilities between these extremes. "NA" means that the trait concerned is not applicable to that particular kind of study.

Careful analysis of this table reveals that each type of study has characteristics different from any of the others. Hence, it is possible to use the table as a dictionary defining the studies and showing their distinguishing features.

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Table 1.1. Characteristics

	Nature of Viewpoint Assumed in the Study	Use of General Supply-demand Analysis	Consideration of Multiple Uses	Use of Pre-existing Development Concept	Calculation of Rate-of-return on Investment	Estimation of Value	Calculation of Absorption Rates	Programmatic Content and Recommendations	Consideration of Nonpecuniary Factors	Allocation of Costs and Benefits to Different Groups	Focus on Specific Parcel or Property	
Appraisal	private owner or investor	yes	not always	not always	yes	yes	not always	no	not always	no	yes	
Cost-benefit Study	general public or government agency	yes	no	yes	yes	no	yes	no	yes	yes	not always	
Economic Study	could be any viewpoint	yes	not always	not always	not always	usually not	not always	not always	no	usually not	not always	general term
Economic Base Study	community as a whole	no	NA	NA	NA	no	not always	not always	no	NA	no	
Feasibility Study	private owner or developer	yes	usually not	yes	yes	no	yes	not always	no	no	yes	
Highest and Best Use Study	private owner or investor	yes	yes	no	yes	no	yes	not always	no	no	yes	
Land Use Study	detached observer or general public	no	yes	no	no	no	not always	not always	not always	no	no	
Land Utilization Study	private investor	yes	yes	not always	not always	no	no	not always	no	no	yes	
Market Study	private owner or detached observer	yes	not always	not always	no	no	not always	not always	no	no	not always	
Marketability Study	private owner or developer	yes	usually not	yes	no	no	yes	not always	no	no	yes	
Reuse Appraisal	private owner or developer	yes	no	yes	yes	yes	yes	yes	no	no	yes	

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HOUSING MARKET ANALYSES

by Michael Sumichrast

James D. Vernor, ed., Readings in Market Research for Real Estate. Chicago: American Institute of Real Estate Appraisers, 1985.

Housing Market Analyses

Michael Sumichrast

Forecasting Housing Demand

The loan application packages typically supplied by builder-developers to mortgage lenders usually include some statement of demand, based on analyses of the strength of the local economy and population projections. Indeed, if there is not an optimistic outlook for local growth in population and income, and hence in housing demand, there is no point in submitting the application.

The difficulty is that lenders may believe the projections without examining the foundation on which the whole structure of analysis is built, or that they may not carefully examine the analyses themselves. There is the tendency for builders to build anything they can mortgage out of, or produce with little or no equity. Thus a builder-developer will commit himself to a parcel of land, possibly subject to getting financing, get a research study-mortgage package on a project, and then submit it to a lender. It is then up to the lender to determine whether the local market really needs more of what the builder-developer or equity investor wants to build.

In looking for a place of strong demand, builders and lenders alike want local economies that have growth potential. They also want a viable community, able to respond to the forces of growth, so that the construction will be feasible. If the community also has stability, so much the better.

The Economic Outlook

The questions asked about the economic outlook consider employment, income, and construction. Naturally, the cost and availability of money are of particular concern. The first question concerns the national outlook; the second concerns the local economy.

A variety of national outlook services are readily available from various sources. DRI, Wharton, and Chase provide the most prestigious national models. A daily reading of

SOURCE: Reprinted with permission of the author from Maur / Seldin, ed., *The Real Estate Handbook* (Homewood, Ill.: Dow Jones-Irwin, 1980), 314-337. © 1980 by Michael Sumichrast.

The Wall Street Journal or a weekly reading of *Business Week*, *Newsweek*, or *Time* provides information on the latest developments.

A regional and state model of housing starts is available at the National Association of Home Builders.

Economic-Base and Other Employment Analyses

An analysis of the local economy starts with a determination of its employment base, using the categories of the standard industrial classification (SIC) codes. An economic-base forecast uses employment rates at a given time to forecast employment changes, which are the basis for a projected change in population.

Other employment analyses can be as simple as identifying the major employers and assessing their future.

The employment opportunity analyses are useful for judging the character and stability of the community and for assessing the potential for development. In essence, both lenders and developers need to be able to judge the quality of the community. Some numbers are usually available for this purpose; the thing to do is look to the numbers and form an independent judgment as to whether there will be jobs in the community, what kind of income they will generate, and what the character and the extent of the demand for housing will be. Table 8.1 gives a summary of where to obtain various types of employment-based information.

Table 8.1. The Economic Base: What Facts to Get and Where to Get Them

Type of Information	How Measured	Where to Get Facts
Employment and unemployment	Number of people Number of men Number of women	State employment agencies Bureau of the Census State departments of economic development Manpower commissions and Federal Housing Administration (FHA)
New industries	Type of industries Number of people to be employed Wages and salaries	Department of Commerce Employment agencies Newspapers Utility companies Councils of government
Business conditions	Retail sales Department store sales Bank conditions	State tax offices *Sales Management* magazine Federal Reserve Board (national and regional) Chambers of commerce

What to look for

Economic-base analysis must not be a static collection of data. The analyst is looking for

1. Trends influencing the demand for homes
2. Changes in spending patterns
3. Changes in employment levels
4. Changes in economic levels
5. Changes in the mix of employment opportunities

What data to consider

1. General business conditions
   a. Bank debits
   b. Department store sales

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Table 8.1. (continued)

c. Opening or closing of facilities providing employment
2. Employment trends by industry
3. Trends in unemployment

Where to get it
The chamber of commerce is a good place to start—but not to stop. *Go for primary source materials.*

Population Projections and Forecasts

Typically, analysts will accept population forecasts done by demographers, which are usually supplied by planning bodies of local political bodies. States also make attempts to forecast population, as do private individuals. No single method of estimating population has shown consistently greater accuracy. Evidence also shows that a lower average error can be obtained by averaging several estimates made by different methods.

Methods. There are probably as many as two dozen methods for small-area population forecasting. Of these, four are the most consistently recommended (see table 8.2).

The summary of forecasts is a very important step in housing analysis, but it should not be an overwhelming issue. The analyst need not become a demographer and go into the great detail that accompanies population forecasting. The methods described in table 8.2 should serve more as a reminder that such methods are available. There are many more than those described, some of which are very complicated.

Table 8.2. Housing Market Data and Sources for Population Forecasts

Method of Estimating	How Measured	Where to Get Data
Housing inventory method	1. Census of Housing 2. Update by a. Completed units by type b. Adjust for net removals c. Adjust for change in vacancies 3. Determine housing by a. Home ownership b. Renters 4. Apply average number of persons per: a. Owner b. Renter	Bureau of the Census Dept. of Housing and Urban Development annual metro surveys Building permit office Lagged relations of permits to completion if completions not available Permit office for removals; check census for trends Census of Population Building owner's association for vacancies
Labor participation rates	1. Employment by industries 2. Projection of employment 3. Trends of employment, men and women 4. Develop participation rates and trend 5. Translate into population	State employment service Planning boards Local economists at banks, industries, etc. Chamber of commerce Utility companies *Sales Management*

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Table 8.2. (continued)

School enrollment participation rates	1. School population, past 2. School population, present and expected in future 3. Translate into population using census school enrollment techniques for population 4 through 15 years old	School boards Parochial schools Individual private schools Bureau of the Census
Vital rates	1. Trends in birth and death rates for small area; to estimate, follow trends of the state, metro area, or region 2. Get actual birth and death rates to obtain separate population estimate 3. Average both methods 4. Deduct or add military personnel 5. Allow for in- and out-migration by using census techniques	Bureau of the Census State health departments County clerk Utility companies Planning boards

Before accepting the forecast, the forecaster should

1. Review the numbers for consistency. Do they make sense? Is this forecast possible? What is the record of the forecasting agency?
2. Make sure he is getting the same data from various sources. Sometimes the data base in various forecasts is quite different.
3. No data should be accepted as fact. The data should be verified and the validity of the source assessed.

Household Projections

Population estimates such as those discussed can be translated into demand for new homes. Using an estimated number of persons per household, the raw population data can be translated into a forecast of new household formations (table 8.3).

Table 8.3. Population and Household Growth in Montgomery, Maryland, 1960-1990

Year	Population	Household Size	Households
1960	340,900	3.65	92,400
1970	522,800	3.30	156,700
1975	572,100	3.05	185,600
1980	600,000	2.86	206,000
1985	635,000	2.73	230,400
1990	686,000	2.70	250,000
Increase			
1960-70	181,900	—	64,300
1970-80	77,200	—	49,300

Table 8.3. (continued)

1980-90	86,000	—	44,000
1980-85	35,000	—	24,400
1985-90	51,000	—	19,600
1970-90	103,200	—	93,300

Source: U.S. Bureau of the Census, *Census of the Population*, 1960, 1970; U.S. Department of Commerce, Bureau of Economic Analysis; Metropolitan Washington Council of Governments.

Quantitative Housing Demand

Effective quantitative housing demand uses the household projections as a base from which an annual demand for housing is derived. This procedure is presented in table 8.4.

Table 8.4. Forecast of Quantitative Housing Demand, Montgomery County, Maryland, 1974

Step	Item	Total	For Sale	For Rent
1.	Projected household increase[a]	6,365	3,820	2,545
2.	Net removals (0.68% of the standing inventory of 182,128)[b]	+1,236	+136	+1,100
3.	Gross demand (1 + 2)	7,601	3,956	3,645
4.	Available vacancies[c]	5,040	810	4,230
5.	Normal vacancies (0.8% ownership; 5.4% rental)[d]	4,040	780	3,260
6.	Excess of vacancies (4 − 5)	1,000	30	970
7.	Quantitative demand (3 − 6)	6,601	3,926	2,675
8.	Units under construction[e]	7,500	3,600	3,900
9.	Normal rate of construction[f]	5,500	3,000	2,500
	Sales, 10 months (4,500 units)			
	Rentals, 12 months (2,500 units)			
10.	Excess of new construction (8 − 9)	2,000	600	1,400
11.	Net demand (7 − 10)	4,600	3,326	1,275
12.	Annual demand	4,600	3,326	1,275

a. Between 1960 and 1970, Montgomery County past production activity shows that 46% of all units were single-family units and 64% were multifamily units. During that time 85,388 units were produced, of which 39,054 were single-family units. The high ratio of multiples was due to two years of unusually heavy multifamily activity. In 1966 and 1967, because of redefinition of zoning for apartment hotels, activity just before the cutoff date soared to record levels. These two years, therefore, are not typical. More in line with past activity are the years 1968, 1969, and 1970, when single-family units accounted for about 60% of the total. This share was expected to continue and was used in this table.
b. Net removals have been estimated at 0.68% of the average annual inventory (midpoint in a year). Most of the removals occurred in multifamily units.
c. Vacancies were derived from updating the 1970 census. When the census was taken on April 1, 1970, the data showed a relatively low number of vacancies. The census data were updated for the balance of 1970 and through 1974. There have been rapid increases in vacancies since the April date.
d. The high mobility rate in Montgomery County puts the "normal" vacancy rate at 0.8% for homeowners and at 5.4% for renters.
e. Units under construction derived from FHA, *Unsold Inventory Survey*. Data were adjusted to reflect all inventory, not only inventory in projects as defined by FHA.
f. Normal rate of construction is an estimate derived from past historical relations and the rate of absorption for the period 1970-73.
Source: Michael Sumichrast and Maury Seldin, *Housing Markets* (Homewood, Ill.: Dow Jones-Irwin, 1977). © 1977, Dow Jones-Irwin.

Constraints Affecting Housing Demand. The arithmetic presented in table 8.4 shows a demand for 4,600 new units for 1974. This is substantially below the levels of production in 1971, when 10,554 units were given building permits, or in 1972, when permits accounted for 10,380 units. Even production in 1973 was considerably higher, at 7,625 units.

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Under normal conditions, the forecast of 4,600 units does not seem out of line. But examining the numbers clearly suggests a great deal of overbuilding, slow-moving inventory, and erosion of the economic base. The booming economy was just about to bust.

In addition, Montgomery County had started to experience the impact of a sewer moratorium which began in 1970. This sharply curtailed production had caused builders to move their new-housing efforts to nearby Virginia. Too, the expectation of a tapering of the economic boom brought about a fear of changes in interest rates and a decrease in mortgage funds. This has always had an immediate impact on housing production.

Net demand should be adjusted to such interference with market forces. This, of course, is easier said than done, since to a large extent it involves judgment on how severe an impact these variables may have on production. To put the impacts in a model using regression analysis is not practicable because some of the impacts are difficult to quantify. In addition, not enough experience has been accumulated to come up with a good impact measure as far as sewer moratoriums are concerned. The impact varies from place to place, depending on the enforcement in any particular area.

What is needed is a line item that would translate net demand into net effective demand, or units that will be absorbed, given the local economy and allowing for adjustments in supply. One way of doing this is presented in table 8.5.

Table 8.5. Net Effective Demand, Montgomery County, Maryland, 1974

Item	Number of Units		
	Total	For Sale	For Rent
Net demand	4,600	3,326	1,275
Adjust for 1% increase in mortgage rates	−500	−400	−100
Adjustment for changes in employment, 4,100 × 88% index	3,610	2,575	1,035
Adjust for sewer moratorium, 45%	1,620	1,160	460
Net effective demand for 1974	1,990	1,415	575

Source: Michael Sumichrast and Maury Seldin, *Housing Markets* (Homewood, Ill.: Dow Jones-Irwin, 1977). © 1977, Dow Jones-Irwin.

A Short Method for Determining the Strength or Weakness of Housing Demand

Suppose that an investor wants to verify quickly whether there is a market for, say, 500 new homes, with construction starting in the next three months and spread over the next two years. A few numbers could give a clue to the situation. The quick answer could suggest strongly that a more thorough examination should be made before proceeding, or it may verify what the investor already knows: that the market is viable and that he or she should proceed.

For single-family (for-sale) housing, a short method of demand analysis is shown in table 8.6.

Segmented Analysis

This section breaks down the housing market into site and product analysis. It is designed as a practical application of a market analysis to a specific problem and is illustrated with examples.

Segmented Demand by Income

Housing needs are not synonymous with housing demand. A poor area may have great needs but little demand for the housing that can be supplied. Much demand for new housing is caused by upgrading and mobility.

-20'

Table 8.6. Example of the Short Method for Determining the Market Situation of New For-Sale Housing, Fairfax County, Virginia, January 1, 1975

Ratios	Units	Current Ratio	Ratio Signifying Overbuilding Market	Rating
1. Unsold completed new homes	2,220			
as a percentage of:				
a. For-sale units, annual production	5,328	42%	25%	Too high
b. Houses currently under construction	2,640	119%	100%	Too high
c. Annual starts (not available)			250%	
d. Unsold units under construction	2,297	103%	100%	Too high
2. Unsold houses under construction	2,297			
as a percentage of:				
e. Total houses under construction	2,640	87%	75%	Too high
3. All unsold houses	4,517			
Completed	2,220			
Under construction	2,297			
as a percentage of:				
f. For-sale annual production	5,328	85%	40%	Too high
4. Presold units as a percentage of				
g. All completed new units. (Sample only: 817 presold to 4,628 completed.)		17%	30% or below	Too low

Source: Michael Sumichrast and Maury Seldin, *Housing Markets* (Homewood, Ill.: Dow Jones-Irwin, 1977). © 1977, Dow Jones-Irwin. All ratings are negative, signifying a severe overbuilding situation.

Incomes determine the price level of the units that can be absorbed. Combining data on incomes with the price ranges of the new homes being built and the homes being sold should give sufficient detail as to the potential price ranges of the houses that are likely to be in demand. The nine steps below illustrate how this can be done.

Step 1. Get the income distribution of the families of the area under investigation. This can be in the form presented in table 8.7 or another similar form.

How to interpret the data:

1. There was a significant drop in the number of families with incomes under $9,999. This income group decreased from 55,274 in 1970 to 30,600 in 1974—a drop of 45%.
2. The major growth was in the income categories of over $25,000, from 9,888 families in 1970 to 22,400 families in 1974—an increase of 126%.
3. The largest single income category remained between $15,000 and $24,999, 32.1%, or 53,600 families, in 1974. But even this category increased 16% since 1970.
4. Overall, there was a significant improvement in incomes, suggesting a better support for housing purchases in the future.

Step 2. Get a reading on what is being built, by price ranges. This is shown in the first two columns of table 8.8.

Step 3. Get a reading on how well the price ranges of new homes are selling by price range. This is illustrated in the last two columns of table 8.8.

Table 8.7. Distribution of Family Income, Prince George's County, Maryland

	1960		1970		1974		Average Annual Change, 1960-1970		Average Annual Change, 1970-1974	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number[a]	Percent
Total families	87,453	100.0%	163,400	100.0%	166,700	100.0%	7,595	8.7%	700	0.4%
Family income										
Under $4,000	10,848	12.4	9,820	6.0	4,700	2.8	−103	−1.0	−1,100	−11.2
$4,000-$4,999	7,276	8.3	4,108	2.5	3,400	2.0	−317	−4.4	−200	4.9
$5,000-$7,999	30,921	35.4	21,224	13.0	9,900	5.9	−970	−3.2	−2,500	−11.8
$8,000-$9,999	15,962	18.3	20,122	12.3	12,600	7.6	416	2.6	−1,700	−8.5
$10,000-$11,999	17,853	20.4	21,925	13.4	16,800	10.1	3,410	19.1	−1,100	−5.0
$12,000-$14,999			30,028	18.4	24,400	14.6			−1,300	−4.3
$15,000-$24,999	3,918	4.5	46,285	28.3	53,600	32.1	4,237	108.1	1,600	3.5
$25,000-$34,999	675	0.8	9,173	5.6	17,200	10.3	921	136.5	2,700	29.4
$35,000-$49,999					4,200	2.5				
$50,000 and over			715	0.4	1,000	0.6			60	8.4
Not reported	—	—	—	—	18,900	11.3	—	—	—	—
Median income	$7,344		$12,450		$15,400					

Note: Family income not adjusted for inflation. Data in boxes are used in table 8.9.
a. Rounded to the nearest 100. Figures under 100 rounded to the nearest 10.
Source: U.S. Bureau of the Census, *Census of the Population*, 1960, 1970; Washington Center for Metropolitan Studies; Metro Metrics, Inc.

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Table 8.8. Completed New Single-Family Units, Washington, D.C., SMSA and Prince George's County, Maryland (percentage by price range)

Price Ranges	Washington SMSA	Prince George's Co., Md.		Prince George's Co. Unsold Units	Interpretation
$25,000-$27,499	1.1%				
$27,500-$29,999	5.6				
$30,000-$34,999	7.9	13.9	30.8%	72%	Very slow sales
$35,000-$39,999	11.1	16.9		65	Slow sales
$40,000-$4,999	14.5	22.2	41.7	55	Slow sales
$45,000-$49,999	9.9	19.5		67	Very slow sales
$50,000-$59,999	19.9	15.0		53	Slow sales
$60,000-$69,999	17.0	8.0	27.5	45	Mediocre sales
$70,000 and over	13.0	4.5		40	Reasonably good sales
Total	100.0%	100.0%		60% (average)	Bad sale situation in all categories

Source: FHA, Washington, D.C. Insuring Office, Form 2398S, 1975.

How to interpret steps 2 and 3 for Prince George's County:

1. Over 40% of all new single-family units built were in the middle price range, between $40,000 and $50,000.
2. About 30% of all units built were under $40,000.
3. More than 27% of the units were over $50,000.
4. The cheapest units did not sell as well as the most expensive units.
5. No single price range was selling well. This was a strong indication of a bad market.

Step 4. Recap the changes in families from income groups (extract the data from the boxes in table 8.7), as shown in table 8.9.

Table 8.9. Number of Families with Income over $15,000, Prince George's County, Maryland, 1974

Income Bracket	Families		Average Annual Change in Families, 1970-1974
	Number	Percent	
$15,000-$24,999	53,600	32.1%	+ 1,600
$25,000-$34,999	17,200	10.3	+ 2,700
$35,000-$49,999	4,200	2.5	
$50,000 and over	1,000	0.6	+ 60
Total	76,000	45.5%	+ 4,360

Source: U.S. Bureau of the Census, *Census of the Population*, 1960, 1970; Washington Center for Metropolitan Studies; Metro Metrics, Inc.

How to interpret the data: The income distribution indicates that the lower end of the single-family detached housing market is by far the strongest. At $20,000 income, the midpoint of the $15,000-$24,999 range, with a 2.5 price/income ratio, the market for $50,000 units has the greatest potential. The strong market ranges down to $40,000, if it can be built, and up to $60,000, which is thinning out and approaching the next category.

Step 5. Match incomes to loans (using a ratio of either 2 or 2½ times the family income). This is shown in table 8.10.

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Table 8.10. Conventional Mortgage Loan Ranges, Prince George's County, Maryland, 1974

Income Bracket	Debt-Free Loan Range @ 2 Times Income	Debt-Free Loan Range @ 2½ Times Income
$15,000-$24,999	$ 30,000-$50,000	$ 37,500-$62,500
$25,000-$34,999	$ 50,000-$70,000	$ 62,500-$87,500
$35,000-$49,999	$ 70,000-$100,000	$ 87,500-$125,000
$50,000 and over	$100,000 +	$125,000 +

How to interpret the data: Family incomes in the ranges shown in table 8.10 are considered viable potential new-home purchasers. Most lenders operate within the following guidelines in accepting mortgage loan applicants:

1. Conventional loans are made at two times gross income.
2. The Federal National Mortgage Association and the Federal Home Loan Mortgage Corporation set the guidelines in their underwriting, and 80% to 90% of the lenders use these guidelines so that they can package and sell loans to these two agencies.
3. Another measure used for conventional loans is that 33% of gross family income can be used for PITI (principal, interest, property taxes, insurance) and outstanding debts that have more than six months of payment remaining to be made.
4. FHA and Veterans' Administration (VA) loans are handled under more liberal terms. Loans can be made at 2½ to 3 times gross income.
5. At a $15,400 median family income, a family without debts could qualify for a $31,000 conventional mortgage loan or a $46,000 VA mortgage.

Step 6. Blow up the 45.5% total of income groups considered in table 8.9 to 100%. Table 8.9 shows that 32.1% of all families in Prince George's County had incomes of between $15,000 and $24,999. Altogether, about 45.5% of all families in the country do not have income high enough to be considered potential home buyers. Thus, more than one half of all families do not have income high enough to be considered potential home buyers. Using a universe of families with incomes over $15,000, or 76,000 families (table 8.9), the 45.5% income group is increased to 100%, as shown in table 8.11.

Table 8.11. Conversion of Percentages of Four Categories of Incomes to 100%

Income	Percent of All Families		Converted to Percent
$15,000-$24,999	32.1%	=	70%
$25,000-$34,999	10.3	=	22
$35,000-$49,999	2.5	=	6
$50,000 and over	0.6	=	2
Total	45.5%	=	100%

Source: Michael Sumichrast and Maury Seldin, *Housing Markets* (Homewood, Ill.: Dow Jones-Irwin, 1977). © 1977, Dow Jones-Irwin.

Step 7. Using *Sales Management* data or a finer breakdown of incomes from a county office (or an update from the decennial census), a more detailed breakdown of each income group is derived. The income group and home price (or home loan) ranges have been identified in table 8.10 for either 2 or 2½ times the family income. When the largest group, families making between $15,000 and $24,999 annual income, is broken down, it

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is found that the 70% of families in this price range have the potential to qualify for the price range of homes shown in table 8.12.

Table 8.12. Breakdown of $15,000-$24,999 Income Group to Qualify Families for Certain Price Ranges of Homes (using two times income ratio)

Price Range of Homes	Percent of Families in Group Who Could Qualify for These Homes
$30,000-$34,999	23%
$35,000-$39,999	20
$40,000-$44,999	15
$45,000-$49,999	12
Total	70%

Source: Michael Sumichrast and Maury Seldin, *Housing Markets* (Homewood, Ill.: Dow Jones-Irwin, 1977). © 1977, Dow Jones-Irwin.

Step 8. Break down the remaining income groups into various price ranges of homes. The distribution of the price ranges of the homes for which the balance of the income groups could qualify is indicated in table 8.13.

Table 8.13. Percentage of Families Who Could Qualify for Homes in Price Ranges over $50,000 (using two times income ratio)

Income Bracket	Price Range of Homes	Families Who Could Qualify for Homes
$25,000-$34,999	$50,000-$59,999	12%
$35,000-$49,999	$60,000-$69,999	10
$50,000 and over	$70,000 and over	8
Total		30%
Grand total, exhibit 12 and exhibit 13 totals		100%

Source: Michael Sumichrast and Maury Seldin, *Housing Markets* (Homewood, Ill.: Dow Jones-Irwin, 1977). © 1977, Dow Jones-Irwin.

Step 9. Recap the average annual demand and the price ranges. The annual demand for Prince George's County between 1976 and 1980 was estimated at 5,860, or a total of 29,300 for the period. Of this total, the demand for single-family homes was estimated at 19,000, or 3,800 annually. The demand for single-family homes by price ranges is shown in table 8.14.

Table 8.14. Projected Demand for Single-Family Homes by Price Ranges, Prince George's County, Maryland, 1976–1980

Price Range	Percent	Number
$30,000–$34,999	23%	870
$35,000–$39,999	20	760
$40,000–$44,999	15	570
$45,000–$49,999	12	460
$50,000–$59,999	12	460
$60,000–$69,999	10	380
$70,000 and over	8	300
Total	100%	3,800

Source: Michael Sumichrast and Maury Seldin, *Housing Markets* (Homewood, Ill.: Dow Jones-Irwin, 1977). © 1977, Dow Jones-Irwin.

Segmenting the Housing Market by Location

These are the major steps one should undertake to determine the demand for housing in a narrow geographic area.

Step 1. Determine whether or not the market is in balance in the general area in which construction will take place.

Step 2. Determine what types of units are being built and are selling (see table 8.15).

Table 8.15. Types of Units Built and Monthly Sale Rates, 26 Subdivisions, Suburban Township, January 1976

Type of Unit	Percentage Breakdown of Units Built	Cost per Square Foot	Monthly Sale Rates per Subdivision
Two-story	28%	$31.64	4.55
Split-foyer	44	37.36	3.50
Split-level	18	38.59	2.80
Ranch	14	39.78	1.80
Total	100%	$36.36 (average)	3.16 (average)

Source: Michael Sumichrast and Maury Seldin, *Housing Market* (Homewood, Ill.: Dow Jones-Irwin 1977). © 1977, Dow Jones-Irwin.

Step 3. Identify the price range selling (see table 8.16).

Table 8.16. Identification of Price Range Selling, 26 Subdivisions, Suburban Township, January 1976

Average Price	Square Feet in Unit	Cost per Square Foot	Monthly Rate of Sales per Subdivision	Interpretation
$46,933	1,000–1,300	$39.95	4.90	Excellent
$52,200	1,300–1,600	38.58	3.30	Very good
$60,725	1,600–2,000	34.52	4.20	Excellent
$67,740	2,000–2,500	30.48	1.75	Satisfactory
$97,900	2,500 and over	35.92	1.32	Slow

Source: Michael Sumichrast and Maury Seldin, *Housing Markets* (Homewood, Ill.: Dow Jones-Irwin, 1977). © 1977, Dow Jones-Irwin.

Escalating Potential Supply

Analysis of the supply side of the housing market is less complicated than analysis of the demand side. It is not, however, confined simply to the enumeration of the existing structures and their occupancy. Rather, this analysis involves finding out what commitments have been made to development, what constraints there are on future commitments, and what the current market situation is. In analyzing supply, consideration must be given to the general conditions and characteristics of housing and land availability, and to the aspects of supply. Many of these critical components are often ignored in making supply decisions, causing numerous failures.

Most of the information dealing with the general characteristics of housing in a given area is readily available, either through the federal censuses of housing or through local surveys. Overall changes in the total inventory are slow, and the location, size, age, type, and materials used are generally known. As to physical conditions, a personal survey of an area will reveal the degree of deterioration, the condition of streets and public walks, and the appearance of new housing developments.

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past information, focusing on very near-term construction. The best forward-looking information comes from planning offices, including the county court records of sold land, zoning and rezoning applications, and preliminary submissions of plans for engineering land development work. All of these data are related to future activity and as such are immensely important. They are hard to get and expensive to collect, and they are generally not readily available, but they are valuable.

The market provides a good deal of solid information on what is happening. The most important information is the information on the vacancy of rental units and the inventory of unsold homes. These are the residuals of market forces.

Total Completions versus Unsold Inventory. Another quick look at the current situation uses only two types of data: total completions and unsold new units. These data can be matched up to various parts of a metropolitan area or compared to the data for other areas (see table 8.18).

Table 8.18. Completed and Unsold Units by Geographic Areas, Washington, D.C., SMSA, January 1, 1975

County	Completed Units	Unsold	Percent Unsold	Rating
Fairfax	4,628	1,707	36.8%	High
Loudoun	1,193	573	48.0	Very high
Prince William	760	579	76.2	Extremely high
Prince George's	1,274	609	47.8	Very high
Montgomery	1,551	417	26.8	About normal
Total	9,406	3,885	41.3% (average)	High (average)

Source: Michael Sumichrast and Maury Seldin, *Housing Markets* (Homewood, Ill.: Dow Jones-Irwin, 1977). © 1977, Dow Jones-Irwin.

Another way to look at the picture of completed and unsold units is to break down units by type: single family, town houses, and condominiums, as shown in table 8.19.

Table 8.19. Percentage of Unsold Units to Completed Units, Washington, D.C., SMSA, January 1, 1976

Type	Completed Units	Unsold	Percent Unsold	Rating
Single-family detached units	3,756	164	4.4%	Excellent market
Attached units	2,627	473	18.0	Excellent market
Attached condos	750	244	32.5	Medium to bad
Multicondos	3,686	1,689	45.8	Very bad—overbuilding

Source: Michael Sumichrast and Maury Seldin, *Housing Markets* (Homewood, Ill.: Dow Jones-Irwin, 1977). © 1977, Dow Jones-Irwin.

The condo market data can be misleading, however. A field examination made it clear that this market was concentrated largely in Alexandria, Virginia (about 80%), but that there was little surplus of condos in Montgomery County.

A good way to measure the strength or weakness of the for-sale market is to examine the time in which the new unsold inventory has been on the market, as in table 8.20.

Measure of the Market by Price Ranges

An analysis of various types of units by price range is presented in table 8.21, which shows the distribution of unsold units by single-family detached units, town

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1. What is selling by type and location
2. What price ranges are selling
3. What is unsold
4. What is head in the pipeline

Time needed to collect: two to four weeks.

This data collection can be done by

1. Relying solely on internal company personnel
2. Using company people plus hiring "scouts" to comparison-shop
3. Hiring a consultant to do it all

When done by the company staff, the cost will involve few, if any, cash outlays. The cost for scouts ranges from under $1,000 to $3,000, and the cost for consultants ranges from $4,000 to $8,000 (both in 1980 dollars). These rates are for relatively typical areas with good public records on pipeline projects. Large or problem projects could double the cost.

Other *essential data* include

1. Economic trends—local
2. Employment opportunities and changes
3. Household formations
4. Income distribution
5. Sale characteristics
6. Buyer characteristics

Time needed: three to six weeks.

The company can collect these data itself, but only if it is already set up to do housing market analysis. If not, a competent analyst should be hired. The cost for a consultant will be $6,000 to $12,000. However, once a basic study has been completed, it is adaptable to other projects, and the cost to update it may be only about half of the initial cost.

Some Points to Remember

1. Do not flood the study with a lot of data.
2. Do not accept any data without checking them. Question all data.
3. Ask: Is the source of data questionable? What were the reasons behind the publication?
4. Do not accept press releases without checking further.
5. As a rule, do not accept interpretations of politically oriented groups. If possible, talk to professionals, not politicians.
6. Develop sources that you can trust. Select balanced sources of data.
7. Make sure that the supply, demand, and absorption analyses get a fair share of the study.
8. Use few data rather than many. Make sure you use key information.
9. It is important to get all the critical data. Concentrate efforts on what is really needed, not on what is readily available.

What to Avoid in a Market Research Study

1. Do not attempt to gather more data than you can comfortably digest.
2. Avoid generalities. Do not use flowery words. Make your point clearly and concisely.
3. Do not write a master's thesis. This is not a school exercise.
4. Do not get too ambitious; decide in advance what you really need. It is easy to go on and on without adding to the substance of the report. The researcher does not get paid by the weight of the document; nei-

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ther do houses sell or investors get their money back because of a weighty document.

5. Do not spend more than has been budgeted. Keep costs down and under control.
6. Avoid repetitions. Avoid repetitions. Avoid repetitions.
7. Avoid foldout tables; they are costly and hard to read.
8. Spell out the proper source of the data, with clear identification for future reference. Credit the people who supply you with data.
9. Avoid personal references and prejudices.
10. Ask yourself this about the information:
    a. Does it make sense?
    b. Does it fit a pattern?
    c. Is it complete?
    d. Is it a part of an established trend?
    e. Do other data verify this trend?

What to Watch Out for in Collecting Housing Data

1. Permits.
    a. Are permits issued for one unit or one structure of several units?
    b. Are permits issued for residential or nonresidential purposes?
    c. What is the type of housing: single-family detached, attached (town house), condominium, rental?
    d. What is the type of structure: low-rise, midrise, high-rise?
    e. For a large project, was the permit actually used, or is it still outstanding? If it was not used, determine why, and estimate when it will be used.
    f. Check the indicated price. Typically, price figures are incorrect, with a tendency to underestimate the actual price by 30% to 40%.
2. Production.
    a. Starts data can be accepted from the U.S. census or from state or local governments.
    b. The only *real* way of knowing starts data, however, is by checking the excavations or foundations poured or possibly the clearing of the site or demolition.
    c. Data on units under construction—national and regional—can be accepted as supplied by the Bureau of the Census.
    d. FHA surveys cover only medium and large projects, not total units.
    e. Utility companies may have the best information on both starts and units under construction, as well as completions.
    f. For data on completions, use utility company installations of meters for gas, electric, or water hookups.
3. Vacant units.
    a. Sold signs in the windows may not indicate that the unit has actually been sold. Pins in the sales office indicating sold units may or may not represent the true picture.
    b. Check unsold inventory with the FHA office or lenders; get a feel for the market.
    c. Do *not* trust the FHA post office vacancy survey. Check with FHA personnel and let them explain the problems and pitfalls. Check previous surveys: Do they make sense?
    d. Check with local home builders' associations for unsold homes.
    e. Check with builder-owner management associations for information on rental vacancies. Also, large management companies

know what the situation is.

4. Pipeline figures.
   a. Make sure you know what the "pipeline" means—units which will be coming on the market and competing when a project gets under way and runs through sellout.
   b. Check with a planning board or a county housing expert.
   c. Do not accept generalities such as "X number of units ready to get under construction." Ask for specific names, location, types, and dates.
   d. Check with financial institutions: applications for loans, FHA loan activity, and subdivision plans.
5. Costs and prices.
   a. Check local cost data with local home builders' associations or with the National Association of Home Builders in Washington. NAHB provides cost information broken down to 25 basic cost items for some 400 cities.
   b. The FHA has a great deal of cost information, as does the Farmers Home Administration and the VA.
   c. Know whether you are getting an average price or a median price. There is quite a bit of difference.
   d. Multiple listings and sales figures provide a good information source for the sale of existing homes. Distinguish between offered price, accepted price, and closing price. They are generally all different.
   e. Get price ranges rather than averages. The price distribution is more important than the average or the median, which really mean little to your work. If you need it, figure the median yourself, or make sure that your number is right.
   f. Other cost information is available from the American Appraisal Company, E. H. Boeckh, the FHA, the VA, and others.

Conclusion

These tips on how to analyze housing markets are based on substantial experience and a theoretical framework for understanding how the housing system works. The best advice that can be given to those who have housing decisions to make is to get the proper analyses conducted and to understand thoroughly how these analyses fit into the decision-making strategy. This requires:

1. An understanding of how the housing system works. The decision-makers and analysts should have a sound understanding of the theoretical framework.
2. An understanding of one's own experience. Why did things work out well in the past, or why were there difficulties? Understanding past experience is important if one is to benefit from it.
3. An application of both the experience and the theoretical framework to the new situation. New situations require getting new facts. *Do not stint on getting the data;* it is expensive not to know what is really happening. But in addition to having the facts, it is important to relate them to the current situation and the rapidly changing environment.

Finally, watch the housing market environment. This is best done by forecasting changing conditions and having something to gauge events by. If you have a good idea of what to expect, you will have ample opportunity to make money by serving housing needs. If you watch events as they materialize and compare them with your plans, a proper strategy will keep you from losing your assets.

3

DESCRIPTION OF THE BANGKOK METROPOLITAN AREA

by David Dowall

David E. Dowall, Bangkok Land and Housing Market Study. Technical Report 1, The Bangkok Land Management Study, 1987.

DESCRIPTION OF THE BANGKOK METROPOLITAN AREA

A. Physical Setting

Bangkok, the capital of the Kingdom of Thailand, is the major administrative, economic and cultural center, and its sole window for international trade for the country. Bangkok is different from other Southeast Asian cities in a number of respects. First, it is not located near a good harbor. As a consequence, it has developed as a land-based agrarian center of trade and commerce. Second, because Thailand was the only country in the region not to be colonized, Bangkok did not fall under the control of foreign land-use and architectural controls. Third, it is the only major city of Southeast Asia founded at a site lacking earlier development. The capital was moved there from Ayutthaya (80 kilometers to the north) in 1767. Since its founding, Bangkok has evolved into a multi-function national capital in a pre-industrial country [London, 1980, p.28].

Bangkok straddles the Chao Phraya River at a point 33 kilometers north of the Gulf of Thailand. It is located on the fertile plains of the Chao Phraya delta in the center of what is often called the "ricebowl" of Southeast Asia. The city was established on the banks of the river to make it easier to defend against attacks, and the central urban area is surrounded by klongs (canals). Access across the Chao Phraya River is not abundant; and lack of crossings has limited development in the Nonthaburi area and areas south of the central district.

Much of the development of Bangkok is low density, with shophouses and residential structures rarely exceeding five stories in height. An early land use survey conducted in 1958 found that most of the urban area of the city was in residential use [lichfield, Whiting, Bowne and Associates, 1960]. In the 1960s and later, development, especially housing-- has decentralized into the suburban rings where land is less expensive and the parcels are easy to assemble. The suburbanization of households has created enormous traffic problems.

The soils of the delta consist of a series of layers of fine clay and silt. The soils are extremely porous and loose. At depths ranging between 150 and 200 meters, potable water exists for residential and industrial consumption. In recent years the withdrawal of these waters has been excessive and there is now a growing subsidence problem. Subsidence aggravates flooding since much of the region is less than one meter above mean sea level. Periodic flooding is a chronic seasonal problem estimated to cause considerable

property damage. According to recent studie ' the region's flooding problems, subsidence in certain c ical areas has a maximum rate of 10 centimeters per year ne areas with the most severe flooding problems are loc in Lad Phrao, Hua Mark, Bang Kapi, and Phra Khanong ricts [NESDB, 1986].

During the 1983 flood, the National Stat tical Office estimated that property damage in the greater Bangkok area exceeded 6,500,000,000 Baht [NESDB, 1986]. At the present, there is considerable discussion about how to protect the city from this recurring problem and there has been some talk about using land use controls to limit development in flood-prone areas. In any case, the problems of flooding make some areas of the region less attractive than others. For example, as will be illustrated in Chapter 4, much of the recent development in suburban Bangkok is concentrated in areas to the north, east, and west, where flooding is not a major problem. "Flood-proofing" residential developments is expensive and can easily double the effective cost of land acquisition.

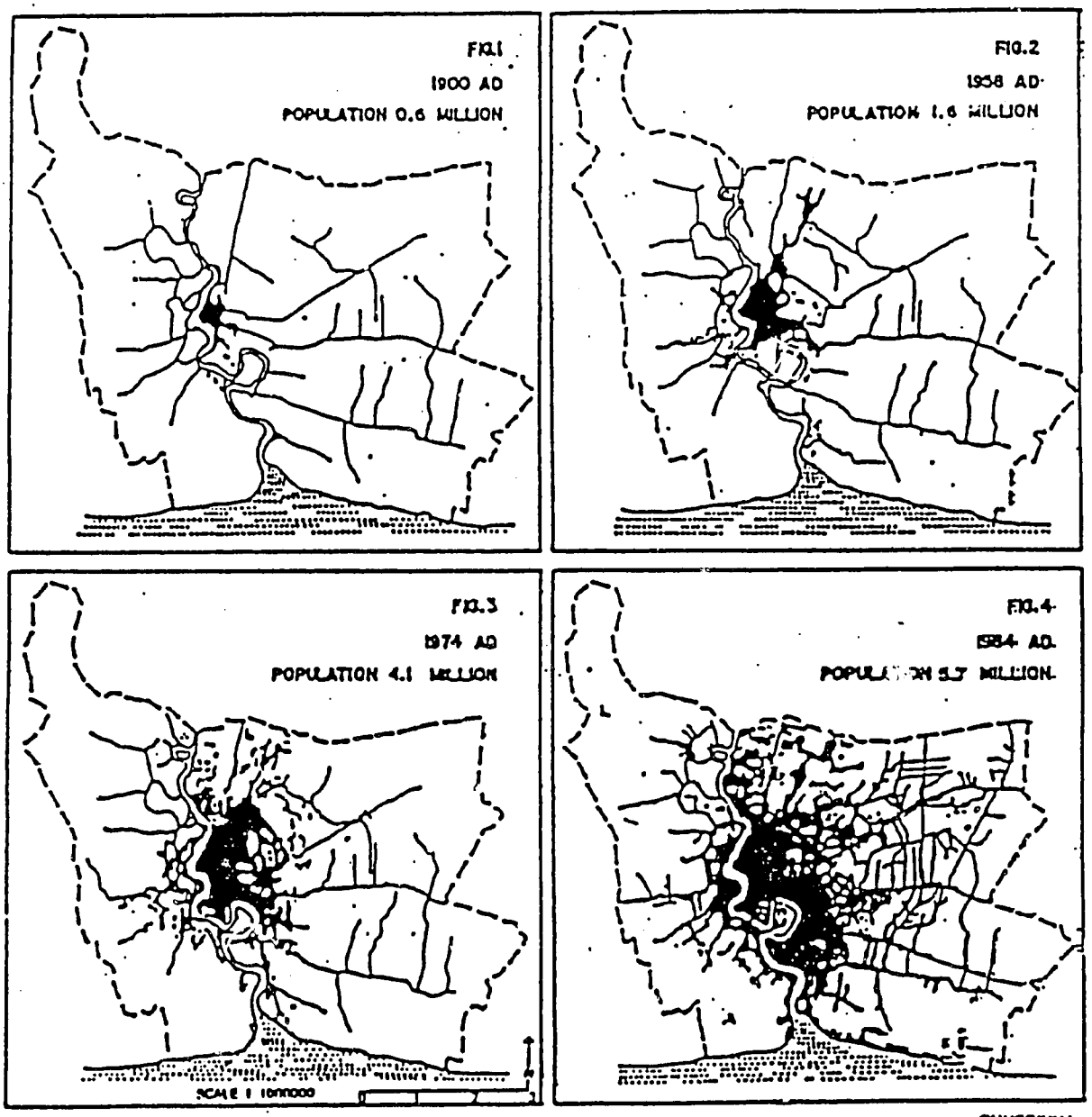
B. The Growth of Bangkok

From its founding until the 1950s, the population of Bangkok did not increase rapidly. In fact, from 1782 until 1937 its population increased by only 490,000. On the other hand, the spatial expansion of the city was pronounced, with the urban area increasing from 3.5 to 43.1 square kilometers by 1937. In 1937 the Bangkok Municipal Area was established consolidating administrative units in Pranakorn Province. These early patterns of urbanization are outlined in Table 3-1. The trend in population illustrates that growth did not really accelerate until the 1960s, when the city's population increased by 660,000, and 1971, a 4.2% annual compound growth rate.

Spatially, the administrative area of Bangkok has grown considerably since 1937, increasing from 43 to 1,600 square kilometers. These figures must be interpreted with caution since they include areas which are still quite rural. Map 3-1 illustrates the changes in urban development from 1900 to 1984.

The administrative expansion of the municipal government has effectively lowered the population densities of the region over time, as illustrated in Table 3-1. Actual population densities, which will be presented in detail in Chapter 4, range from over 150,000 persons per square kilometer in the center of the city to 500 to 3,000 persons per square kilometer in the new peripheral suburban areas. Only areas in the eastern portion of the metropolitan area have rural densities less than 500 persons per square kilometer.

GROWTH PATTERN OF BANGKOK METROPOLITAN AREA



CHHSS/NHA

MAP 3-1

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Table 3-1

Bangkok Urbanization Trends, 1782-1977

Year	Population	Area (sq. km.)	Density (Pop/sq. km.)
1782	400,000	3.5	114,285
1900		13.3	
1937	890,453	43.1	20,660
1953	1,171,654	66.7	17,566
1958	1,622,461	96.3	16,848
1965	2,407,585	173.0	13,916
1971	3,075,300	290.0	10,604
1975	4,349,494	1,600.0	2,718
1977	4,742,774	1,600.0	2,964

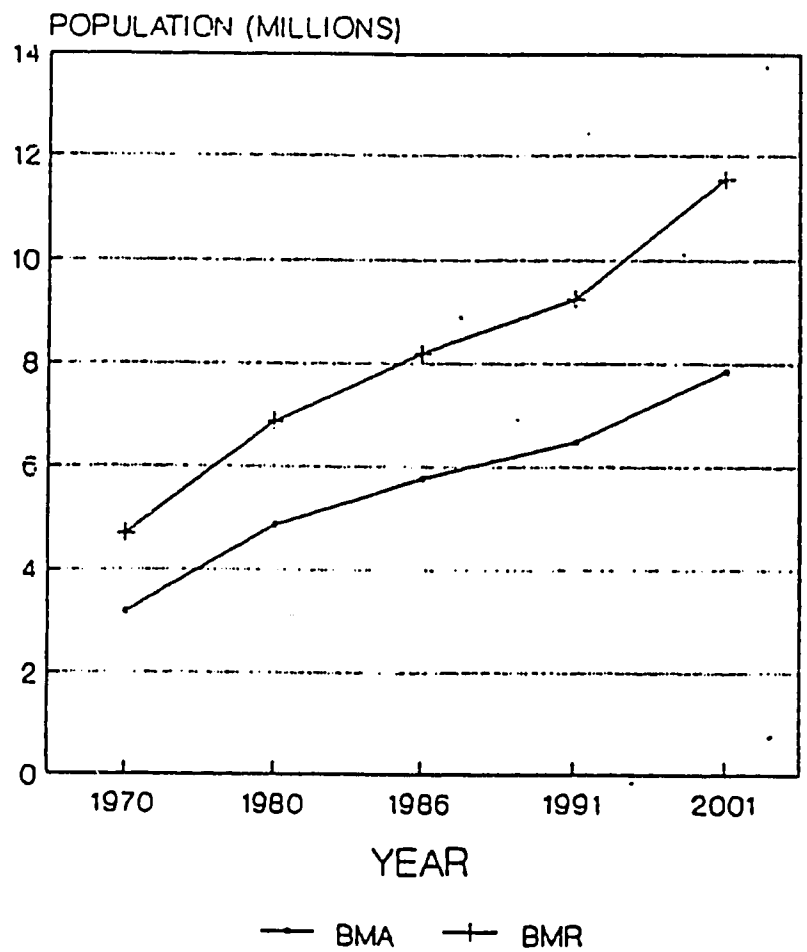
Source: Pramuanratkarn, 1979.

Bangkok also began developing its regional and international markets during this period. The growth of Bangkok began in the 1960s, spurred by massive government investments in infrastructure such as a national roadway system Bangkok also began developing its regional and international markets during this period. High-rise buildings developed first, largely in the form of apartments and hotels for foreigners. The population surge is clearly evident in Table 3-2, which presents population for the Bangkok Metropolitan Administration area (BMA) and the larger Bangkok Metropolitan Region (BMR) by province. Between 1960 and 1986 the BMR gained 4,892,000 in population. Of this amount, the BMA accounted for 3,637,000 or 74.3% of the increase. Table 3-2 illustrates the population growth of the region from 1960 to the present time. The population of the BMR has increased by nearly 150% between 1960 and 1986, a compound annual growth rate of 3.6%. As illustrated in Figure 3-1, the rate of population growth has been increasing in recent years and between 1980 and 1986 the rate of increase was a bit lower, at a compound rate of increase of 3% per year.

The population and demographic patterns exhibited in the Bangkok region reflect its growth and dominance as the Kingdom's key economic center. The population of the BMR is estimated to stand currently at 8.2 million and is projected to grow to over 11 million by the year 2001 [NESDB, 1986].

The sources of population growth in the BMR have changed past several decades. Historically, migration has played an important role in shaping population growth. Migration to Bangkok accounted for 90% of the Kingdom's net internal migration in 1960 [NESDB, 1986]. But now, as the region grows, migration's role is declining. Natural increase currently accounts for the largest part of the region's population increase. According to the 1980 census, net migration into the BMR accounted for a population increase of 286,275 persons between 1975 and 1980, representing

POPULATION TRENDS
BMA AND BMR AREAS



SOURCE: NESDB, 1988

FIGURE 3-1

Table 3-2

Population Growth Trends in the Bangkok Metropolitan Region (BMR), 1960-1986

Province	Population in Thousands 1960	1970	1980	1986	%Chg 60-70	%Chg 70-80	%Chg 80-86
Bangkok Metro. Administration	2,136	3,185	4,852	5,773	49.1%	52.3%	19.0%
Nonthaburi	196	278	383	473	41.8	37.8	23.5
Pathumthani	190	242	332	406	27.4	37.2	22.3
Samut Prakan	235	341	503	625	45.1	47.5	24.3
Samut Sakon	166	208	256	294	25.3	23.1	14.8
Nakhon Pathom	370	434	545	614	17.3	25.6	12.7
Total BMR	3,293	4,688	6,871	8,185	42.4%	46.6%	19.1%

Source: NESDB, 1986.

approximately 25% to 30% of the region's total population increase during this period.

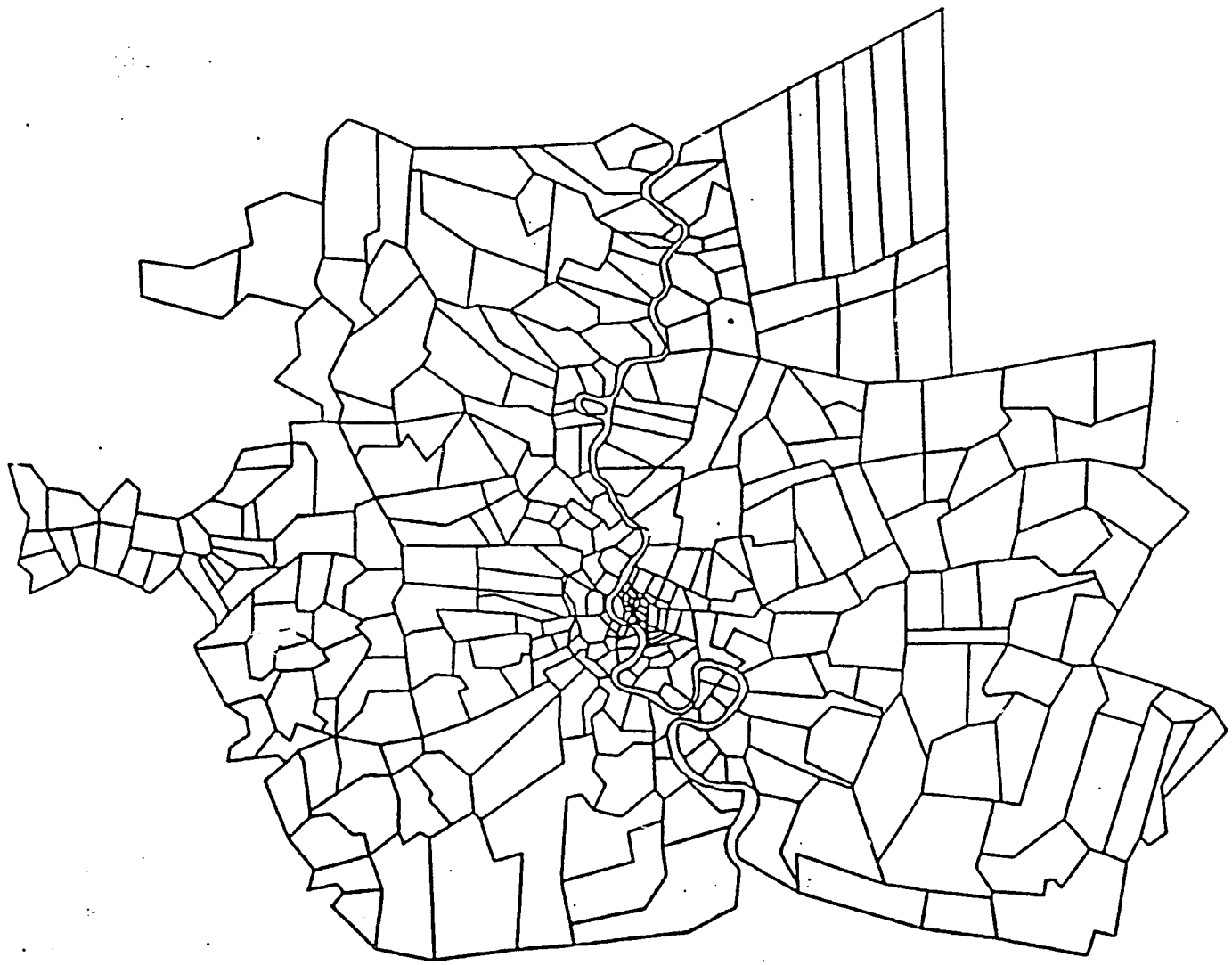
The patterns of migration are complex and reflect the vitality of the rural sector, especially its ability to generate employment. If employment conditions in rural Thailand deteriorated, due to adverse weather conditions, for example, or falling commodity prices, the pace of migration to Bangkok could increase substantially, raising the rate migration to Bangkok to levels comparable to other Asian cities.

Compared to other Asian cities, Bangkok's population growth has been modest. Jakarta for example, with a 1950 population 1.8 million grew to 6.7 million in 1980. During the 1970s it grew by nearly 4% per year. Bombay and Calcutta both grew tremendously during the 1950-80 period, increasing from 2.9 and 4.4 million to 8.5 and 9.5 million, respectively. If Bangkok's population increased at Jarkarta's rate, its population could reach 14.8 million by the year 2001, a population 34% above the NESDB estimate. With such an increase in population, the resulting demand pressures would severely strain land and housing markets.

The patterns of population growth into the BMR have been following a typical process of suburbanization. Map 3-2 illustrates the Bangkok Land Management Study Area, showing the subdistricts and their population growth patterns. The total urban population as of 1986 stands at 6.67 million, with "urban" defined as areas which are located in municipal areas or provided with urban sanitary service. The pattern of population growth has clearly shifted to the suburban areas where there is ample land for expansion. But there is still significant population growth pressure on the central BMA area.

Metropolitan Bangkok Kwaeng Location

Bangkok Land Management Study 1987



MAP 3-2

In more recent years, the BMA's share of the BMR's population growth declined to 70.1%. This reflects the fact that most of the other provinces surrounding the BMA are increasing their share of the overall increase in population. Currently, Samut Prakan is the fastest growing province, increasing at a compound growth rate of 3.7% per year as compared to 2.9% for the BMA.

In absolute terms, the region is gaining about 200,000 persons per year. At an average household size of between 4 and 5 persons, this suggests that between 40,000 and 50,000 dwelling units are needed per year to keep pace with urban growth.

C. Profile of the Bangkok Economy

During the 1960s and into the 1980s, the growth of the region's economy has been nothing short of phenomenal, averaging over 8% per year during the 1970s (in terms of real increases in gross regional product). As the region has developed, the structural character of the economy, in terms of the types of economic activities prevailing, has changed and is beginning to influence the physical and spatial development of the region.

While Bangkok accounts for only 16% of the Kingdom's population, it is estimated that in 1983 the BMR accounted for 43% of the Kingdom's gross national product. Table 3-3 illustrates the 1983 distribution of gross national and regional products for the Kingdom and the region and the percent of national production originating in the BMR. As the table shows, manufacturing, construction, transport, banking, dwellings (residential building), and services are concentrated in the BMR. Manufacturing is heavily concentrated in the capital with over 75% of the gross regional product originating there.

Over the past decade, Bangkok has been increasing its economic dominance over the Kingdom. Between 1970 and 1983, as Table 3-4 illustrates, the BMR captured over 50% of the increase in the gross national product. In the manufacturing sector, the capture rate was over 85%, for banking it was 74% and for dwelling construction, it was 72%. In the future, the BMR will continue to dominate the nation in terms of economic activity and economic growth in these and other sectors.

The rate of economic growth of the nation and the BMR has been very fast, growing at a compound annual rate of 6.6% for the nation and 8.6% for the BMR. With the BMR growing faster than the Kingdom, the dominance of Bangkok will increase. In the 1970s the share of economic output produced in Bangkok was 34% of the nation and in 1983 the level was 43%. If this pattern continues, the economic vitality of the nation will depend greatly on the ability of the Bangkok region to efficiently support economic activity. This means

Table 3-3

Gross National and Regional Product by Sector, 1983, in Millions of 1972 Baht

Sector	Thailand	Percent Dist.	BMR	Percent Dist.	BMR as a Percent of Kingdom
Agriculture	80,940	23.6	4,881	3.3	6.0
Mining	4,367	1.3	135	0.1	3.1
Manufacturing	71,948	21.0	54,550	36.7	75.8
Construction	15,843	4.6	8,550	5.8	54.0
Utilities	7,393	2.2	1,499	1.0	20.3
Transportation	23,608	6.9	12,548	8.4	53.2
Trade	55,591	16.2	21,058	14.2	37.9
Banking	24,330	7.1	17,716	11.9	72.8
Dwellings	5,152	1.5	2,987	2.0	58.0
Pub. Admin.	14,339	4.2	4,561	3.1	31.7
Services	39,306	11.5	20,083	13.5	51.1
Total	342,877	100.0	148,568	100.0	43.3

Source: Gross Regional Product Accounts, National Economic and Social Development Board, 1986.

Table 3-4

BMR's Share of Gross National and Regional Product Growth, 1970-1983 by Sector, in Millions of 1972 Baht

Sector	Thailand Absolute Change in GNP	BMR Absolute Change in GMP	BMR Pecent of Kingdom Growth
Agriculture	32,608	1,364	4.2
Mining	1,812	58	3.2
Manufacturing	48,628	40,094	82.5
Construction	7,138	4,470	62.6
Utilities	5,755	1,137	19.8
Transportation	14,413	6,958	48.3
Trade	29,067	14,393	49.5
Banking	18,530	13,667	73.8
Dwellings	2,152	1,539	71.5
Pub. Admin.	7,923	-330	-4.2
Services	24,765	14,245	57.5
Total	192,791	97,595	50.6

Source: Gross Regional Product Accounts; National Economics and Social Development Board, 1986.

that there must be an ample supply of land for industrial, commercial, and residential development and that the region's infrastructure must work properly to facilitate economic activity and social well-being.

The geography of economic growth is changing Bangkok's landscape. As the economy expands, so will its need for land for development. In the BMA, growth was considerable during the 1970's. In terms of 1972 prices,economic output increased from 40,713 to 112,435 million Baht, a 176% increase since 1972. As illustrated in Table 3-5, the BMA

Table 3-5
Changing Location of Bangkok Economic Activity, 1970-1983, Gross Provincial Product in Millions of 1972 Baht

Province	Gross Provincial Product 1970	Percent Dist.	Gross Provincial Product 1983	Percent Dist.
BMA*	40,713	79.9	112,435	75.2
Nonthaburi	968	1.9	2,489	1.7
Patumthani	1,900	3.7	8,285	5.5
Samut Prakan	3,671	7.2	18,546	12.4
Samut Sakhon	1,912	3.8	3,151	2.1
Nakhon Pathom	1,809	3.5	4,672	3.1
Total BMR	50,973	100.0	149,578	100.0

*BMA - Bangkok Metropolitan Administration

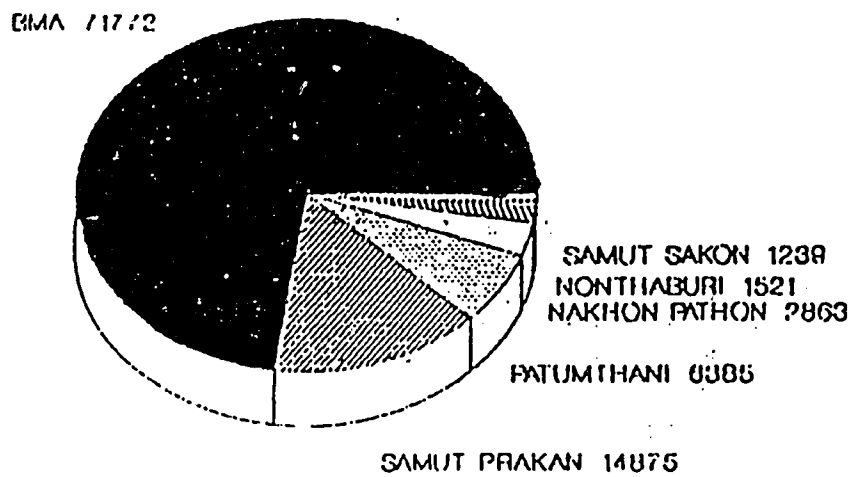
Source : Gross Regional Product Accounts; National Economic and Social Development Board, 1986.

is the main location of economic activity in the region. However, there are signs that the dominance in shifting.

Between 1970 and 1983, the share of the BMR's gross national product originating in central Bangkok (the BMA) declined from 80% to 75%, while the share produced in Samut Prakan increased from 7.2% to 12.4%, and the share for Patumthani increased from 3.7 to 5.5%. Between 1970 and 1983, 72.7% of the total regional increase in economic activity is attributable to the BMA. The increase in absolute terms was enormous for Samut Prakan totaling nearly 15 billion Baht (1972=100). In percentage terms it accounted for an increase of 405% over the 13 year period. Samut Prakan accounted for 15.1% and Patumthani 6.5% of the BMR's growth (see Figure 3-2).

The BMA accounted for nearly 80% of the BMR's total employment growth over the 1960-84 period. It is not clear whether the BMA portion of the region will continue to capture such a share of economic development in the future. Table 3-6 illustrates the patterns of employment for the constituent provinces of the BMR. As the table shows, the BMA has been the dominant center for employment, it has grown faster in terms of employment between 1960 and 1984 than the BMR as a whole (208% versus 152%). Two other centers appear to be growing rapidly as well-- Samut Prakan and Patumthani, increasing their employment by 143% and 121% respectively, from 1960 to 1984. Samut Prakan and Pathumthani have evolved

LOCATION OF ECONOMIC GROWTH
1970-83, MILLIONS OF 1972 BAHT



SOURCE: NESDB, 1988

FIGURE 3-2

Table 3-6

Employment Growth in the Bangkok Metropolitan Region
1960-1984, by Province

Province	1960	1970	1980	1984	Absolute Change 60-84	Percent Change 80-84
BMA	809,000	1,139,000	2,018,000	2,495,000	1,686,000	208.4
Nonthaburi	93,000	112,000	132,000	156,000	63,000	67.7
Nakhon Pathom	197,000	199,000	279,000	246,000	49,000	24.9
Samut Prakan	109,000	131,000	221,000	243,000	132,000	121.1
Samut Sakon	84,000	88,000	122,000	132,000	48,000	57.1
Patumthani	97,000	107,000	167,000	236,000	139,000	143.3
Total BMR	1,389,000	1,776,000	2,939,000	3,505,000	2,117,000	152.4

Source : Chulalongkorn University Social Research Institute, Final Report on Projections of Economic Activities and Employment in the BMR, Bangkok: Chulalongkorn Univeristy Social Research Institute, May 1986

into the region's two manufacturing districts since more than one-half of their economic activity is accounted for by manufacturing activity. The MAB and Nontaburi, on the other hand ,have evolved into predominatly service providing areas.

Patumthani to the north of Bangkok, has been largely transformed from an agricultural to a residential and as mentioned above and industrial area. The locale is well situated relative to central Bangkok and is not subject to periodic flooding. Large scale manufacturing is locating in this area, particularly textiles and metal products. With its proximity to the airport and residential neighborhoods,this area will continue to develop into a major urban growth corridor.

To the southeast of Bangkok lies Samut Prakan, the first area to industrialize outside of the BMA in the 1960s. It still attracts the biggest share of large industrial facilities, but the level of environmental quality in the area is deteriorating and it may not compete well with Patumthani for clean manufacturing activities (Chulalongkorn Social Research Institute,1986).

On the northwest lies Nonthaburi Provice. Historically it has been hampered by poor access to Bangkok, but now with the construction of the new Rattanathibet Road bridging the Chao Praya River, it may begin to develop at a rate similar to Patumthani.

These growth figures suggest that the BMA region will slowly relinquish its economic dominance, although there is yet to be any clear evidenece of large-scale decentralization of economic activity out of the region. One of the most significant reasons for the small amount of decentralization out of central Bagkok that small firms are very resistant

to leave the central area. Most of the growth in economic activity has taken place in small firms employing fewer than 20 persons. These firms tend to be located in the central area of the region. According to the the National Economic and Social Development Board (NESDB), 80% of the newly registered factories (3800 in 1980 and 1981) were home establishments. On the other hand, larger establishments employing more than 50 workers tend to locate in the suburban areas where there is more land for industrial estates. According to the NESDB over 50% of the large factories registered during 1980-1 located in the provinces of Pathumthani and Samut Prakan.

In 1960, the total employment of the (BMR), stood at nearly 1.4 million. By 1970 employment reached 1.8 million reflecting a compound annual growth rate of 2.5% during the 1960s. During the 1970s, the employment growth rate accelerated, more than doubling to 5.2% per year. By the 1980's the rate of growth has slowed to 3.6% per year. In absolute terms the region is adding over 100,000 net new jobs per year.

It is clear that at least up until 1984, employment in manufacturing and services were increasingly concentrating in the BMA. Table 3-7 illustrates the concentration of manufacturing activities based on factory location permits issued by the Ministry of Interior during 1980-1 and 1985. If firm size is a key determinant of whether a firm leaves central Bangkok for the suburbs, then the shift to services (given a service firm's small size), may imply that there is likely to be even more concentra- tion of employment in central Bangkok in the future.

One of the Kingdom's greatest resources is its labor force, in the metropolitan area, this has grown considerably. The migration of workers into the region has helped to expand the pool of workers, especially the seasonal influx of workers during the January-to-July dry season. According to the 1984 Labor Force Survey, 130,000 workers came to the city during this period.

But perhaps the largest contributing factor to the growth of the labor force is the dramatic increase in the rate of labor force participation which has occurred in the past decade. Between 1975 and 1983, the overall participation has increased from 50.9 to 61.3%. The rise in the rate of participation is due to two factors: the changing age composition of the Bangkok population and the growing tendency of females to enter the working world. The age cohorts between 15 and 30 grew considerably during the past decade and these are the principal ages for working.

The labor force participation rate of women increased from 37.1 to 51.4% between 1975 and 1983, and reflects declining fertility and growing opportunities for women to work. This increased

Table 3-7

Location of Newly Registered Factories, 1980-81 and 1985, By Size of Establishment

Location	Size, No. of Workers/Factory 1-19	20-49	50-299	300+	Total
1980-1981					
Nakorn Patom	78	19	8	1	106
Nontaburi	75	11	7		93
Patumtani	11	18	16	5	50
Samut Prakan	244	71	45	3	363
Samut Sakon	77	13	13	1	104
BMA	2622	402	96	7	3127
Total BMR	3107	534	185	17	3843
1985, January - August					
Nakorn Patom	36	0	1	0	37
Nontaburi	17	3	1	2	23
Patumtani	18	12	4	6	40
Samut Prakan	132	41	36	12	221
Samut Sakon	10	9	6	4	29
BMA	1579	158	71	8	1816
Total BMR	1792	223	119	32	2166

Source: Factory Control Division, Ministry of Industry, 1985.

tendency of women to work is extremely important in terms of housing demand. In the United States for example, if it had not been for the increased labor force participation of women, the absolute standard of living of the United States households would have declined during the 1970s. Instead, the standard of living increased in real terms because female employment added income to the household. This income has allowed many households to purchase housing.

The growth in the Kingdom's economy-- and specifically that of the Bangkok region will create substantial employment over the next decade. With this increase in employment and income will come an increase in household formation and demand for housing and land for housing. As we shall see in Chapter 8, female employees are playing a important role in fueling the demand for housing in Bangkok.

The growth of the region's economy and employment will have important implications for the spatial patterns of urban development in the region. There are signs that the Bangkok metropolitan area is beginning to decentralize, especially to the north and southeast. Agricultural areas will be drawn

into the orbit of Bangkok and pressures for land conversion will develop. The extent to which these lands can be used for industrial and residential development will largely determine whether land and housing supplies will be sufficient for guaranteeing affordable housing in the future. Given the scale of urbanization and the level of resources available to the NHA, making these suburban land markets conpetitive is critical for delivering affordable housing.

D. Housing Stock of the Region

The quantity and quality of the region's housing stock has increased dramatically over the past decade. According to analyses conducted by the NHA, the stock of housing in Bangkok has increased at an annual average rate of 7%, faster than the number of household formations. While the construction of public housing by the NHA increased significantly, its contribution to the overall addition of housing has remained small. Thus, the overall increase in the region's housing stock was due to the vigorous activity of the private sector.

According to the Housing and Urban Poor Sector Study report prepared by the Center for Housing and Human Settlement Studies of the NHA [1985], there are eight distinct types of housing currently represented in the region. These include the following:

1. Shop houses. These units are typically constructed in blocks or terraces of eight to 20 units. Each unit is between three and five stories high, with four stories being the most frequent. The size of each unit is approximately four meters wide by 12 meters deep. Thus the size of a shop house unit ranges from 144 to 240 square meters with 192 square meters as the average. The ground floor of each unit is normally used for commercial activities, with the second and third floors used for residential purposes. In some cases the second and even the third floors are used for commercial activities such as storage of products or the fabrication of goods. Normally, shop houses boarder thanons and large sois. They are frequently built into the front portions of large residential land and housing subdivisions.

2. Private land and housing projects. These are developer-built residential projects ranging from 50 units up to over 2000 dwelling units. A variety of housing units are normally built in these projects, including single family detached housing, duplexes, townhouses, and occasionally multi-flat buildings. The projects are normally well-placed and contain a wide range of services, and amenities such as recreational areas, water, sewage disposal, and security. Plot sizes range from 20 to more than 100 square wah (1 sq. wah = 4 sq. meters) depending on the type of unit and the price and market orientation of the development.

3. Land subdivision projects. These projects are basic land development schemes in which land is offered for sale to individuals for housing construction. The level of services provided in the projects varies, with some projects providing little more than a plot of land. On the other hand, the some land development projects are geared to very high income households, offering large plots, golf courses, and security.

4. Individual housing. In some portions of Bangkok there are small housing projects located on small plots of land. These may be single units, or one terrace of housing, or a block of units. These types of developments are often characterized as infill projects.

5. Klong housing. Along Bangkok's numerous klongs are housing units which have been constructed out over the canals. These units are usually informal in the sense that they have been developed by individuals for their own housing. In some of the inner urban these housing settlements have deteriorated into slums.

6. Slum and squatter settlements. These informal settlements are located on public, private, or religious land which is either rented or squatted on. The housing is self-built and much of it is temporary. Living conditions vary from poor to fair.

7. Public housing projects. The public sector, through the NHA, or the Bangkok Metropolitan Administration, has built detached, semi-detached, row walk-up, and multi-story housing. Most projects are large-scale comprised of between 300 and several thousand units.

8. Other. There are other forms of housing in the region, such as dormitory housing for workers, students, and military personnel. Also some people are living in other types buildings such as factories, garages, and warehouses.

Based on aerial photographic interpretation, the NHA has estimated the number of dwelling units in the Bangkok Metropolitan Area for 1974 and 1984. These data are presented in Table 3-8 . The Bangkok housing market grew by 70% between 1974 and 1984, adding approximately 413,000 units. This reflects a 7% annual average growth rate. In absolute terms the largest increase was the result of shop house construction which added nearly 113,000 units. In percentage terms, the greatest increase in new housing was the construction of private housing projects. Dwelling units built in these projects increased by 463% and accounted for the second largest absolute increase: 93,500 units. Between 1974 and 1984, private land and housing developments accounted for 23% of the total increase in the number of units added to the BMA stock. This enormous level of activity illustrates the clear shift of the private residential housing industry into the mainstream of housing delivery.

Table 3-8

Housing Stock by Type of Housing Project
Bangkok Metropolitan Administration, 1970-1984

Type of Housing Project	Number of Units 1974	Percent	1984	Percent	Abs. Chg. 1974-84	Share Increase	Percent Increase 1974-84
Shop House	134,766	23.0	247,553	24.8	112,787	27.3	83.7
Developer Housing	20,193	3.5	113,755	11.4	93,562	22.6	463.3
Land Subdivisions	31,393	5.4	70,466	7.1	39,073	9.5	124.5
Individual Building	209,084	35.7	271,266	27.2	62,182	15.0	29.7
Public Housing							
NHA	9,377	1.6	47,882	4.8	38,505	9.3	410.6
Non-NHA	n.a.	n.a.	26,826	2.7	n.a.	n.a.	n.a.
Slum Housing	139,326	23.8	160,145	16.0	20,819	5.0	14.9
Canal Housing	21,868	3.7	21,592	2.2	-276	-0.1	-1.3
Other Housing	19,156	3.3	38,951	3.9	19,795	4.8	103.3
Total	585,163	100.0	998,436	100.0	413,273	100.0	70.6

Source: National Housing Authority and Bangkok Land Management Study, 1987.

After shop houses and private housing developments, the third largest contributor to region's housing stock was individual housing, which produced 62,000 units. In percentage terms, individual housing increased by 30%, or about half the rate of the BMA's growth of the housing stock.

Land subdivisions increased by 39,000 units or plots between 1974 and 1984 and accounted for 9.5% of the BMR's total housing increase. The lowering of prices and expansion of sales by the private land and housing developers will mostly come at the expense of the land subdivision projects.

Slum and squatter settlements have been dwindling in terms of the overall share of housing growth in the region, as they accounted for only 5% of the 1974-84 growth. Their share of the region's stock of housing fell as the formal sector began to increase its role in the housing delivery system. In fact, when the increases are grouped into additions produced by the formal (shop house, developer and subdivision housing) versus informal production sectors (slum, squatter and individual housing), most additional housing (80%) is produced by the formal sector, reflecting the dynamic growth of the private housing industry.

Over the past several years, the quality of the region's housing stock has increased dramatically, with the percentage of owner occupying housing increasing from 47 to 63%. In 1970, only 66.9% of the households in the BMR had access to electricity, while in 1980 virtually everyone had access to electrical power. Other services are in more limited supply. For example, water was available to 43% of households in 1970 and had increased to 57% in 1980. The record of sewer connections was less acceptable, increasing from 9% to 14% between 1970 and 1980. The majority of housing units are connected to cesspits.

The housing market is becoming more formalized as private residential development companies play a more significant role in the provision of housing. The prices of housing produced by the private sector has (as will be illustrated in a later chapter) declined in real terms and there are now numerous projects on the market selling for less than 200,000 Baht. The portion of slum and squatter housing is declining as the formal market expands at a rate considerably above the informal one.

The trends in the private sector residential construction industry are extremely encouraging, suggesting that the private sector can respond to market conditions and produce substantial affordable housing without government assistance. One of the important contributions of this study is to describe the conditions under which this production has occurred.

Whether the dynamism of the private sector can be maintained depends on whether land and construction materials can be mobilized economically. The critical element in the continued production of low- and moderate-priced housing is the availa- bility of low-cost land for residential development.

E. Future Patterns of Economic and Demographic Change

During the next five years, as illustrated in Table 3-9, the BMR is projected to increase by over 1 million people. Of this growth, a majority of 65.9% will be concentrated in the BMA. This increase will continue to place pressure on the land markets located on the outer edges of Pranakon and Thonburi provinces and there will be development pressure to the north into Patumthani. There will also be considerable pressure in the southeastern corridor, into Samut Prakan Province.

According to the projections by the NHA, the demand for additional housing between 1986 and 1991 is estimated to be 250,000 units. Nearly 60% of the increase is projected to be provided by private developers. Only 20,000 units will be constructed by individuals in land subdivisions and on individual lots.

The next five years will likely be characterized by a growing residential market created by the private sector. There appears to be ample financial capital to fund mortgages and actual construction. Whether the market can function to produce affordable housing in the metropolitan area depends on the ability of the private sector to acquire low cost land which is well-located in terms of roads and infrastructure. In the next several chapters we more closely examine the patterns of land market operation and focus on the market for land for private residential development projects.

Table 3-9

Projected Growth of the Bangkok Metropol tan Region by Province (in thousand)

Province	1986	1991	Percent Inc. 86-91	Absolute Increase	Share of Increase
BMA	5,773	6,477	12.1	704	67.9
Nonthaburi	473	556	17.5	83	7.8
Pathum Thani	406	478	17.7	72	6.7
Samut Prakan	625	739	18.2	114	10.7
Samut Sakon	294	331	12.6	37	3.5
Nakhon Pathom	614	672	9.4	58	5.4
	8,185	9,253	87.5	1,068	100.0

Source: National Economic and Social Development Board, 1986.

4

HOUSING DEMAND AND AFFORDABILITY

by David Dowall

HOUSING DEMAND AND AFFORDABILITY

A. Introduction

Responding to growing housing demand, Bangkok's private housing developers have been shifting into different market segments, attempting to capture new opportunities. Over the past decade, the private sector delivered shop houses, high income luxury housing, and condominiums. As markets became saturated, builders and developers shifted to new, unmet segments of the market. Recently they have started building down-market to take advantage of the massive low-middle income segment of the housing market.

Over the past dozen years, the NHA has produced nearly 50,000 dwelling units. Most of the NHA's projects are aimed at the same low-middle income segment of the housing market that is now the target of the private sector. These NHA units have been produced with substantial subsidies. Now the public sector is under increasing pressure to achieve cost recovery and still maintain its objective of selling units affordable to households earning under 7000 Baht per month. With the private sector moving into this market, the NHA will need to be very competitive in terms of price, quality and location. Thus, the NHA must closely monitor housing demand and sales trends.

This chapter reports on an assessment of housing demand in Bangkok, based on a survey of 651 households. Most of the households are recent purchasers, reflecting the sampling of land and housing projects. The results of the survey are compared with an earlier 1982 housing affordability study conducted by the NHA. This comparison provides a clear picture of the changing patterns of affordability in Bangkok.

The second section of this chapter explains the process used to conduct our survey. The third section describes the general characteristics of recent homebuyers. The fourth section profiles the types of housing purchased by the respondents and how they financed their home purchase. The fifth section describes the housing consumption and financial characteristics of households by income. The sixth section compares current housing affordability with an earlier affordability study conducted in 1982. The seventh section draws conclusions from the survey and identifies the key implications for housing development policy.

B. The Process and Approach of the Survey

In September 1986, the Bangkok Land Management Study team began cataloging housing projects currently on the market in metropolitan Bangkok. The projects were identified by surveying Land Department land subdivision records, newspapers, and NHA records (see Chapter 7). Using this inventory, a random sample of private land and housing development projects, land subdivision projects, and NHA projects was chosen.

Surveys of households which recently bought housing in the sampled projects were made. For each land subdivision and private housing and land development project three households were surveyed. For the NHA projects, more than 90 households were interviewed. Each homebuyer was contacted by an interviewer who administered a questionnaire.

The questionnaire asked the following types of questions:

1. age of the head of the household,
2. number of persons in the household and their relationship to the head.
3. the occupation of each economically active household member,
4. price paid for house or lot,
5. cost of house if the respondent built own house in land subdivision,
6. size of housing unit and lot,
7. downpayment amount and source,
8. amount and source of mortgage,
9. extent, source, and terms of construction finance,
10. source of downpayment,
11. current monthly income of the household, and
12. current monthly expenditures of the household.

The surveys were conducted during the months of November and December of 1986. The questionnaires were reviewed for accuracy and then coded into a computer file and verified.

Given the nature of the questionnaire and the emphasis on recent homebuyers, the survey proved an excellent source of information on the preferences of Bangkok households. The results of the survey can be used to gauge the demand characteristics for housing, particularly to assess the proper affordability criterion (percent of income to be

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spent on housing) to set prices and rents on public housing projects [Malpezzi and Mayo, 1985]. The next several sections provide an assessment of the Bangkok housing demand.

C. The Characteristics of the Homebuyer

Each household was asked a series of basic questions about the size of the household, the number of workers per household, the age of the head of the household, and the number of workers per household. Table 8-1 presents information about the responses to the questionnaire.

Most of the households included in the sample are reasonably well established. The number of persons per household was 4.3, with approximately 4.0 being related. There were 1.9 workers per household, and the age of the head of the household was 37.1. These households were predominantly entering the home purchase market for the first time, since only 11.1% of the respondents indicated they had sold a prior residence to purchase their current home. The age of the homebuyer respondent is consistent with information obtained from our survey of housing projects (see Chapter 7). Most buyers tend to be in their mid-30s to early 40s.

The age of the renters and residents of slum and squatter settlements is lower and reflects the fact that the economic cost of such occupancy in lower. As in most countries, people rent or live at home until they can afford to purchase a house. The average age of renters was 28, considerably below the average of 37 found for recent buyers. Eighty-nine percent of the buyers were purchasing their first house.

Table 8-1

Characteristics of Bangkok Homebuyers

Average Persons per household	4.3
Average Related Persons per Household	4.0
Average Workers per Household	1.9
Average Age of Head of Household	37.1
Mean Income (Baht/Month)	14,647
Percent First-Time Buyers	89.0

Source: Bangkok Land Management Study, 1987.

The mean income per household was 14,647 Baht per month. However, the standard deviation was 12,959, indicating a wide range in incomes. As illustrated in the following sections, incomes vary with the cost and type of housing occupied. For homebuyers, the average mortgage payment was 3739 Baht per month. This represents approximately 27.1% of income. The 27% share of income going to mortgage payments is remarkably consistent across households earning between 6000 - 20,000 Baht per month. With the exception of NHA housing, it is also consistent across all types of housing as well. This pattern reflects mortgage underwriting criteria limiting mortgage to income ratios.

D. The Type of Housing Occupied by Respondent

Of the 651 respondents, 650 indicated the type of unit they currently occupied. Table 8-2 presents the types of units and the distribution of responses across the types. The predominant type of unit occupied by the respondent is the private land and housing project, comprising nearly 52% of the sample. The next largest category of housing was NHA housing projects, accounting for 14% of the total.

Table 8-2

Type of Housing Occupied by Survey Respondents

Type of Housing Accommodation	Number	Percent of Respondents
Private Land & Housing Project	336	51.7
Rental Housing	63	9.7
Land Subdivision	70	10.8
Slum Squatter	55	8.5
N.H.A. Project	91	14.0
Condominium	35	5.4
Total	650	100.0

Source: Bangkok Land Management Study, 1987.

The size of the typical house was 78 square meters. The actual size of units varied according to the type of housing project. For example, private land and housing projects averaged 107 square meters, while rental housing averaged 24 square meters. Table 8-3 presents summary characteristics of housing by type of housing. Plot sizes averaged 35.1 square wah. Land subdivision plots were the largest, averaging over 50 square wah. This reflects the fact that

land subdivisions tended to be located in the suburban fringes of the region. Slum and squatter settlement plots are the smallest in size, averaging approximately 25 square wah.

The range of housing prices extends from 37,315 for slum and squatter settlement units to 620,629 for luxury condominiums. Private land and housing prices averaged 474,573 and land subdivisions, 190,831. NHA housing was 220,689, targeted toward the middle income market. On a per meter basis, housing costs ranged from 3430 Baht for land and housing projects to 811 Baht for slum and squatter dwellings.

Table 8-3

Characteristics of Housing by Type of Housing

Type of Housing	Group Means			
	Size of Housing Unit (Sq. Mts.)	Plot Size (Sq. Wah)	House Cost (Baht)	Land Cost (Baht)
Private Land and Housing	107.3	34.2	474,573	172,716
Rental Housing	24.3	*	*	*
Land Subdivision	52.8	50.0	190,831	104,974
Slum & Squatter Settlements	48.0	25.2	37,315	*
N.H.A. Projects	52.6	31.7	220,689	*
Condominiums	55.7	*	620,629	*
Overall, All Units	77.9	35.1	374,029	135,441

*Less than 30 cases or not applicable

Source: Bangkok Land Management Study, 1987.

Plot cost data were somewhat limited, since many respondents did not recall the actual costs. Overall, the cost averaged 135,441 Baht, and ranged from 104,974 for land subdivision projects to 172,716 for private land and housing projects. On a per-square- wah basis, plot costs ranged from 2400 for land subdivision projects to 5700 Baht for private land and housing developments.

Beyond the variation in the types of units purchased or rented by household respondents. there are important differences in how units are financed. Table 8-4 presents

Table 8-4

Housing Purchase Characteristics

Characteristics(a)	Total All Projects	Types of Housing: Private Land & Housing Projects	Land Sub-divisions	Slum & Squatter Settlements	N.H.A. Projects	Condominiums
House Price	374,029	474,513	190,831	37,314	220,689	620,629
Downpayment	203,114	253,527	89,050	25,520	38,562	473,600
First Mortgage	220,780	276,354	84,230	15,385	159,860	302,706
Interest Rate	11.5%	13.1%	2.1%	27.8%	12.1%	13.4%
Term of Mortgage (yrs)	12.1	12.3	6.4	*	16.5	9.5
Monthly Mortgage Payment	3,739	4,286	1,586	*	2,089	5,190
Downpayment as a Percent of House Price	52.1	52.8	41.4	92.0	16.4	72.0
Mortgage as a Percent of House Price	63.8	64.7	49.1	45.7	79.5	57.2
Monthly Mortgage Payment as Percent of Monthly Income	27.1	28.6	27.4	*	20.9	27.7

(a) Mean Values

* = less than 30 observations

Source: Bangkok Land Management Study, 1987.

tabulations of home purchase characteristics according to the type of housing purchased. Overall, for all purchased housing, the amount paid as a downpayment was 52.1%. This varied from a low of 16.4% for NHA projects to a high of 92% for slum and squatter settlement housing.

When a first mortgage is placed on the home it averaged 63.8%. The highest amount of financing is for NHA projects, with nearly 80%; for slum and squatter settlements, it is the lowest and amounted to 45.7%. (The percentages for the downpayment and the first mortgage do not equal 100 because the tabulations for the mortgages exclude cases where there was no financing.) The terms of the first mortgages varied considerably, depending on the type of project: The average term was 12.1 years; the shortest term was 6.4 years for land subdivisions, and the longest was 16.5 years for NHA projects.

The findings of high downpayments illustrates an interesting and important behavioral pattern that is not reflected in the standard underwriting practices of mortgage lenders. In our extensive surveys of housing projects, we were routinely told that the minimum downpayment for purchasing a home was 20% to 25%. However, as our survey of recent buyers revealed, those who financed their home purchase put twice as much down--50% on average.

Interest rates charged for first mortgages averaged 11.5% per year, but they ranged from a low of 2.1% for land subdivisions to a high of 27% for slum and squatter settlement. This variation reflects the different sources of finance capital employed in these housing sectors. In the case of the land subdivision, the developer routinely finances the purchase of the plot for a period of time. Such low stated rates reflect the fact that the actual cost of the land has been marked up. In the case of the slum and squatter settlements, the financing is often obtained from informal credit sources which charge high rates.

The combination of variations in purchase price, amount financed, interest rate, and term all generate differing levels of monthly housing costs across these types of housing projects. Overall, monthly mortgage loan costs averaged 3739 Baht, ranging from 1586 baht for land subdivisions to 5190 baht for condominiums. For private land and housing projects, land subdivisions, and condominiums, the ratio of mortgage payments to monthly income is fairly consistent--approximately 27%.

The patterns of housing purchase reflect the fact that different housing markets are organized and financed differently and that each sector, by virtue of its prices, attracts a different income category of household. Slum and squatter settlements, for example, because they rely on more informal financial markets, require a larger downpayment, shorter term loan and higher interest rate. On the other hand, because NHA housing offers long-term government loans, it requires low downpayments.

E. Household and Financial Characteristics by Income

Many studies of the patterns of housing consumption have found that income greatly affects housing consumption. In this section, we examine the relationship between income and housing consumption. For purposes of this assessment, the income distribution of the survey respondents is divided into income quintiles. That is, respondents were divided into five categories of income: 0-6000; 6001-9852; 9863-13,210; 13,211-20,000; and more than 20,000 Baht per month.

Housing purchase prices and household incomes are strongly associated, reflecting a positive income elasticity of demand for housing: Table 8-5 presents mean housing prices, downpayment amount, amount of first mortgage, and monthly

household income. As expected, there is a strong correlation between the income of households and the price and method of purchase. Higher income households purchase more expensive

Table 8-5

Household Income and Housing Purchase Characteristics

Household Income Category Baht per month	Mean			Monthly Housing Mortgage+
	Purchase Price of House+	Down Payment Amount+	Amount of First Mortgage+	
0 - 6,000	145,651	74,539	91,484	1,820
6,001 - 9,852	268,230	144,066	155,466	2,476
9,853 - 13,210	369,869	179,210	217,749	3,136
13,211 - 20,000	434,952	215,234	268,723	4,379
Over 20,000	622,310	382,897	332,082	5,258
Average	374,029	203,113	270,780	3,739

+ Income quintiles differences are statistically significant at .001 confidence level

Source: Bangkok Land Management Study, 1987.

Table 8-6

Housing Consumption Characteristics by Household Income

Household Income Baht /Month	Average Plot Size (sq. wah.)	Average Plot Price Baht/sq. wah.+	Average House Size	Average House Price Baht/Sq. M.+
0 - 6,000	31.4	3,249	48.7	935
6,001 - 9,852	33.8	3,020	62.8	2,139
9,853 - 13,210	33.8	4,028	75.6	3,425
13,211 - 20,000	37.0	3,990	93.4	4,746
Over 20,000	39.4	7,614	109.8	3,199
Average	35.1	3,916	77.9	2,232

+ Income quintiles differences are statistically significant at .001 confidence level

Source: Bangkok Land Management Study, 1987.

housing, pay more down and finance more. Table 8-6 illustrates the variation in housing purchased by income quintile. The survey does reveal that higher income households purchase larger houses on larger lots. They also tend to pay more for land on a per-square-wah basis and more for housing on a square-meter basis.

The survey revealed that only 11.1% of the respondents had sold a prior residence before acquiring their current house. In most cases, the purchasers put down a considerable amount, averaging over 52% of the purchase price. In cases where there was a first mortgage, it averaged nearly 64%. The middle bands of the income quintiles relied most on financing, assuming the greatest share of debt. Lower and upper income households put more down and financed less, reflecting the fact that 1) the low income groups lack access to formal capital markets, and 2) that the wealthy do not need capital for housing.

To put these patterns in sharper focus, Table 8-7 presents purchase characteristics expressed in terms of annual household income. As illustrated in this table, despite the fact that households spend more on housing as their incomes increase, they spend proportionately less as their incomes increase. Households earning less than 6000 Baht per month (72,000 Baht per year) spend approximately three times their annual income on housing (216,000 Baht). At an annual income of 240,000 Baht, households spend only 2.3 times their income on housing (552,000 Baht).

Table 8-7

House Purchase Characteristics Expressed as a Percentage of Income, by Household Income

Household Income Category Baht Per Month	House Price Divided by Annual Income+	Monthly Mortgage as a Percent of Income	Downpayment Divided by Annual Income
0 - 6,000	3.0	38.5	1.6
6,001 - 9,852	2.8	30.4	1.5
9,853 - 13,210	2.7	27.8	1.3
13,211 - 20,000	2.3	27.1	1.1
Over 20,000	1.7	19.3	0.9
Average	2.5	27.1	1.3

+ Differences between income quintiles are statistically significant at .001 confidence level

Source: Bangkok Land Management Study, 1987.

The ratio of income to housing purchase price is fairly constant over the first three income categories. The actual expenditure patterns by household reflect the fact that household spend a smaller portion of their income on housing despite spending more on housing as their income increases. The last column of Table 8-7 reveals that the portion of income spent on the monthly mortgage payment declines as income increases.

The results of the survey indicate that most households are spending approximately 27% of their income on housing mortgage payments and that as their incomes increase, they are purchasing larger houses on larger plots of land. Access to credit, at least in the formal market, is well-provided to all segments of the income spectrum except for the lowest income groups. In the next section, the question of affordability is assessed.

F. Housing Affordability

On of the most important housing policy questions centers on whether the market is providing housing which is affordable. In many countries this question of affordability is of vital concern in light of rapid land and housing inflation. While the concept of affordability is complex, most often it refers to the proportion of income that a household must spend on housing. For example, a widely accepted international standard is that households should spend no more that 25% of their income on housing. There is another aspect to affordability which is often overlooked: the length of time required to save for the down payment. In the rest of this section, the affordability of housing will be considered, and current levels of affordability compared with earlier studies.

In 1982, the NHA published a study, Housing Affordability in Thailand-Cities [1982]. This study reported on a survey 1000 households, 250 of which were located in Bangkok. The survey was structured so that 25% of the respondents were located in slums, 25% were renters living in standard areas, and 50% were recent buyers of recently constructed standard housing. This pattern of sampling is not directly comparable to our survey. As revealed in Table 8-2, 51.7% of our respondents were living in private land and housing projects, 9.7% were renters, and 8.5% were living in slums and squatter settlements.

To make the results directly comparable, a new sample of 220 respondents, 110 from private land and housing projects, 55 from slum and squatter settlements, and 55 from rental projects were randomly selected. In the remainder of this section, only this subsample will be used to make comparisons with the earlier study. All prices have been adjusted to 1986 = 100 Baht.

Thus, the condition of slum dwelling homeowners is less than clear-cut. On the one hand, affordability has improved as the ratio of house price and downpayment to income has fallen over the period. These declines suggest that housing is more affordable for lower income households, although the quality of the units and their location may have deteriorated. On the other hand, the amount of income spent on mortgage debt has increased from 25 to 33%, indicating that affordability is less now than before in terms of monthly housing costs. This pattern is difficult to explain given the falling prices of units contained in the sample and the lower downpayments.

It may be that it is now more feasible to obtain some form of financing for housing located in informal settlements and that the higher monthly payments reflects the fact that owners are exploiting their access to capital by incurring mortgage debt. If this is true, the increase in the ratio of mortgage payment to income may not be negative per se, but reflects the increasing sophistication of the housing finance system.

While it is clear that homebuyers in formal housing markets are better off in terms of affordability, the question remains whether the benefits of increased affordability are evenly distributed over the entire income spectrum. Table 8-9 presents a direct comparison of the 1982 NHA survey and our own. As indicated earlier, the weighting of our sample has been adjusted to make it comparable with the NHA survey.

Table 8-9 presents eight income categories which have the same parameters used in 1982, adjusted to 1986 prices. Three measures of housing market performance for 1982 and 1986 are presented: 1) mean housing price and ratio of housing price to annual income; 2) mean downpayment and ratio of downpayment to annual income; and 3) mean monthly mortgage payment and ratio of monthly payment to monthly income. These three measures are frequently used to gauge housing affordability (in terms of purchase).

According to the table, housing affordability (as measured in terms of the ratio of housing price to income) has markedly improved between 1982 and 1986. In the low and moderate income categories, the ratio fell. Only in the two highest categories has the ratio increased. This pattern suggests that it is now much easier for Thai households to purchase housing than in 1982.

For lower income categories, less than 5424 Baht per month, the ratio of downpayment to income fell. Above this income level the ratio has increased, indicating that the middle and upper middle income groups need to save a larger share of their income to purchase a house. Still, the ratios are between 1.2 and 1.5 times income, indicating that at a savings rate of 20% of income per year, a typical Thai household could save enough for a downpayment in six to seven and one-half years. By international standards, this

Table 8-9

Affordability Trends by Income Categories, 1986 Baht

Income Category	1982 House Price Pct. of Ann. Income	1982 Downpayment Pct. of Ann. Income	1982 Monthly Loan Payment Pct. of Ann. Income	1986 House Price* Pct. of Ann. Income	1986 Downpayment* Pct. of Ann. Income	1986 Monthly Loan Payment* Pct. of Ann. Income
0 - 3254	n.a. n.a.	n.a. n.a.	n.a. n.a.	44,752 275%	42,753 219%	*
3255 - 4339	285,293 633%	141,748 222%	2,202 58%	56,272 128%	52,960 116%	*
4340 - 5424	455,630 776%	70,399 154%	3,179 65%	69,268 118%	39,884 68%	1,513 29%
5425 - 7594	607,475 278%	54,242 69%	2,131 33%	165,556 213%	123,564 158%	2,850 44%
7595 - 9764	368,844 354%	86,287 83%	3,356 39%	274,505 264%	157,331 151%	3,124 36%
9765 - 11934	459,243 354%	260,350 200%	3,612 33%	372,744 286%	160,718 123%	3,121 25%
11935 - 14103	271,205 174%	86,787 56%	3,257 29%	426,605 273%	196,698 127%	3,873 30%
Over 14103	200,694 119%**	82,317 49%**	3,320 24%**	534,314 320%**	305,042 189%**	5,147 36%**

* Less than 30 cases
** Calculated at 14,103 Baht

Source: Bangkok Land Management Study, 1987
NHA Housing Affordability in Thailand Cities, 1982.

period of downpayment accumulation is well within acceptable levels [Downs, 1985]. It is also the case that many young Thai households obtain assistance in coming up with the downpayment. According to our survey, the majority of homebuyers saved for their downpayment: Only 12% borrowed money for the downpayment and 23% received some assistance from relatives.

In terms of monthly mortgage payments, the affordability burden is easing. The percent of income going to mortgage payments declined in two of the middle income categories (4340-5424 and 7595-9764). In one middle income category (5425-7594), the percentage going to mortgage payments inceased to over 30%. Upper income groups are devoting a larger share to mortgage payments.

G. Conclusions and Implications

The results of our survey of approximately 650 households indicate that overall housing affordability has improved since 1982 and that, with a few important exceptions, the housing market of the region is performing well, and is providing housing at affordable prices.

The typical homebuyer puts 52% down on a house purchase, an amount far above what the normal banking and lending institutions require. This result is surprising since it goes against conventional wisdom and the standard information obtained from developers. Only in NHA projects do downpayment levels approach percentages consistent with lending criteria. Why this discrepancy? It may be that borrowers are worried about the financial ramifications of defaulting on a loan to a bank. They may also worry about doing business with a private firm, wanting instead to borrow money from relatives and close associates or if possible purchase a unit in a government project.

Purchase patterns reveal that the typical households devotes approximately 27% to monthly mortgage payments. This pattern is consistent across all income categories. This level is well within accepted financial standards, suggesting that there is no "affordability crisis" for most households in Bangkok at this time.

While far from conclusive, our comparison of our survey with another conducted in 1982 suggests that for most income categories, housing affordability has improved. Only the very low end of the the income spectrum, those residing in slum and squatter settlements and low priced rental units, are effectively priced out of the housing market. However, as indicated in Chapter 6, there are clear signs of a shift by the private housing market to lower priced units. According Angel and Chauted [1987], there are signs that these lower income groups may be better able to move up the housing ladder. Unfortunately, our data are not sufficiently plentiful to permit us to provide a detailed assessment of affordability for slum dwellers or renters.

The implications of the assessment of housing demand and affordability suggest that the private housing market is working extremely well to meet the broad-based housing demands of most of the market. This implies that the NHA should consider ways of enhancing the continued operation of the private sector in the lower end of the housing market. This could be accomplished in a number of ways, such as facilitating the expansion of infrastructure to other areas and keeping land development controls from pushing up costs for housing design and construction.

David E. Dowall, Bangkok Land and Housing Market Study, The Bangkok Land Management Study, 1987.

PROFILES OF PRIVATE-SECTOR HOUSING DEVELOPMENTS

A. Emergence of the Private Housing Developer

Private housing development projects first started in the late 1960s when developers began building multi-unit housing projects for the upper and middle classes. Prior to that time, housing was built on an individual basis on plots. By 1973, 33 companies were operating in Bangkok. These firms had land holdings of approximately 5000 rai, and had sold nearly 8000 units [Nathalang, 1974]. This type of housing was one of the fastest growing segments in the Bangkok housing market between 1974 and 1984, increasing by over 400% and adding over 90,000 units to the stock of housing. Based on the strong performance of this segment of the market, the Sixth Plan of the National Economic and Social Development Board stresses private sector housing production. Thus, private housing development will continue to be an important element of the Bangkok housing market and therefore important to assess.

Three surveys of projects will be assessed in this chapter: a 1986 survey of 32 private developer land and housing projects, a 1987 survey of low cost private land and housing development projects, and an earlier survey of land and housing projects conducted in 1980 for the NHA [1980]. Each of these studies provides information about selling prices, plot sizes and costs, housing sizes and costs, downpayment, financing, size of the total project, and, for the recent surveys, rate of sales of units.

This information is extremely useful for the NHA in setting its marketing plans and strategy. In the past, the private sector was not providing low-cost housing in Bangkok, preferring instead to build larger and more expensive units. In the absence of a private sector commitment to low- and moderate-income housing, the NHA stepped in to build housing for these for these groups. In recent years the market has shifted and there is clear evidence that the private sector has entered the low-cost housing market segment. If the private sector is moving down-market, then the NHA should consider adjusting its housing development strategy, perhaps moving into land development and leaving housing construction to the private sector.

Table 7-1 presents the results of surveys made by the NHA. According to an NHA survey of private land development projects, by 1974 there were 214 private developer housing projects. These were located in the suburban areas of Bangkapi, Phrakhanong, Bangkhen, and Hauikwang. The 214

projects accounted for 18,686 units or approximately 4.3% of the region's total housing stock. On average there were 87 units developed per project.

Table 7-1

Survey of Private Housing Development Projects in Bangkok, 1974, 1984

District	Number of Private Housing Projects 1974	1984
Pranakhon	0	0
Pomprap	0	0
Patumwan	0	0
Sampantawong	0	0
Bangrak	1	5
Yannawa	3	30
Dusit	7	34
Phayathai	11	25
Huaikwang	22	57
Prakhanong	57	177
Bangkhen	35	141
Bangkapi	63	245
Minburi	0	6
Ladkrabang	0	5
Nongchok	0	0
Thonburi	0	0
Khlongsan	0	0
Bangkoknoi	5	22
Bangkokyai	0	3
Bangkhunthian	2	29
Phasicharoen	5	35
Ratburana	3	17
Talingchan	0	19
Nongkhaem	0	7
Total	214	857

Source: National Housing Authority, 1986.

By 1984, there were 857 private housing development projects located in the same general area as in 1974 and with new development activity in Bangkoknoi, Bangkhunthian, Phasichroen, and Talingchan. These 857 private projects accounted for 122,487 units or an average of 143 units per project.

In a 1986 survey of private land and housing projects conducted by the PADCO team, more than 800 projects were identified. While a count of the units covered in these projects is not available, they probably represent between 100,000 and 150,000 units. A review of the characteristics of a sample of these land and housing projects is provided below.

B. The Organization of the Housing Development Industry

The construction industry of Thailand accounts for 5.2% of the total gross domestic product of the nation. In current Baht, the level of output has increased from 24,844 million in 1978 to 44,821 million in 1982. Private residential gross capital formation between 1979 and 1983 increased in constant 1972 Baht terms from 5966 million to 8639 million Baht, reflecting a 45% real growth in private residential construction activity at a time when overall public and private gross capital formation in the Kingdom was flat.

Construction employment figures reflect the strong growth in the industry, with employment increasing from 313,300 in 1978 to 520,200 in 1982. Construction employment accounted for slightly over 2% of the total employment enumerated in the Kingdom in 1982.

In the late 1950s, residential land development was carried out by land subdividers and developers. First they acquired land and provided road or canal access and services. Then they subdivided and sold lots to individuals. The transfer of land occurred directly between farmers and land developers. The finished residential plots were mostly sold on an installment basis, although in some cases banks and credit agencies provided financing.

Now, in contrast, land developers acquire the land, add fill, lay out plots, provide infrastructure, and contract with builders to build housing. Today land developers recognize it is far easier to sell plots if they can provide buyers with the opportunity to purchase a completed house. In some instances, particularly in the case of low-priced housing projects, the developer designs only one model to offer for sale. A good example of this approach is the low-cost projects built by Land and House Company, Ltd. They offer only one type of house and do not allow the buyer to make any changes in the construction design or in the finishes. This allows Land and House Company to tightly control builder costs by building a standard unit at a fixed price. Materials costs can be lowered by volume purchasing.

Many of the residential builders in Bangkok are closely following the progress of Land and House Company. While some are claiming that they cannot build housing at such low costs (175,000 Baht) and make money, others are interested in the process. What is absolutely clear is that these low-cost houses are selling extremely well, much faster than the middle- and higher-priced units. Based on the 1986 survey, projects average 30 rai and contain between 180 and 200 dwelling units. Most of the projects surveyed were started recently, less than 1.5 years ago.

To gauge the patterns of private land and housing development, a review of projects and how they have changed over time follows.

C. Comparison of Private Land and Housing Projects in 1980 with Those of 1986.

In this section, the results of the two surveys will be compared to assess the actual differences between the two samples. The first survey was conducted in 1980 by the NHA, including a sample of 126. The second survey, completed in 1986, was carried out by the Bangkok Land Management Study team. In this survey, 32 private land and housing projects, accounting for 6100 units were canvassed. The sample of projects was drawn from a tabulation of projects identified in the newspapers, on billboards, and on buses during the months of September and October of 1986. This comparison does not include the low cost housing projects surveyed by the Bangkok Land Management Study in 1987, since this survey was not random.

To make valid comparisons, all prices in the following tables are in 1986 prices. (To make 1980 prices comparable with 1986 prices, they have been increased by 30%--the percentage increase in the consumer price index from 1980 to 1986 for metropolitan Bangkok.)

Table 7-2

1980 and 1986 Private Land and House Projects, Distribution Units by Total Sale Price, in 1986 Baht

Price Range (Baht)	1980 Percent of Units	1986 Percent of Units
130,000 - 195,000	0.8	3.4
195,001 - 260,000	4.8	6.3
260,001 - 325,000	9.5	26.0
325,001 - 390,000	16.6	13.4
390,001 - 455,000	15.7	4.2
455,001 - 520,000	8.7	4.8
520,001 - 585,000	9.4	0.1
585,001 - 650,000	10.2	7.4
650,001 - 715,000	3.1	2.8
715,001 - 780,000	7.3	26.7
780,001 - 845,000	3.1	1.1
Over 845,000	10.2	3.8
	100.0	100.0

Source: National Housing Authority. Present Standards and Prices on the Housing Market in Bangkok. August 1980; and Bangkok Land Management Study, 1987.

As Table 7-2 illustrates, approximately 95% of the units surveyed in 1980 sold at prices above 260,000 Baht. Over 50% of the units sold at prices between 260,000 and 520,000 Baht, suggesting that the development community was oriented to the middle and upper end of the Bangkok housing market. On the other hand, according to the 1986 survey, nearly 10% of the units offered for sale were priced below 260,000

Baht. Whereas in 1980, 32% of the units sold under 390,000, in 1986 almost 50% of the units sold for less than this price. The 1986 price trends indicate that there is considerable activity at the upper end of the market, with over 30% of the units surveyed sell at prices above 715,000 Baht. In 1980 by comparison, only 21% were priced as high. The distribution of sales in 1986 became bimodal, with concentrations of units for sale at the low and high ends of the market.

The majority of detached and semi-detached units, as Table 7-3 illustrates, were in the 41-50 square wah range. Row and townhouse units, as expected, are on smaller plots ranging from 21-30 square wah. The size of plots for detached and semi-detached units is larger than is presently found in the market. Data from the 1986 survey do not allow for a breakdown of detached and row units, although both are present in the survey of units. The smaller units in the survey are row house and townhouse types, and most fall into the 10 to 20 square wah category. More expensive detached units are concentrated in the 51 to 60 square wah category.

Table 7-3

1980 and 1986 Private Land and Housing Projects
Distribution of Units by Plot Size

	1980		1986
Plot Size Sq. Wah.	Detached and Semi-Detached Percent of Units	Row and Townhouse Percent of Units	All Types of units Percent of Units
10-20	0.0	37.5	41.9
21-30	4.6	59.4	16.8
31-40	11.5	3.0	12.7
41-50	46.0	0	5.5
51-60	16.1	0	20.8
61-90	14.9	0	1.8
91-Over	6.9	0	0.4
Total	100.0	100.0	100.0

Source: National Housing Authority Present Standards and Prices on the Housing Market in Bangkok. August 1980; Bangkok Land Management Study, 1987.

A comparison of plot prices per square wah clearly illustrates that land prices have risen between 1980 and 1986 in real terms. In 1980, as illustrated in Table 7-4, plot prices where concentrated in the 1951 to 2600 Baht range. While over 30% of the plots surveyed sold for prices in this range, only 7.6% sold in this same range in 1986. Forty-seven percent of the plots in 1980 sold for under 3,250 Baht and by 1986, 48% sold for over 5201 Baht.

In real terms, prices of plots are increasing at the same time that prices for private land and housing units are

shifting to the lower end of the market. This is partly accomplished by reducing the size of the plots. Another potential way is to reduce the size of the housing unit as well, but as Table 7-5 illustrates, there is no evidence of this. In fact, there is an increase in the size of the units over 100 square meters.

Currently, the big innovation by homebuilders is to reduce the per meter cost and resultant selling prices of housing units in real terms. As Table 7-6 illustrates, while in 1980 only 5% of the units sold at prices below 2600 Baht per square meter, over 33% of the surveyed units sold for under this price. Apparently builders have shifted to less costly construction materials and methods and are able to sell units at lower prices.

Developers are now asking for higher downpayment percentages than in 1980. As reflected in Table 7-7, 48% of the units in the 1986 survey required a 21-30% downpayment as opposed to only 37% in 1980. In 1980, 28% of the units could be purchased with downpayments of less that 20%. In 1986, only 3% allowed less than 20% down. This shift in financing reflects the formalization of the mortgage finance sector. The terms for mortgages are much better today, 12% versus 16% in 1980, and the average mortgage period is now approaching 20 years.

This comparison between the 1980 and the 1986 projects shows that the private sector land and housing market is moving toward mass marketing of housing. Such mass marketing requires lower prices, higher volumes, and a lower-cost product with mass market appeal. The next section describes the types of units that are selling and why.

Table 7-4

1980 and 1986 Private Housing Development Projects, Distribution of Units by Market Price of Plots, in 1986 Baht

Plot Price Per Sq. Wah	1980 Projects Percent of Units	1986 Projects Percent of Units
Less than 1950	0.0	0.0
1951 - 2600	30.7	7.6
2601 - 3250	16.3	2.9
3251 - 3900	24.5	3.7
3901 - 4550	12.2	5.8
4551 - 5200	6.1	30.8
5201 - 6500	2.0	31.2
6501 - 7800	4.1	6.2
Over 7800	4.1	11.0
Total	100.0	100.0

Source: National Housing Authority Present Standards and Prices on the Housing Market in Bangkok, August 1980; Bangkok Land Management Study, 1987

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Table 7-5

1980 and 1986 Private Land and Housing Projects, Distribution of Units by Floor Area

Floor Area (Sq. Meters)	1980 Detached and Semi-Detached Percent of Units	1980 Row and Townhouse Percent of Units	1986 All Units Percent of Units
0 - 25	0.0	0.0	0.0
26 - 50	7.1	9.4	6.6
51 - 60	9.4	6.3	6.3
61 - 70	18.8	12.5	7.5
71 - 80	12.9	18.8	7.1
81 - 90	14.1	9.4	9.5
91 - 100	4.7	21.9	28.5
101 - 110	8.2	9.4	0.1
111 - 120	9.4	3.1	3.1
121 - 130	10.5	6.3	13.7
131 - 140	1.2	3.1	1.1
141 - 150	1.2	0.0	1.9
151+ over	2.4	0.0	14.6
Total	100.0	100.0	100.0

Source: National Housing Authority Present Standards and Prices on the Housing Market in Bangkok, August 1980; Bangkok Land Management Study, 1987.

Table 7-6

1980 and 1986 Private Land and Housing Projects. Distribution of Units by Price of Housing per Square Meter.

Price of House Per Sq. Meter	1980 Projects Percent of Units	1986 Projects Percent of Units
1951 - 2600	5.2	33.1
2601 - 3250	9.2	18.3
3251 - 3900	25.4	6.4
3901 - 4550	23.3	30.2
4551 - 5200	25.7	8.8
Over 5200	11.2	3.2
Total	100.0	100.0

Source: National Housing Authority Present Standards and Prices on the Housing Market in Bangkok. August 1980; Bangkok Land Management Study, 1987.

Table 7-7

1980 and 1986 Private Land and Housing Projects, Distribution of Units by Percent Downpayment Required

Downpayment Percentage	1980 Projects Percent of Units	1986 Projects Percent of Units
0 - 10%	4.6	0.0
11 - 20	23.6	2.9
21 - 30	37.4	47.9
31 - 40	17.6	49.9
41 - 50	8.4	0.0
Over 50	8.4	0.0
Total	100.0	100.0

Source: National Housing Authority Present Standards and Prices on the Housing Market in Bangkok, August 1980; Bangkok Land Management Study, 1987.

D. What Type of Private Land and Housing Units Are Selling?

In the 1986 survey, we assessed the absorption rates of units located in the surveyed projects. The absorption rate is the number of units that are sold per month per project. This rate provides useful information about the demand for housing and whether certain types of units are selling faster that others. In this section we indicate which types of units are selling.

The overall rate of sales ranges from zero to 20 units per month, depending on the size of the project, the price of units, and their location. In Table 7-8, sales rates in relation to sales prices are presented. As the table shows, lower-priced units sell faster than middle- and higher-priced units. The table also suggests that the highest-priced units sell faster than middle- priced ones. The lower-priced units are selling 40% faster than the overall average rate of sales.

Units located closer to the center of Bangkok sell faster than those located on the outer edge. As Table 7-9 reveals, those units located within 20 kilometers of Haulampong railway station sell from one and one-half to three times faster than those located farther from the center, suggesting that location plays an important role in determining the marketability of housing developments.

Table 7-8

Monthly Sales Rate by Price of Unit in 1986 Baht

Price Range	Percent of Units	Average Sales Rate Units/Month
0 - 250,000	6.6	6.2
250,001 - 500,000	46.3	4.1
500,001 - 750,000	19.4	3.5
750,001 - over	25.8	5.4
All Units	100.0	4.5

Source: Bangkok Land Management Study, 1987.

Table 7-9

Monthly Sales Rate by Distance from CBD

Distance from CBD	Percentage of Units by Distance	Average Sales Rate (Units/Month)
0 - 10 km	5.6	5.3
11 - 20	76.9	5.4
21 - 30	8.9	3.2
Over 30	2.5	1.7
Total	100.0	4.5

Source: Bangkok Land Management Study, 1987.

Table 7-10

Monthly Sales Rate by Size of House

House Size Sq. Meters	Percent of Units	Average Sales Rate Units/Month
0 - 50	6.6	5.1
51 - 75	18.4	2.1
76 - 100	40.5	7.5
101 - 150	19.9	5.8
Over 150	14.6	2.7
All Units	100.0	4.5

Source: Bangkok Land Management Study, 1987.

In terms of the size of the house and the size of the plot, Tables 7-10 and 7-11 present sales rates for various sizes of units. The results reveal that houses in the 76-100 square meter range and those with either very small or very large plots sell fastest. These patterns show that the private land and housing development market is most active in either the low or the high price range.

These sales figures suggest that private housing developers should seek close-in sites for development and clearly aim toward either the lower or upper end of the housing price range. The lower end of the market is particularly attractive in terms of sales rate. Aiming at such a market means buying inexpensive land and building economical structures. In the next section we assess the particular characteristics of 37 low-priced land and housing projects.

Table 7-11

Monthly Sales Rate by Size of Plot

Size of Plot (Sq. Wah)	Percent of Units by Size	Average Sales Rate (Units/Month)
10 - 20	41.9	4.7
21 - 30	16.8	4.2
31 - 40	12.7	3.5
41 - 50	5.5	3.0
51 - 60	20.8	0.6
61 - 90	1.8	5.4
91 over	0.4	10.0
Total	100.0	4.5

Source: Bangkok Land Management Study, 1987.

E. Low-Priced Private Land and Housing Projects

Midway through the survey of the land and housing project, the study team realized that there was a significant shift toward low-priced land and housing projects. To systematically assess this segment of the land and housing market, a survey was made of these projects. This survey was conducted by Dr. Shlomo Angel and Ms. Sureeporn Chuated. They have prepared a working paper on their survey (Working Paper No. 7, March 1987) and this section draws mainly from it.

Based on reviews of newspaper ads, billboards, and other media, 37 projects selling housing for under 250,000 Baht were identified as being currently for sale. These 37 projects accounted for 6810 units. Table 7-12 presents a distribution of low-cost housing units according to the price of the units. As illustrated, the majority of the low-cost units are priced between 150,000 and 200,000 Baht. The average price is 192,107 Baht.

Table 7-12

Low-Priced Land and Housing Projects, Distribution of Units by Price

Price Category Baht	Percent of Units
Less than 150,000	1.9
150,001 - 175,000	36.1
175,001 - 200,000	39.5
200,001 - 225,000	9.5
225,001 - 250,000	13.0
Average: 192,107	100.0

Source: Angel and Chuated, "The Down-Market Trend in Housing Production in Bangkok, 1980-87". Working Paper 7; Bangkok Land Management Study, 1987.

Table 7-13

Low-Priced Land and Housing Projects, Distribution of Units by Size of Project

Number of Units in Project	Percent of Units	Size of Project (Rai)	Percent of Units
Less than 50	3.1	Less than 25	16.3
50 - 100	10.8	25 - 50	15.1
101 - 200	14.1	51 - 100	26.6
201 - 400	11.5	101 - 200	10.7
401 - 800	25.8	201 - 400	8.7
Over 800	34.6	400 - 800	11.4
		Over 800	11.4
	100.0		100.0
Average:	184.1		150.4

Source: Angel and Chuated, "The Down-Market Trend in Housing Production in Bangkok, 1980-87". Working Paper 7; Bangkok Land Management Study, 1987.

The projects are large in terms of the number of units per project and the number of rai. Table 7-13 presents the distribution of projects by the number of units per project and the land area of the projects. While the average size of projects in terms of units (184) is not different from the overall survey of private land and housing projects presented above, over 50% of the units are located in projects with more that 400 units. In terms of size, the land area of the projects is large, averaging 150 rai. The size of the projects suggests that Bangkok developers are moving

into a large-scale pattern of housing production, where they can economize on construction costs, marketing, and overhead.

The units are very small in terms of plot and house sizes. Table 7-14 presents data on the size distributions of units for plots and house sizes. As the table reveals, the size of the plot is concentrated in the 16-20 square wah range (54%) and more than 54% of the units are less than 50 square meters. A comparison of Table 7-14 with Tables 7-3 and 7-5 shows that the new low-cost units are much smaller that the overall private land and housing market projects surveyed in 1980 and 1986.

The sales prices per square wah and square meters for plots and housing are presented in Table 7-15. Land prices in the low-cost projects are lower on a per square wah basis than for the overall projects surveyed in 1986. For example, more than 85% of the units sold in the low priced projects had plot prices less than 3500 Baht. In the overall private projects, only 14% of the units sold with plot prices less than 3900 Baht. The per-square-meter housing prices of low-cost projects was low, as might be expected, with more than 80% of the units selling below 3000 per square meter. This is a pattern similar to the overall market for private land and housing projects, where 70% of the units selling at prices less than 3900 Baht per square meter. The units are located at an average of 22 kilometers from the center of Bangkok, about 5 kilometers farther than the average for all of the private developer projects surveyed.

Table 7-14

Low-Priced Land and Housing Projects,
Distribution of Units by Size of House and Plot

House Size (Sq. Meters)	Percent of Units	Plot Size (Sq. Wah)	Percent of Units
Less than 30	1.3	12 - 15	2.4
30 - 39.9	9.1	16	43.2
40 - 49.9	44.1	18 - 20	31.2
50 - 59.9	30.3	21 - 25	17.8
60 - 70.0	14.3	26 - 30	3.4
Over 70	1.0	31 - 48	2.1
	100.0		100.0
Averages 49.7 Sq. Meter		19.3 Sq. Wah	

Source: Angel and Chuated, "The Down-Market Trend in Housing Production in Bangkok, 1980-87". Working Paper 7: Bangkok Land Management Study, 1987.

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Table 7-15

Low-Priced Land and Housing Projects
Distribution of Units by Price of House and Price of Land,
(in Baht)

House Price Per Sq. Meter	Percent of Units	Plot Price Per Sq. Wah	Percent of Units
Less than 2000	6.4	Less than 2000	1.5
2000 - 2500	44.4	2000 - 2500	11.1
2501 - 3000	32.9	2501 - 3000	21.2
3001 - 3500	8.5	3001 - 3500	53.5
3501 - 4000	2.4	3501 - 4000	4.8
4001 - 4500	1.0	4001 - 4500	0.0
Over 4500	4.5	4501 - 5000	7.9
	100.0		100.0
Averages 2632 Sq. Meter		3386 Sq. Wah	

Source: Angel and Chuated, "The Down-Market Trend in Housing Production in Bangkok, 1980-87". Working Paper 7: Bangkok Land Management Study, 1987.

As might be expected, the low-cost units sell very well, averaging more than 15 units per month per project, or more than three times as quickley as all private land and housing projects.

F. Conclusions

This chapter described the current market activities of the private land and housing market operating in metropolitan Bangkok. The current market was compared with 1980 patterns. The results of our two surveys of all private developer projects and low-priced projects revealed several important findings. First, the private housing development market is clearly shifting down to the low-cost, low-price market. Over 6800 units selling at or less than 250,000 Baht are on the market. Second, developers have effectively "downsized" units and plots to economize on costs. Third, these smaller units appear to be well accepted by consumers and are selling well. Fourth, developers drastically cut the cost of housing construction in real terms and this has helped them to lower their selling prices. There is clearly substantial innovation occurring in the residential housing market at this time.

6

MARKETABILITY ANALYSIS

by Stephen A. Pyhrr and Stephen Cooper

MARKETABILITY ANALYSIS

Stephen A. Pyhrr and James R. Cooper, Real Estate Investment: Strategy, Analysis, Decisions. New York: John Wiley & Sons. 1982.

MARKETABILITY ANALYSIS

"I get people to invest by selling them the depreciation"

a nationally known syndicator

WHAT IS MARKETABILITY ANALYSIS?

A marketability analysis is a micromarket study. The micromarket is the specific site that is being considered for possible investment.

The marketability of a particular unit of space implies the ability of the market to accept the transfer, sale, or exchange of some or all of the rights in that space. A marketability study usually considers a specific use or uses of the space. This use may or may not represent the highest and best use, but focuses on what is *marketable.*

A marketability analysis has been defined as a

> study to determine to what extent a particular piece of property can be marketed or sold under current or anticipated market conditions. It is inclusive of a study (analysis) of the general class of property being considered. Thus, a marketability analysis goes one step further than a market study by identifying the number of units that can most probably be absorbed within that specific trading area (market) and over a specified time period. Thus, the marketability analysis is not a project feasibility analysis in that it does not take into consideration development costs or profitability. In effect a marketability study is

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sandwiched in between the market study, on the one hand, and a basic financial feasibility analysis on the other.[1]

The usual conclusions of a marketability analysis are the following:

1. *Quality*, which in economic terms means the price or rent levels at which the market might accept the space.
2. *Quantity*, or absorption schedule within the defined time period.
3. *Specific conditions*, such as terms of financing, sales techniques, and amenities, which will enhance the acceptance of the property or encourage its acceptance by the market.[2]

A marketability analysis should forecast gross cash revenue and project the market share to be captured. Specifically, in an existing property situation (rather than development) the market analyst must project the gross possible income and vacancy rate under different economic scenarios for each year of the ownership life cycle. Preliminary property value and operating expense estimates might also be derived as an output of a marketability analysis; although this is cost efficient, it is not commonly done.

Location, Neighborhood, and Site

In Chapter 5 we noted that the location of an investment is influenced by the investor's overall philosophy and strategy, by the negotiation process, by the state of the capital markets, and even by nonpecuniary objectives. For the purposes of marketability analysis, a *location* is defined as the geographic area within which a real estate product could produce adequate income without suffering undue loss because of the absence or inadequacy of some particular factor that is usually necessary for such a use. Obviously, this is a pragmatic recognition of the imperfect efficiency of real estate markets. The same practical approach is taken in defining the limits of a neighborhood when doing a site analysis.

GUIDELINES FOR A MARKETABILITY ANALYSIS

As we have noted before, the investor is a coordinator of a process designed to maximize returns and accumulate wealth. Since micromarket analysis is quite location specific and requires extensive field survey work, the investor will most likely contract with a qualified real estate appraiser or counselor, such as an SREA or MAI, to perform the marketability analysis. One of the most valuable qualities of such an expert is the fact that he or she may have access to data that are not generally available. Especially for out-of-town investors, it is important that whoever performs the marketability analysis be knowledgeable about the local real estate markets.

[1] Bryl N. Boyce, *Real Estate Appraisal Terminology* (Cambridge, Mass.: Ballinger, 1975), p. 137.
[2] Stephen D. Messner, Bryl N. Boyce, Harold G. Trimble, and Robert L. Ward, *Analyzing Real Estate Opportunities* (Chicago, Ill.: National Association of Realtors, 1977), p. 43.

Because the uncertainty in much real estate investment is greater than one encounters with ordinary business risks, we believe that a marketability analysis should generate "optimistic," "most likely," and "pessimistic" levels of data.

The following is a list of the components of a thorough and complete marketability analysis:

1. Establishing the boundaries of the neighborhood
2. Neighborhood analysis
3. Site analysis
4. Survey of competition, with interpretative analysis
5. Marketing strategy and management plans
6. Capture and absorption rate analysis
7. Revenue and operating expense forecasts
8. Summary and conclusions

All of these components are interrelated: The economic–demographic profile, the competitive survey, the analyses of market absorption and capture rates, and the revenue and expense forecasts are based on the marketing strategy and management plans that the investor expects to adopt for the specific site use.

Establishing the Boundaries of the Neighborhood

As we have noted, a location may have more than one neighborhood within its boundaries. Since time and budget constraints do not permit an analysis of all the possibilities, the market study should provide sufficient information to select the neighborhood that best conforms with the investor's philosophy and strategy.

Neighborhood boundaries are often established by *natural barriers*, such as hills or bodies of water, or *legal/political barriers*, such as city limits, zoning boundaries, or school districts, or other *artificial buffers*, such as highways, rail lines, or green belts. The key to practical neighborhood delineation is to keep in mind that it is the competitive forces of users and lenders that establish and change neighborhoods, and not the decisions of analysts, planners, or statisticians. On the other hand, time and budget constraints compel the investor to define a neighborhood to fit available primary data, such as census tracts, blocks, or ZIP code areas.

In summary, one should delineate the neighborhood with due regard for natural and political barriers, competitive forces, and the best available fit to data sources.

Neighborhood Analysis

Neighborhood analysis should provide detail on the quality of access to public transportation, utilities, shopping centers, schools, religious and civic organizations, hospitals, community facilities, and recreational facilities, to the extent that they are pertinent to the use contemplated. Detailed information should be provided on the socioeconomic level of the neighborhood by income, education,

occupation, age, and population trends. There should be descriptive data on geological, topographical, climatological, and other environmental influences. There should be a narrative description of the history and nature of the neighborhood, how it came into being, and past, present, and future trends. It is reasonable for the investor to require a map pinpointing the location of the neighborhood (and the site) within the metro area (locality map). Generally, the report should provide the following:

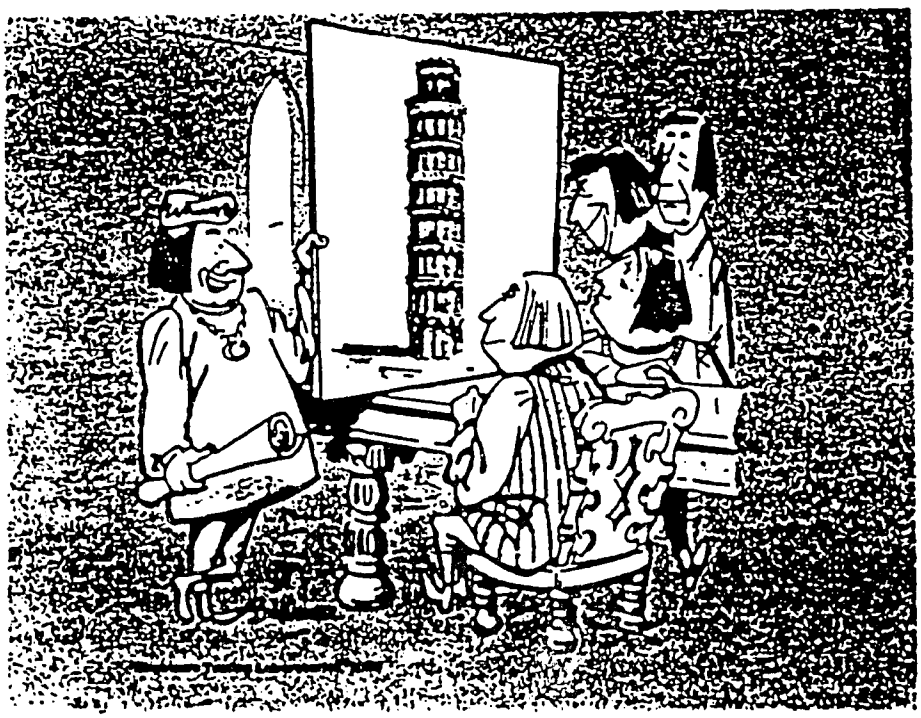
1. A statement of *what type of use predominates in the area*, the degree of conformity or diversity, and the extent of innarmonious uses.
2. *An evaluation of the area's reputation.*
3. *The representative range of sales and rentals*, and the *quality of improvements* relative to competitive and comparable submarkets.
4. An *informed opinion on the general remaining economic life* of the *typical* properties in the neighborhood area. Signs of spot blight should be observed.
5. A comment on the *extent of neighborhood maturity and degree of neighborhood sprawl.* Is the location built up? Is it stable? Is it on the decline? Is it being rehabilitated? Is there pride of ownership? What is the quality of routine maintenance?
6. A report on the typical source of financing and refinancing in the neighborhood. An evaluation of the attitude of lenders toward the future of the neighborhood.
7. An evaluation of *how accessible the neighborhood is* to the municipal infrastructure, the urban economy, and essential services and amenities.
8. A report on *planning, zoning, and code controls*. Are there any restrictive covenants? Are occupancy permits required for new owners? Is code compliance activity adequate or overzealous? Is there any illegal or nonconforming use in the area? Is a zoning variance, exception, or change necessary for the contemplated use?
9. An analysis of the *nature and adequacy* of available utilities and necessary amenities and other essential facilities *for the planned use.*
10. A report on the *vacancy and occupancy rates* that exist in the neighborhood as a result of current and/or long-term conditions. This report should be stratified as to tenure (owner/renter) and price/income categories.
11. A report on the *turnover rate* of ownership and/or occupancy.
12. A comment on any known hazards, nuisances, noise, air or water pollution, traffic congestion, etc.
13. A *comment on possible positive or negative effects of nearby major facilities*, such as schools, major complexes, regional shopping centers, convention facilities, stadiums, and industrial districts.
14. An evaluation of future trends for the neighborhood. The analysis should provide a factual and objective opinion of both positive and negative influences, free from speculative bias based on prejudices of any sort.

Site Analysis

Site analysis is an in-depth extension of neighborhood analysis. However, it focuses more narrowly on physical and geological conditions and terrain It reviews zoning, land use controls, and other economic, legal, political, and sociological factors that might affect the use and, hence, the value of the site. If the neighborhood analysis has made some reference to hazards, nuisances, amenities, and the like, then this part of the report should discuss their effect on the site.

Generally, one should expect a site analysis to contain the following site-specific commentary:

1. The dimensions, shape, and area of the site.
2. Topography.
3. Soil and subsoil conditions.
4. Quality of drainage.
5. Quality and adequacy of utilities.
6. The nature of on-site landscaping, paving, etc.
7. Is the site typical and representative in nature? If not, what is the extent of its nonconformity?
8. Quality, adequacy, and level of maintenance of the municipal infrastructure (streets, curbs, sidewalks, etc.). (*Note:* The neighborhood analysis should have provided information on the quality and level of police and fire



"...and we can save 700 lira by not taking soil tests."

protection, urban transportation, and sanitary hauling and sewage. However, some special comment may be necessary for a specific site. In a built-up area, the very reason for nondevelopment may often be the inaccessibility of some such service.)

9. Time and distance to urban services and amenities.
10. Comparison of the site with other competitive sites, using appropriate units of comparison (i.e., ratios such as real estate taxes per square foot or rents per square foot).

In addition to the foregoing, the investor must continuously assess potential users' and lenders' attitudes toward all of these factors, for user preferences have the greatest influence on current and future values. Exhibit 6–1 shows a segment of the appraisal form developed by the Federal Home Loan Mortgage Corporation (FHLMC) and the Federal National Mortgage Association (FNMA), which effectively summarizes neighborhood/site characteristics as evaluated by a skilled appraiser.

Site analysis can be extended by the use of *earth science maps.*[3] Covering anything from a city block to the entire planet, the calibrated scales of these maps are appropriate for urban applications. (The camera resolution is so high that one can see even the height of curbs.) These maps provide the investor with valuable information on, for example, ease of excavation, landslide susceptibility, slope stability, seismic susceptibility, percolation rates, mineral potential, and solid waste disposal. Neglect of site condition variables can be dangerous.

The Environmental Impact Statement

Today developers and investors must also keep in mind the need to comply with environmental laws and regulations, for the cost of such controls can make a large difference in profit potential. A site analysis, therefore, should consider the effect of such regulations. Under the National Environmental Policy Act (NEPA), Section 102 (2)(c), environmental impact statements must be filed on some projects that set forth, among other matters, the following:

1. The environmental impact of the proposed project.
2. A report on its adverse consequences.
3. Alternative uses that might be made of the environment.
4. Methods by which the proposed use can be better adapted to the environment.
5. The impact of the proposed use on long-term efforts to maintain or enhance the environment.
6. A report on the irreversible and/or irretrievable commitment of resources required to carry out the project.[4]

[3] G. D. Robinson and A. M. Spieker (eds.), "*Nature to be Commanded . . . ,*" Earth-Science Maps Applied to Land Use and Water Management, Geological Survey Professional Paper no. 950 (Washington, D.C.: GPO, 1978).

[4] Jane A. Silverman, *Environmental Impact of Real Estate Investments*, Real Estate Review Portfolio no. 17 (Boston, Mass.: Warren, Gorham & Lamont, 1974).

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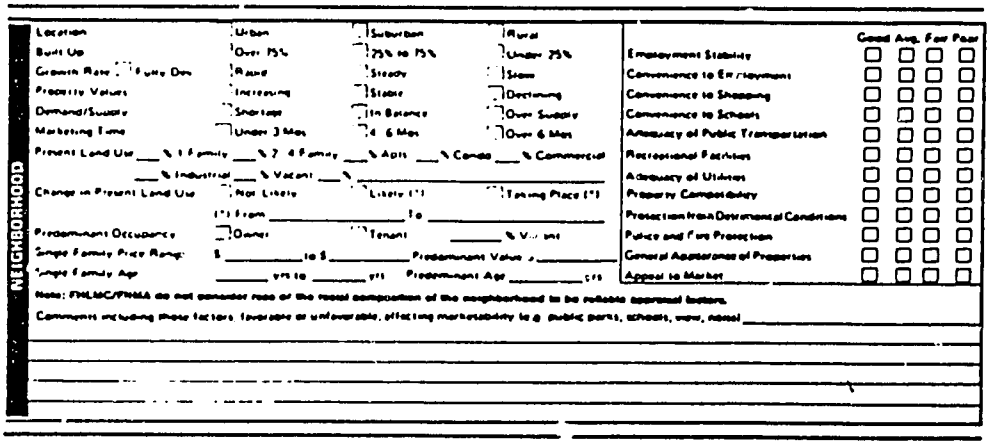
EXHIBIT 6-1. A Portion of an FHLM/FNMA Residential Appraisal Form


NEIGHBORHOOD

Location ☐ Urban ☐ Suburban ☐ Rural
Built Up ☐ Over 75% ☐ 25% to 75% ☐ Under 25%
Growth Rate ☐ Rapid ☐ Steady ☐ Slow
Property Values ☐ Increasing ☐ Stable ☐ Declining
Demand/Supply ☐ Shortage ☐ In Balance ☐ Over Supply
Marketing Time ☐ Under 3 Mos. ☐ 4-6 Mos. ☐ Over 6 Mos.
Present Land Use ___% 1 Family ___% 2-4 Family ___% Apts. ___% Condo ___% Commercial ___% Industrial ___% Vacant ___% ___
Change in Present Land Use ☐ Not Likely ☐ Likely (*) ☐ Taking Place (*)
(*) From ___ To ___
Predominant Occupancy ☐ Owner ☐ Tenant ___% Vacant
Single Family Price Range $___ to $___ Predominant Value $___
Single Family Age ___ yrs to ___ yrs Predominant Age ___ yrs

	Good	Avg.	Fair	Poor
Employment Stability	☐	☐	☐	☐
Convenience to Employment	☐	☐	☐	☐
Convenience to Shopping	☐	☐	☐	☐
Convenience to Schools	☐	☐	☐	☐
Adequacy of Public Transportation	☐	☐	☐	☐
Recreational Facilities	☐	☐	☐	☐
Adequacy of Utilities	☐	☐	☐	☐
Property Compatibility	☐	☐	☐	☐
Protection from Detrimental Conditions	☐	☐	☐	☐
Police and Fire Protection	☐	☐	☐	☐
General Appearance of Properties	☐	☐	☐	☐
Appeal to Market	☐	☐	☐	☐

Note: FHLMC/FNMA do not consider race or the racial composition of the neighborhood to be reliable appraisal factors.

Comments including those factors, favorable or unfavorable, affecting marketability (e.g. public parks, schools, view, noise) ___

SOURCE: Federal National Mortgage Association, Form no. 1004, rev. 7/79.

Highest and Best Use

Many investors feel that a highest-and-best-use analysis should be part of the site analysis. This concept, developed by appraisers, is a useful method for preliminary site use analysis. Since an investor seeks the most profitable use of capital, the site use should meet the following criteria:

1. It is *reasonably probable.*
2. It is *legally permissible.*
3. It is *physically possible.*
4. It is adequately and appropriately *supported by the market.*
5. It is *financially feasible.*

A properly executed marketability analysis must address each of these preliminary determinations regarding the feasibility of the contemplated site and use, except for financial feasibility.

Is the Site Use Reasonably Probable? The determination of what is reasonably, prudently, and likely to succeed is largely dependent on the separation of fantasy from what is likely to occur. Many raw land deals have been sold at exorbitant prices because buyers failed to consider when in the immediately foreseeable future urban fringe land would actually be converted into suburbs. In effect, whether the use contemplated is likely to occur is determined largely by its current accessibility to the essential services of the metro area. The determination of what is reasonably probable depends on the screening tests to be set forth shortly. The key to successful highest-and-best-use analysis is to select the use that is *the next most probable* profitable use in the short-term future.

Is the Site Use Legally Permissible? Do subdivision regulations and zoning, housing, and building codes permit the use intended for this location? Even if the codes do permit that use, is it the most productive for that location? If the intended use is now illegal, should zoning changes be sought? What is the estimated cost of obtaining the change, and what is the probability of success?[3]

Is the Proposed Use Physically Possible? Architects, builders, and engineers have developed construction technology to a point at which almost anything can be built anywhere at any time. But what is economically feasible to the investor may be a quite different thing.

The investor needs architectural, planning, and engineering services for many situations. Engineers and architects can estimate the cost of siltation management, which might require the removal of trees and ground cover and the construction of water retention ponds. Subsoil conditions can be estimated prior to purchase. Engineering studies also are often useful in determining the quality and adequacy of heating plants, air conditioning, elevators, and roofs. Failure either to have the seller cure defects or to take them into consideration in price negotiations can prove disastrous to the investor.

Is the Site Use Appropriately Supported by the Market? The market for any use—a new development or improvements at an existing location—must be thoroughly known to the investor, or else the supply and demand characteristics of the contemplated use must be thoroughly explored. A site may be in the path of growth, but expansion of the urban fringe or the filling in of urban sprawl may take another ten years before it reaches the site. For example, in one case county planners had zoned an area near a regional airport for industry, but the acreage available constituted a 200-year supply at the expected rate of growth. In another type of situation, there may in fact be a demand for 2000 additional units of multifamily rental housing in the $250–350 per-month range, but a survey would reveal that ten developers were already building 2000 units *each* for the forecast period. During the 1970s most major SMSAs had begun to signal obvious potential distress due to overbuilding long before the overbuilding itself occurred.

Is the Proposed Use Financially Feasible? Since all investors seek profitable use, an investigation of financial feasibility is mandatory. An appraiser makes such a study part of a highest-and-best-use analysis. However, this book defers discussion of financial feasibility until Chapters 10–13, since we feel that it warrants a separate study.

Economic and Demographic Profile of the Neighborhood/Site

Markets can be delineated in various ways: geographically, by political jurisdiction, or by time and distance radii. However, because of time and budget constraints we feel that the preferred choice is geographic delineation. A geographically oriented, areal, economic–demographic data base report can be conveniently

[3] Hinds, Dudley, et al., *Winning at Zoning* (New York: McGraw-Hill, 1979).

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produced at low cost by using a proprietary, computer-based, data retrieval system like CACI's. We will use CACI's Siteline® and Site · Potential™ systems to demonstrate the type of marketability report that is now available.[6]

In 1970 the Census Bureau provided the Census of Population Housing Summary in computer readable form for the first time. Several organizations were formed to process the tapes and make them available to users.

In the Siteline system 98 key variables were selected. They include:

- Total population
- Population by race, age, and sex
- Family income
- Median income
- Home values and rental prices
- Major appliances
- Occupation
- Units in structure, including mobile homes
- Automobiles
- Education
- Household and family composition

The system provides a demographic data base covering 63,000 unique administrative or political units. In addition, special computer programs provide geographic cross-reference files for very small areas, such as block groups, census tract districts, and ZIP code identifiers, thereby enabling users to define areas of any size and shape required. To use a program, the user selects a *site*. A site is a physical landmark, such as the intersection of two streets, that serves as a reference point around which a number of area boundaries may be geometrically defined. The populations of these subareas, called *cases*, are equal in sum to the total population of the site area. CACI enables the user to define up to 20 possible cases in any one computer run. Exhibit 6–2 illustrates a few of the ways in which a market might be defined. In addition, the user can define a market as composed of one or more of the following: (1) the entire United States, (2) states, (3) counties, (4) SMSAs, (5) ZIP code districts in SMSAs, (5) census tracts, or (6) minor civil divisions.

CACI provides another example of proprietary data retrieval system with Site · Potential™. With this system, users simply define a trading area of any size or shape. The system scans the CACI demographic base to determine the demographic characteristics of the residents of the trading area and then computes sales potential information. Though the Site · Potential™ system is most useful for retail

[6] We gratefully acknowledge the cooperation of George Moore, Vice-President, CACI. 1815 Fort Myer Drive, Arlington, Virginia, 22209, for making this CACI material available.

Scholarly sources for the concepts imbedded in models such as CACI's are: David E. Bell, Ralph L. Keeney, and John D. C. Little, "A Market Share Theorem," *Journal of Marketing Research*, (May 1975), pp. 136–141; Thomas J. Stanley and Murphy A. Sewal, "Image Inputs to a Probabilistic Model: Predicting Retail Potential," *Journal of Marketing*, (July 1976), pp. 48–53; and Stanley and Sewall, *Metro Markets* [with teaching notes and program listings] (Boston, Mass.: Intercollegiate Case Clearing House, 1977).

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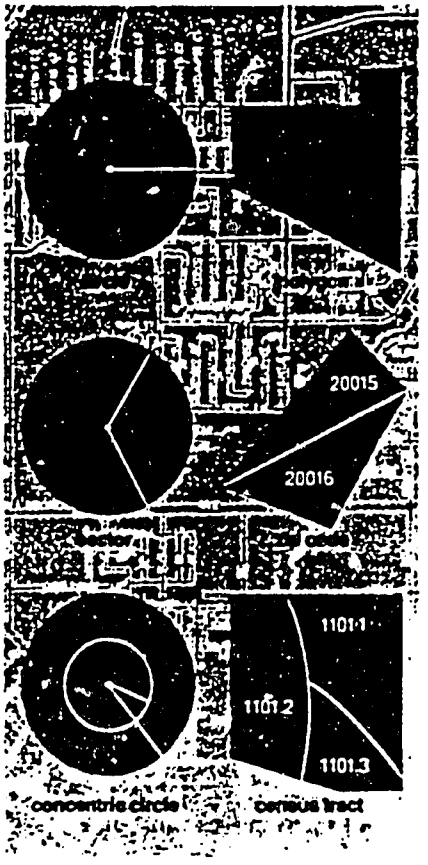
EXHIBIT 6–2. Defining Geographic Market Boundaries

Choose an area of any size or shape anywhere in the USA.



. . . Or, any combination of cities, townships, counties, ADIs, DMAs, and SMSAs.

SOURCE: Courtesy of CACI, Inc., Arlington, Va.

or commercial investments, the methods and techniques of analysis are appropriate, with modifications, for all kinds of real estate investments.

The older, now outmoded, methods of developing such sales potential for an area were of only marginal value for smaller trading areas because the procedures did not take into account many factors that influence expenditures, such as ethnicity, occupation, income, family size, education, household composition, and regional effects. CACI and other computer data retrieval systems, however, analyze

the relationship between consumer expenditures and their demographic and socioeconomic characteristics. The Site · Potential® system can generate both a market growth index (MGI) and a market potential index (MPI) for the trading area, as well as for each line of merchandise. The market growth index compares the growth rate of total sales potential in the trading areas with the growth rate of the economic region in which the trading area is located. This is very similar to the technique of economic base analysis. If the MGI of the trading area is 106, then the total sales potential of the area has grown at a rate that is 6 percent *greater* than the potential for the economic region. The market potential index compares weekly per capita sales potential of the trading areas with that of the economic region in which the trading area is located. When, for example, the market potential index is 123, the potential of the area is 23 percent higher than the average potential of the economic region. This information, covering over 74 lines of merchandise, is currently organized into 29 standard reports. (See Exhibit 6–3.)

The presentation of the CACI information systems has enabled us to review the nature of economic--demographic data base profiles and provided a brief study of how they are developed and made available. Obviously, proprietary systems of this kind are relevant primarily to commercial and service real estate uses. However, once a neighborhood and site have been selected, such data retrieval systems can provide the demographic and socioeconomic characteristics that must be reviewed for any contemplated use within that geographic area.

In addition to site evaluation, such data retrieval services might be used for market share analysis, customer profiling, and tenant mix decisions, and as an aid in forecasting market absorption and capture rates. The Siteline® reports are available by phone, and access to various subsidiary programs such as Site II® and Site · Potential® is available on nine time-sharing networks.

Keep in mind that such services do not offer only simple linear projections. The projections are controlled by the most recent estimates for census tracts and minor civil subdivisions. Some projections are adapted for information from utility companies, the construction industry, and environmental groups.

A major shortcoming of such profiles must also be kept in mind. The projections provided are based on past activities; they are not predictions of what will *actually* occur. No model can take into consideration changes like the following:

1. Rapid changes to higher and better land uses as a result of private or governmental action, such as demolition, highway construction, construction of public facilities, new industry in the area, conversions from old to new uses, etc.
2. Changes in technology or material shortages that are not yet reflected in consumption activities like mass transit, energy use, etc.
3. Rapid changes in consumer buying patterns, such as those brought about by Kentucky Fried Chicken and MacDonald's.
4. On an individual case basis, such statistics are necessarily silent on the effects of competitors' plans.

Field Survey of the Competition

This is a survey, by competent professionals, of *existing and planned* real estate that will compete with the investment under consideration. Before proceeding with an acquisition, it is essential for an investor to discover how competitors are currently serving the area and how *additional* competitors are *planning* to serve it in the immediate future. With this information the investor can refine and improve the merchandising plan during the preacquisition stage. It is also possible that an investor will find that new construction contemplated is of such quantity and quality that interest in the particular site should be abandoned. An investor must verify the accuracy of information gained from competitors' representatives. Such information can be cross-checked with utility engineers, other building contractors, mortgage lenders, and government agencies.

The data gathered from an appropriate competitive survey will provide direct market comparisons with alternative sites that are being offered to the tenants the investor seeks to capture. Competitive data will sharpen the investor's definition of customer profiles, potential rents, vacancies, and expenses, and can test the kinds of amenity packages that competitors are providing. These critical data will enable the investor to test his or her plans against what the market is already providing to tenants, and make it possible to identify what lenders have recently approved.

The following are factors that should be covered in various kinds of competitive field surveys.[7]

Residential Competitive Survey

1. Map showing location of various competitive projects.
2. Number of existing or planned units in project.
3. Unit mix (i.e., number of bedrooms).
4. Square feet per unit (including balconies, patios).
5. Amenities of unit (carpets, drapes, appliances, security).
6. Nature and quality of project amenities (recreational facilities, clubhouse).
7. Price or rental range (sales price per square foot, expenses per square foot).
8. Tenants' lease terms.
9. Sales and financing terms of recent sales.
10. Vacancy and occupancy rates (stratified by unit mix).
11. Quality and nature of management and merchandising strategy (advertising, models, signs).
12. Rate of absorption of new or vacant units in recent months.
13. Nature of occupants (income, occupation, place of employment).
14. A judgmental rating of the overall competitiveness of the project on a scale from 0 to 10.
15. Date of field survey.

[7] These guidelines were adapted from ideas presented by John McMahan, *Property Development* (New York: McGraw-Hill, 1976). A recommended book.

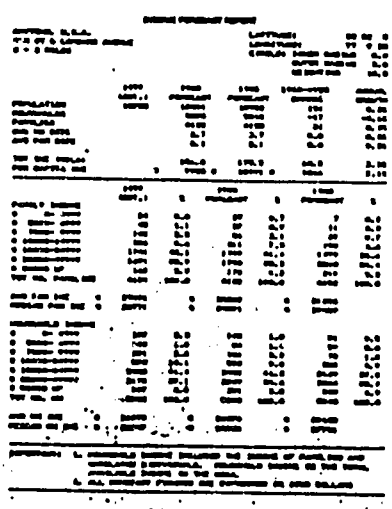
EXHIBIT 6-3. CACI Standard Market Reports

Choose any of 29 standard reports.

Demographic Reports:
1. Income Forecast
2. Demographic Forecast
3. Income Update
4. Demographic Update
5. Demographic Profile
6. Demographic Summary
7. Columnar
8. Comparison
9. Growth
10. Component Area

Sales Potential Reports:
11. Shopping Center
12. Grocery
13. Drug
14. Apparel
15. Footwear
16. Department Store
17. Automotive Aftermarket
18. Home Improvement
19. Optical Center
20. Hair Salon
21. Bakery
22. Dry Cleaners
23. Photo
24. Appliances
25. Ice Cream
26. Restaurant
27. Commercial Bank
28. Savings & Loan
29. Consumer Finance

. . . or call us if you have a requirement not listed here.



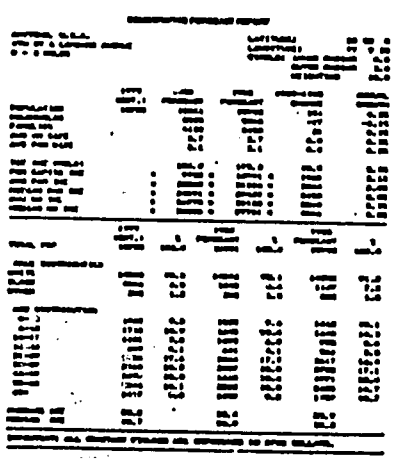


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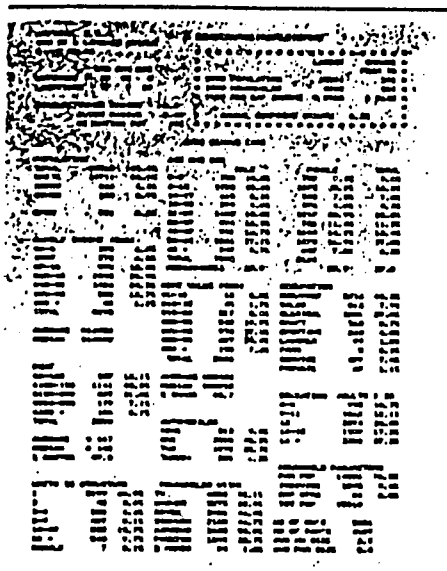
EXHIBIT 6-3. *(Continued)*



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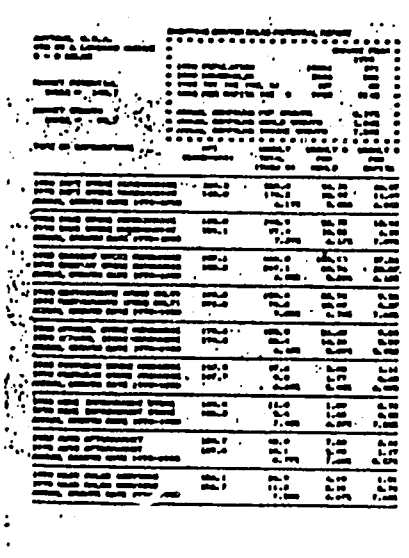

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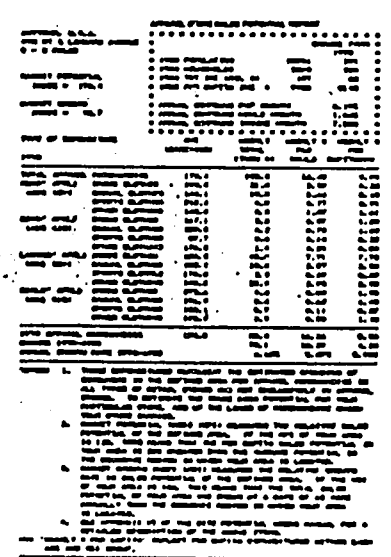

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SOURCE: Courtesy of CACI, Inc., Arlington, Va.

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Retail/Commercial Competitive Survey

1. Map showing location of competitive projects (including time and distance indicators).
2. Gross leasable area (GLA) of competitive projects, broken down into major categories of goods and services.
3. Parking index—number of parking stalls or square feet of parking area per square foot of GLA.
4. Sales or rents per GLA, broken down into categories of goods and services.
5. Identification of major anchor tenants and competitive stores.
6. An evaluation of directly competitive users (comments on stores, appearance, personnel, advertising, and promotional techniques).
7. Opinion of the overall quality of the competitive center. This should be a consideration of merchants' association, maintenance, shopping atmosphere, etc.
8. An analysis of the area surrounding the center (presence of buffers, nearby uses, transportation, type and quality of nearby uses, growth trends). A rating scale of 0– 10 should be used.
9. Date of field survey.

Office Competitive Survey

1. Map showing location of competitive office buildings; the name of the office activity nodes where office uses cluster in the SMSA.
2. Gross building area, net rentable area, net rented area, net occupied area of competitive buildings.
3. Schedule of rents per square foot, broken down by tenant and floor location of tenant categories.
4. Minimum lease duration.
5. Items normally included in tenant finish allowance (partitions, utility outlets, lighting, carpets, drapes).
6. Lease terms (building services included in base rent, escalation clauses, maintenance duties, risk of loss in the event of casualty).
7. Parking (provided, how, monthly charge).
8. Other building amenities (function rooms, restaurants).
9. General profile of major and minor tenants.
10. An evaluation of the overall competitiveness of the project (maintenance and management, appearance, locational advantages/disadvantages). A rating scale of 0– 10 should be used.
11. Date of survey.

Industrial Land Use Competitive Survey

1. Map showing location of competitive projects.
2. Accessibility to various transportation modes (air, highway, rail, public transit), with time, distance, and frequency indicators.

3. Nature, quality, adequacy of various utilities (capacity, limits on ut. ation, surcharges, tap-in charges).
4. Development controls imposed.
5. Alternative site developments permitted (build-to-suit, general purpose only, sale/leaseback).
6. Acreage sold or rented to date, with annual absorption rate.
7. Acreage vacant or remaining to be sold or rented.
8. Profile of major and minor occupant firms.
9. Price or rental terms, per square foot, for various uses.
10. Lease terms (duration, escalation clauses, risk of loss in the event of casualty, renewal options).
11. Project amenities provided by owner (landscaping, street maintenance, snow removal, lighting, conference facilities, recreational facilities, restaurants).
12. An evaluation of the overall relative competitiveness of the project. A rating scale of 0– 10 should be used.
13. Date of survey.

The material listed here is schematic in nature and lacks detail. In Part IV we provide detailed definitions of many of the technical terms plus greater detail on the techniques of competitive analysis.

Sound marketability analysis requires the development of a logical merchandising plan early in the preplanning stage. A better competitive s .vey will result if the marketing strategy and management plan have been developed, at least on a preliminary basis, for the contemplated site use. This will lead to greater accuracy in the market absorption and capture rate analyses.

Marketing Strategy and Mana ent Plan

Each of these terms covers a separate, but essential, management function.

Marketing Strategy Marketing strategy is defined as the investor's policy concerning the merchandising of the property. This policy is designed to achieve or maintain an adequate level of occupancy within acceptable market absorption rates, and to produce a minimum rate of return at an acceptable level of risk. Although this definition differs from many, it is our belief that investment strategy, marketing strategy, property management, and so forth are all parts of a continuous process directed toward the goal of maximizing returns relative to risks. The functions should not be separated.

The original market study identified market areas in an SMSA where possible investment opportunities could be found. Once the site has been targeted for the contemplated use, a merchandising program must be devised to exploit the opportunity at the site.

A merchandising program varies with the neighborhood/site, the nature of the location, the degree and nature of the competition, special advantages or disadvantages of the subject site, and the investor's evaluation of the effectiveness of other merchandising programs. Although a market analyst is sometimes asked

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to develop the merchandising program, generally the investor devises the plan with the assistance of a qualified property manager and/or real estate broker.

In order to develop a merchandising plan, the characteristics and preferences of the target market must be described as precisely, simply, and definitively as possible. For example, the target market for an industrial park may be small business firms, young or mature, that require a combination of office space and/or warehousing, nonpolluting manufacturing, or a laboratory. An apartment building might be aimed toward singles and empty-nesters earning $20,000 or more who are interested in security, limited health facilities, and close proximity to hospitals and shopping. The target market for a boutique shopping center may be described as young executives and older couples with high disposable income who are interested in gourmet foods, art objects, high-fashion clothes, and other specialty items.

Definition of the target market early in the preacquisition stage forces the investor to ascertain whether or not the market currently exists in the targeted SMSA market area. Clear characterization serves another valuable function in that it requires the investor to formulate a merchandising plan that is consistent with the needs and resources of the target market. When purchasing an existing project with apparently adequate gross rents, this exercise is quite useful as a way of evaluating the representations made by the seller regarding the occupation, income, and the like of the users.

Although we cannot fully develop a general model of a merchandising plan here, we will note various decision points that are important in evaluating and estimating market absorption and capture rates, given the merchandising plan.

1. Once the typical space user has been defined, a shopping service might be engaged to compare the target with its competition.
2. Having considered the comparative advantages and disadvantages of the targeted use, one might consider what design, repairs, or improvements might be necessary. This could require amendment of the capital budget or renegotiation with the seller.
3. Every real estate project tends to develop an image in the marketplace, even if it is so desirable that it is rented by word of mouth. Generally, however, it is necessary to promote a project in order to maintain high occupancy levels throughout the building cycle.
4. Careful attention should also be given to the signage program, to the way prospective user traffic will be handled, how sales models will be shown, and to the sales/lease closing rooms.

The Management Plan A management plan is defined as the tactical system that implements investment, marketing, and merchandising strategy in accordance with the investor's philosophy. It is the investor's supervisory control system over the property manager.

In Chapter 16 there is a detailed discussion of the property management function. Here we simply list the functions of the property manager, who acts as

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an agent of the owner. In general, the supervisory control system requires the property manager to provide the following:

1. Space use planning to meet user preferences
2. Market promotion policies, merchandising, tenant selection
3. The maintenance and replacement policy
4. Policies for control of major construction and contractors
5. Accounting policies and control of reserves
6. Management policies for operation of the property

The investor separates management of the property from investment management, which is concerned with acquisition, investment, and market analysis; risk/return evaluation; financing and refinancing; tax planning; and disposal, or terminating the property interest. Although the investor may use an independent property manager to manage the property, control of the investment function should be retained.

The Market Absorption and Capture Rates

The Market Absorption Rate This is the rate at which the market is capable of using space for a specified use. Sometimes the market absorption rate is stated as a percentage, but more often it is given as the ratio of the number of units absorbed over the time it will take to absorb them into the market. Since real estate is relatively inelastic in the short run, it is quite possible that a market absorption rate of 100 units per month could result in a queue of eager customers until new units were built and brought on the market to satisfy the demand. For example, at 100 units per month the absorption rate for 1200 units for the entire year (including both new and previously sold units coming back onto the market) would be 8.5 percent. But to say that the absorption rate is 100 units per month or 1200 units per year is not enough. To be practical, the market absorption rate should be related to both demand and supply. In addition to knowing the standing inventory for any given period, one needs to know how many units are expected to come onto the market during the same period.

A marketability analysis should provide absorption rates for *stratified* markets in small geographic areas, and should do so with a low rate of error. Because users can exercise a wide choice as to location—which is loosely defined as time and distance from home to work—the market absorption rate for, say, apartment space for an entire SMSA can be forecast with more accuracy than the effective demand for apartment space within a small geographic area. Under such conditions the usefulness of a proprietary type of demographic/economic data base profile for small areas is apparent, since it provides the means for matching estimates of absorption rates with historical trend comparisons. Since the estimation of market absorption rates is more an exercise in human judgment than an objective process of quantification, the investor should forecast data under: optimistic, most likely, and pessimistic conditions.

Capture Rates A capture rate is an estimation of market share. An *existing* capture rate is the percentage of the total potential market that is *currently retained* by existing competition. A *potential* capture rate is the percentage of the total potential market represented by an excess of demand over supply. To the extent that the existing capture rate is less than the total demand for space, there exists an opportunity for the development of a real estate product to serve the need.

Existing capture rates can be determined by comparing the total potential for the market area with the total number of existing units for the specified type of activity. An existing capture rate of less than 100 percent in retail sales, for example, indicates that consumers are traveling outside the local market to acquire the necessary goods or service. This leakage can be captured by an attractive local retail source. Using the *summation estimating technique*, the marketability analysis would first establish the potential of dollar expenditures for the particular use that would be originated in the market area. To estimate a reasonable market share for an existing site, one would allocate the appropriate share of potential dollars expenditures among the existing and planned competitive uses. The balance, divided by the site's revenue units (e.g., apartment units or gross leasable area of retail space), will provide an estimate of the reasonableness of achieving this level of market share.

A variation of this technique uses information produced by the field survey of the competition. Having identified the number of competing facilities within the market area, one proceeds to estimate the share of the market that the target site and the competitors have captured and/or are expected to capture in the case of new facilities. This is a judgmental estimation; it takes into account competitive locational advantage, attractiveness of facilities, and the like. At this point the capture rates can be multiplied by the expenditure for this type of consumption activity to provide an estimate of the sales that could be captured in this market area. When compared with estimates produced by the competitive survey, this acts as a check on the reasonableness of estimates.

In the case of a planned facility, the best available means of estimating a capture rate is to conduct primary behavioral research to supplement information on consumer expenditure patterns arising out of the data base profile. This is accomplished through personal interviews, phone interviews, or mail questionnaires. Attitudinal surveys of this kind are fraught with the possibility of error when conducted by amateurs. Such surveys probably should be done by a market research analyst because of the special skills required. A crude measure of the potential demand for the contemplated use can be provided by an enumeration of how the respondents would want to use the facility. With a scientific sample, it is possible that an adjusted capture rate can be derived for the total projected population during the rent-up or sell-off period. Certainly such projections should be judgmentally adjusted for the effects of competitive changes. One should also keep in mind that consumer surveys are an expression of wishes and desires; they are not measures of actual demand for the real estate product.

Unfortunately, formal methods for the determination of capture rates have yet to be developed. Therefore, the investor should use more than one of the

methods indicated here. In addition, a range of capture rates should be estimated so that the reasonableness of the estimates can be assessed more effectively.

Revenue and Expense Forecasts

For existing properties the conclusion of a marketability analysis is a forecast of (1) gross possible rental income and (2) vacancy rates for each year over the expected holding period of the investment. Risk is taken into account by projecting data for alternative economic scenarios, defined above as optimistic, most likely, and pessimistic conditions. These data outputs from the marketability study will be used as input to the investor's return and risk analysis. We noted previously that some investors also seek additional information from a marketability analysis: estimates of future property value, and expected range of operating expenses (as inferred from the study of comparable properties). Estimating property value is an especially crucial issue in investment analysis and is addressed more thoroughly in Chapter 7.

SUMMARY

A marketability analysis is a micromarket study of the specific site being investigated for possible investment. Generally, marketability analysis requires the services of people who have technical qualifications beyond those of the typical equity investor.

The components of a marketability analysis include definition of the boundaries of the neighborhood, neighborhood analysis, site analysis, survey of the competition, development of a preliminary marketing strategy and management plan, identification and estimation of the market absorption and capture rates, and revenue and expense forecasts.

A careful, subjective analysis of the highest and best use of capital at the site must be made. To carry out such an analysis the investor can use proprietary data retrieval computer services that generate economic–demographic trends for a chosen site. While such data are essential, the dynamics of the urban environment are such that field surveys are also an essential part of a marketability analysis. Competitive surveys should be tailored to the type of site use contemplated and must discover not only existing but also planned competition. Because competitive surveys generate comparative data, the investor should develop a preliminary marketing strategy and management plan so that decisions can be made about how the site will be used.

Though the techniques for estimating market absorption and capture rates are still crude, the investor should press the analyst for such data for the specific submarket. Capture rates should be stratified by user profile and limited to appropriate time and distance radii.

In conclusion, a real estate marketability analysis estimates the amount of a specific real estate use that will be needed by the localized market within the forecast period. Much judgment enters into the making of marketability analyses because the techniques, concepts, and applications are not yet well developed, and because they deal with the uncertain future.

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MARKET STUDY + FINANCIAL ANALYSIS = FEASIBILITY REPORT

by John Bailey, Peter Spies
and Marilyn Weitzman

James D. Vernor ed., Readings in Real Estate Market Research. Chicago: American Institute of Real Estate Appraisers, 1985.

Market Study + Financial Analysis = Feasibility Report

John B. Bailey
Peter F. Spies
Marilyn Kramer Weitzman

Introduction

When property owners (corporate, institutional, financial, or individual) perceive a need for real estate consulting services, they generally believe an appraisal will help solve myriad problems. The word "appraisal" is universally understood, and obtaining an independent estimate of property value is considered a logical foundation in making important real estate-related decisions. In many instances, an appraisal serves as an invaluable contribution in the decision-making process associated with a real property asset, but in other cases an appraisal (in the classical sense) is unresponsive to a client's needs. Unfortunately, many property owners are oriented towards seeking appraisals when they actually need other consulting services.

The result of an "appraisal" is the single, "magic" number sometimes defined as the highest price in terms of money that a property will bring if exposed for sale in the open market, allowing a reasonable time to find a purchaser who buys with knowledge of all the uses to which it may be adapted and for which it is capable of being used. There are other variations of that definition, but they all boil down to the single figure called "price" at which a change of ownership would be justified, with neither buyer nor seller acting under undue compulsion. It is an idealized market situation presuming a prudent buyer and a prudent seller, both fully and equally informed.

A *feasibility study* is an analysis aimed at discovering whether or not a specific project or program can be carried out successfully—with success usually implying a sufficient return on capital required to attract investors to carry out the development. In other words, *feasible* means sufficiently profitable for somebody to want to do it and *feasibility study* means an analysis to estimate whether or not it's going to be profitable. But how does that differ from an appraisal? Isn't a good appraisal a feasibility study? It can be, but the two are not synonymous.

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How To Differentiate an Appraisal From a Feasibility Study

Several differences distinguish an appraisal from a feasibility study. First the appraiser by definition must look at a project from the standpoint of a typical prudent buyer or prudent seller. In a feasibility study, the consultant looks at a project from the standpoint of the specific client or such other point of view as the client would like assumed. If we appraise a project, we will give an opinion of what a typical buyer will pay for it. If we do a feasibility study, we will tell the client what we think the project is worth to potential investors.

Second, an appraisal is a specific estimate of how the market values a property as of a certain date. It usually does not embody a recommendation for action, which is essentially a function of the consultant rather than the appraiser. A feasibility study normally should go beyond determining profitability and advise the client on actions he or she might take to maximize profitability over the long term. A property can be appraised at any point in its life span, but a feasibility study is needed only when something's happening—new construction, changing use, renovation, remodeling, and so on.

Furthermore, an appraisal will estimate land value and hypothetical proper costs less functional and economic obsolescence, while a feasibility study is more concerned with land cost and actual improvement costs, proper or improper, functional or not. The question is what the real dollar investment is, not what the investment should be or should have been.

Basically, the consultant should be more responsive to the client's needs than the appraiser, who is ethically bound to a more static role as a measurer of the market rather than the dynamic role of adviser and counselor.

To illustrate the basic components and analytic techniques of a feasibility study, we shall review an actual case study. A high-rise residential condominium development is used for demonstration purposes, but the techniques (with modest adjustments) can be applied in conducting a feasibility study involving most property uses.

A feasibility study requires two basic and interdependent analyses, including both a market study and a review of relevant financial considerations. The following pages will address the two major considerations separately. First, a market study will be carefully defined and illustrated. Next, the steps associated with the financial analysis will be explored. Finally, we shall summarize the basic ingredients inherent in a feasibility study.

Market Research

Market research can provide necessary orientation when entry into a new market is under consideration. It can update information on areas in which one is currently working or provide direction in a land use study of a specific site. The contemplated use of the site can be residential, industrial, office, commercial, or a combination of the above in an integrated planned unit development. The market analyst can be asked to determine the highest and best use of the site, in which case both a land use and market study are required, or the use of the site may be predetermined. In the case study we shall examine, the site is intended for multi-family residential units under condominium ownership.

Residential Case Study

Residential market research consists of the following general steps: 1) definition of the market area, 2) analysis of housing demand factors, 3) analysis of housing supply factors, 4) analysis of the physical and locational aspects of the site if a specific property has been designated, and 5) marketing recommendations with reference to the specific site, including type of development, size of units and unit mix, price levels, amenity package and product features, and an absorption schedule. The emphasis of the market research program, however, will differ depending on the proposed use of the site

under investigation and on factors peculiar to the area under analysis. The depth and scope of market analysis should be tailored to each individual situation. Any statistics mentioned should be cited in the context of how they relate to the property under consideration.

Definition of the Market Area

The first step in analyzing housing demand or supply is to define the primary housing market area. This is the area of primary draw of potential purchasers to a site. The general parameters for determining the primary market area are that it usually lies within a five- to ten-mile radius of the site and that it is usually based on municipal boundaries to make data aggregation possible. The primary housing market area becomes the basis for competitive housing analysis and for general impact analysis. For purposes of demographic analysis, our fictional market area in the case study has been defined as Central City and the two adjacent suburban areas of Gardenville and Sands Point, as noted on the area map (figure 23.1). The subject site is located in an exclusive residential area of Central City, somewhat similar to Boston's Beacon Hill, New York's Upper East Side, Philadelphia's Society Hill, or Washington, D.C.'s Georgetown. Essentially, the prime market is expected to be drawn from those households who either live in Central City, or work in Central City and live in Gardenville or Sands Point.

Housing Demand Factors

The second step in residential market research is to analyze the housing demand factors. When a specific site has been located, as in the case study, the housing market analyst can relate the demand of the area to the specific site and proposed use. These housing demand factors include a study of the current economic and demographic background of the primary housing market area, analysis of four specific demand indicators, and a projection of housing market demand.

Economic and Demographic Components of Demand

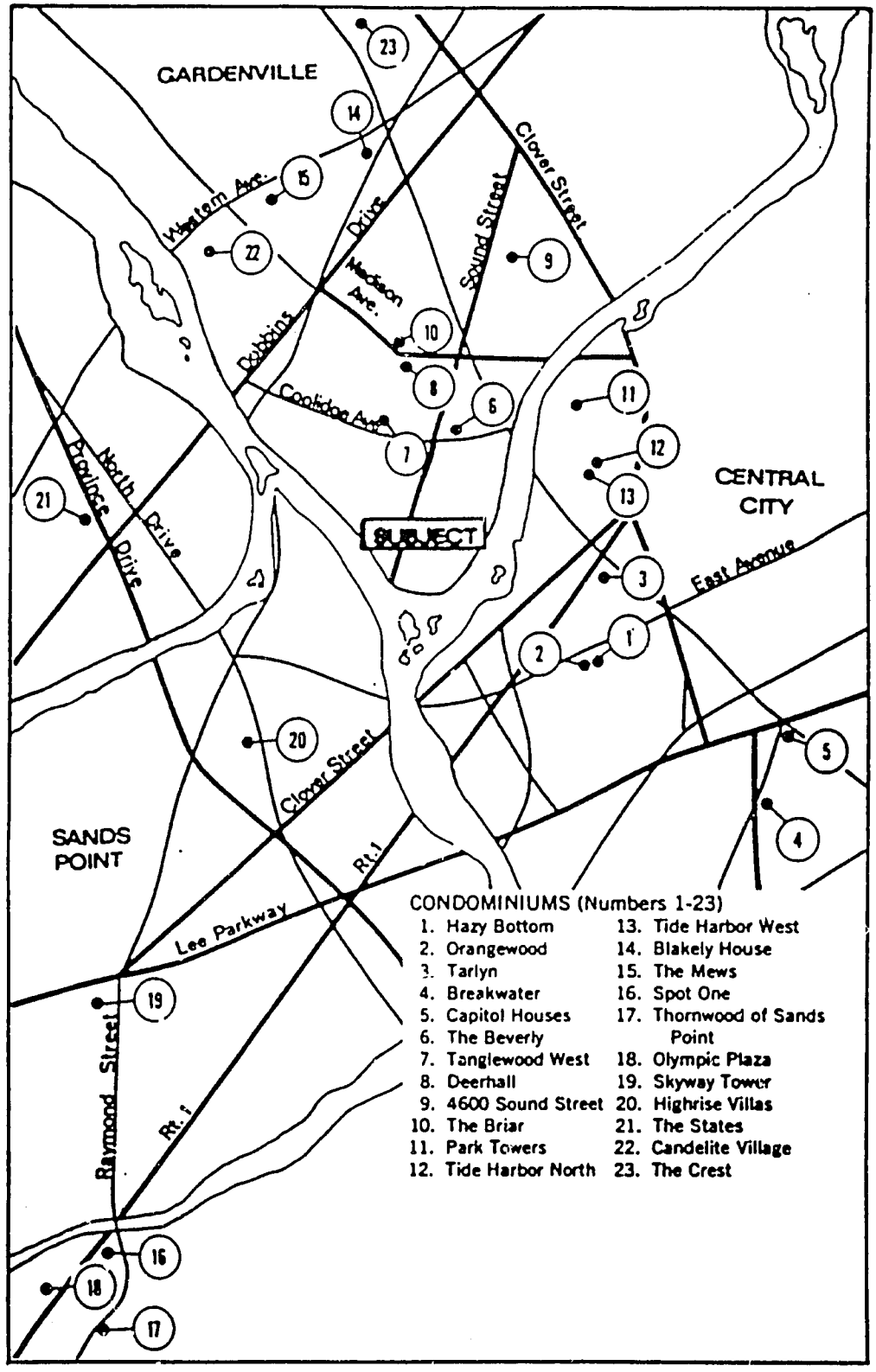
The study of the economic and demographic background of the primary housing market area indicates if the market is growing and can support development. This encompasses a population analysis including projections, past trends of total population, age distributions and migration patterns, and a household analysis including projections, history, size, tenure, and age distributions. It also includes a study of employment opportunities, with emphasis on the strength and diversity of the employment base and future expectations, as well as an analysis of the income distribution among various groupings in the market area. Any other factors peculiar to the area under analysis also should be cited.

The four specific indicators of housing demand that should be analyzed include 1) the year households in the market area moved into their present housing, 2) vacancy rates of housing in the market area, 3) the absorption rate of competitive units currently available, and 4) the financing practices of local lenders.

The projection of housing market demand will show total demand for new and existing housing units throughout the forecast period and also can be allocated to type and price of unit. Specific projections of housing demand should be made only if the proposed number of units to be built represents a significant share of the total housing market or if evidence of housing demand (based on past trends) shows a particularly weak market. In this case study, it is not necessary to project housing market demand, because the total number of proposed units is small (about 200) and preliminary analysis indicates an exceptionally strong housing market.

Analysis of Demand in Primary Housing Market Area. To analyze housing market demand in the case study, we first looked at the economic and demo-

Figure 23.1. Location Map for Comparables



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graphic background of the primary housing market area. We focused on determining the size of the potential market of high-income, small-sized households in the city proper as well as those in the more affluent surrounding suburbs that could be attracted to a multi-family residential development on the subject site.

From census data we learned that there were 491,603 households in the total market area in 1970. We then looked at the income characteristics of these households. Using the normal relationship between income and house value, we estimated that households earning $20,000 or more could afford the condominium units provided in the subject development. We also have included data for the number of households earning between $15,000 and $20,000 in 1970 to reflect the rapidly rising incomes during recent years, which should now cause the households to be in the $20,000 category. We found that 1) 208,500 households (42%) have annual incomes over $15,000, 2) 114,600 households (23%) have annual incomes over $20,000, and 3) 66,300 households (14%) have annual incomes over $25,000. This means that there are more than 200,000 households in the market area that are within the income range that can afford to buy one of the 200 units on the subject site.

Income Characteristics of Neighborhood. We also wanted to determine the income characteristics of the neighborhood in which the subject property is located. The average annual household income in 1970 was $31,800, or three times the average income for Central City as a whole. This indicated that the area is a highly desirable section of the city, and that luxury housing units would be compatible with the neighborhood.

Household Size Characteristics. Household size data from the 1970 census were analyzed to determine the size of the high-income, small-sized household—the prime market for urban mid-rise residential units. As of 1970, 66.4% of all households in the market area contained three persons or less. We have found in similar studies that focusing on the one- to three-person household size reduces the market potential between 45% and 50% of the previously outlined figures describing households by income. Thus, the size of the high-income, small-sized household in the designated market area is estimated to be 1) 100,000 one- to three-person households with annual incomes over $15,000, 2) 55,000 one- to three-person households with annual incomes over $20,000, and 3) 30,000 one- to three-person households with annual incomes over $25,000.

In conclusion, we have identified 100,000 households that are potential customers for the 200 units on the subject site. In technical terms, the capture rate of the subject property would be 0.2% (200 units − 100,000 = .2%) of the designated households in the market area.

Age Mix of Households By Income Category. The age mix for those households in the market area earning more than $15,000, as shown in table 23.1, is summarized as follows:

Under 30	7% earn $15,000 or more
30-44	37% earn $15,000 or more
45-64	51% earn $15,000 or more
65 and over	5% earn $15,000 or more

Table 23.1 includes data for all-size households and does not apply only to one- to three-person households. Because a much higher percentage of the smaller-sized households traditionally fall within the 45 to 64 age grouping, we tend to place more emphasis on the market demand from these high-income households than from other age groupings. In other words, many high-income households with heads in their 30s have school-age children, and not until they are in their 40s do the households shrink in size sufficiently to be attracted to an urban mid-rise residential development. These data tend to confirm that the largest segment of the potential market is expected to be those high-income households of three persons or less, headed by people in their 40s and 50s.

Table 23.1. Age Groupings of Households with More Than $15,000 Incomes in Market Area, 1970

Husband-Wife Families	Total Market Area					
	Total		Owner		Renter	
	Number	%[a]	Number	%[a]	Number	%[a]
Under 30 years old						
$15,000-$24,999	12,450		4,085		8,365	
$25,000 or more	1,322		560		762	
Total $15,000 +	13,772	(7%)	4,645	(3%)	9,127	(19%)
30-44 years old						
$15,000-$24,999	55,838		40,840		14,998	
$25,000 or more	16,211		13,468		2,743	
Total $15,000 +	72,049	(37%)	54,308	(37%)	17,741	(36%)
45-64 years old						
$15,000-$24,999	58,303		45,559		12,744	
$25,000 or more	41,485		35,079		6,406	
Total $15,000 +	99,788	(51%)	80,638	(55%)	19,150	(39%)
65 years and over						
$15,000-$24,999	6,477		4,565		1,912	
$25,000 or more	4,079		3,053		1,026	
Total $15,000 +	10,556	(5%)	7,618	(5%)	2,938	(6%)
All ages						
$15,000-$24,999	133,068		95,049		38,019	
$25,000 or more	63,097		52,160		10,937	
Total $15,000 +	196,165	(100%)	147,209	(100%)	48,956	(100%)

a. Figures in parenthesis are the percentage of all age households.

Year Households Moved into Present Housing. In an attempt to determine the type of housing the desired households currently are occupying, we reviewed market area census data pertaining to the year in which households moved into their housing, as shown in table 23.2. Even though we found that much publicity has been given to the transient nature of families in the market area, the data in table 23.2 indicate that a fairly high percentage of households (particularly owner-occupied) moved into their existing housing in the early 1950s and 1960s. This would be particularly true for those households whose heads are between 45 and 65 years of age. Most younger households with heads between 30 and 45 years of age, as one might expect, moved into their present housing during the early and mid-1960s. The significance of these data to our analysis is that a large number of potential buyers are living in housing that was built 15 to 25 years ago and probably has design and functional deficiencies. Some of these families can be expected to move into new units, such as the proposed mid-rise in Central City, that will provide the types of design and amenities that may not be available to them in their present housing.

Vacancy Rates. Another factor that indicates strong housing demand is low vacancy rates. As seen in table 23.3, the overall vacancy factor in the metropolitan area was 1.8% as of early 1972. Such a low rate is a strong indication of the need for additional housing units because a normal vacancy rate should approach 5%. In the subject neighborhood the vacancy rate for both apartments and residences was even lower, at 0.4%, which is further support of the strong housing demand and indicates additional housing units could be absorbed readily.

Table 23.2. Year Moved Into Unit by Tenure of Household in Market Area

	Total Occupied	Owner Occupied	Renter Occupied
1969-1970	244,386 (27%)	48,107 (12%)	196,279 (41%)
1965-1968	323,745 (36%)	123,123 (30%)	200,622 (41%)
1960-1964	139,940 (16%)	91,289 (22%)	48,651 (10%)
1950-1959	128,366 (14%)	100,459 (24%)	27,907 (6%)
Before 1950	62,059 (7%)	50,567 (12%)	11,492 (2%)

Source: U.S. Census of Housing, 1970.

Table 23.3. Vacancy Rates of Housing in Market Area, December-January 1972

	Total Units	Residences	Apartments
Subject city	2.7%	1.9%	3.3%
Subject neighborhood	0.4%	0.4%	0.4%
Metropolitan survey area	1.8%	1.2%	2.6%

Source: HUD Postal Vacancy Survey, May 1, 1972.

Table 23.4. Absorption Rate (Pace) per Month of Condominiums in Market Area

Project	Total No. of Units	Absorption Rate Per Month	Date of Sales Opening
CENTRAL CITY			
Hazy Bottom	51	4	May 1973
Deerhall East	124	5	November 1971
Park Towers*	161	49 units sold—absorption rate not established	February 1973—Tenants May 1973—Public
4600 Sound Street*	265	25-30	December 1972—Tenants March 1973—Public
Breakwater*	32	4	January 1973
Capitol Houses*	269	15	January 1973
The Briar*	138	Tenants bought 108 units	August 6, 1973
Tide Harbor North	108	All units sold	—
SANDS POINT			
The Olympic Tower	255	77	May 19, 1973
Spot One	300	20 (trailer only)	January 1973
Skyway Plaza	North–468 South–472	468 (10 days) 472 (3 weeks)	June 1972 August 1972
Thornwood of Sands Point	152	12	December 1972
Highrise Villas	252	18	September 1972
The States	459	36	January 1973
GARDENVILLE			
The Crest	67	2	September 1972
Candelite Village	394	28	Winter 1972
The Mews	36	4	February 1973
Blakely House	289	15	February 1972

*Conversion

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Absorption Rates of Competitive Units. The high absorption rate of condominiums currently on the market is a further indication of strong housing demand. Table 23.4 details absorption rates of the individual new projects we surveyed. The range is from a low of four units per month to a high of 468 units per month. The two most expensive projects have experienced low absorption rates of four to five units a month. In addition, we found that most condominiums are being sold from model apartments before the structures are built and, in certain cases, are even being sold, without models, from sales offices located in trailers.

Other Factors Affecting Housing Demand. A sewer moratorium in effect since 1970 in Gardenville, coupled with a decline in issuance of sewer permits in Sands Point, contributes to the tight housing market in the metropolitan area by reducing the supply of available units. The net effect should be increased demand for new multifamily residential units in Central City itself, where sewer permits still are available.

In summary, the data analyzed to assess housing demand indicate that the demand for condominium units in the designated market area is generally very strong. Approximately 100,000 households are potential customers for the 200 units on the subject site.

Housing Supply Factors

The third step in residential market research is to analyze the housing supply factors. The housing market analyst must study the housing supply in the primary housing market area and relate it to the proposed use of the specific site. These housing supply factors include an analysis of 1) building permit authorizations, 2) resale housing market price levels, 3) competitive housing developments, including those in the planning stages, and 4) an inventory of available vacant land for residential units.

Housing growth patterns define the current housing situation and give an indication of short-term growth direction. These growth patterns can be analyzed by reviewing the historical trend of building permit authorizations; this indicates the magnitude of annual construction.

Resale housing market analysis is a further indicator of the strength of the market. This can be done by reviewing deed transfers and interviewing brokers. The results can be shown in terms of price, location, and volume.

A detailed competitive analysis of existing residential projects in the primary housing market area helps to qualify market depth and show areas that may be overbuilt or underbuilt. This usually entails a visit to individual projects to determine the detailed characteristics of the competition, including unit types, price, size, financing, maintenance, and value ratio. Comparative data must be assembled and evaluated concerning annual absorption, best-selling units, and the amenity package and product features offered in each project. This shows which items are necessary to any residential development and which are optional. Recommendations about the amenity package and product features that result from this study could give a developer a marketing advantage.

It is useful to obtain information on residential projects currently in the planning stage, including their status, size, and probable market-entry timing. These projects on the drawing boards probably will be directly competitive with the future development being analyzed; they are good indicators of the direction of growth.

In addition, an inventory of other vacant land in the market area is useful to determine the availability of competing sites on which future residential projects could be built. This should include land value in terms of price per unit.

Housing Supply Factors in a Residential Case Study

To analyze housing supply factors in the case study, we first analyzed building permit authorizations, which showed a steady annual increase over the last 10 years. We then compiled a list of asking prices for resale single-family townhouses in the neighborhood of the subject property.

Resale Housing. The neighborhood is primarily residential in character and dominated by older three- to four-story townhouses. We felt that the marketability of residential multi-family units on the subject site would be influenced by the market values attainable for nearby attached townhouses. We studied these market values by noting the range of asking prices for resale townhouses as reported by local real estate brokers. Townhouses in the vicinity range from $60,000 to $335,000, with the greater number priced around $100,000. Based on these market data, the recommended condominium units should be priced well below $100,000 so that they do not compete directly with these resale townhouses.

Table 23.5. Condominium Project Summary

Project and Location	Total Units	Sq. Ft.	Price	Price PSF
Orangewood Central City	—	904-1563	$ 54,000-145,000	$67-93[a]
Deerhall East Central City	124	837-2656	56,000-174,000	64-68
Hazy Bottom Central City	51	1606-2450	113,000-169,000	68-70
4600 Sound Street* Central City	265	556-1227	23,800- 48,000	37-42
Breakwater Condominium Apts., * Central City	32	842-1044	32,000- 43,000	38-42
Park Towers* Central City	161	981-2963	45,000-160,000	41-54
The Briar* Central City	138	1350-1900	48,000- 78,000	36-41[a]
Park Houses* Central City	269	946-1481	42,000- 55,000	36-48
Tide Harbor North* Central City	108	978	55,000- 60,000	61
Thornwood of Sands Point Sands Point	152	946-1900	33,000- 75,000	35-40
The Olympic Plaza Sands Point	255	810-1370	30,000- 55,000	37-39
Spot One Sands Point	300	900-1493	32,000- 60,000	34-44
Highrise Villas Sands Point	252	940-3040	41,000-123,000	39-44
Skyway Tower Sands Point	940	992-1842	34,000- 59,000	32-41
The States Sands Point	459	585-1291	35,000- 67,000	51-60
Blakely House Gardenville	289	? -1674	32,000- 86,000	41-46[b]
The Mews Gardenville	36	1560-1990	85,000- 99,000	50-57
Candelite Village Gardenville	394	1360-2185	50,000-100,000	36-46
The Crest Gardenville	67	2400	85,000- 95,000	35-40[b]

* Conversion.
a. Asking price on selected units.
b. Selected units only.

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Competitive Housing Developments. A list of 23 condominium developments completed or under construction in the market area was compiled from local real estate brokers and lawyers, housing specialists, builders, and advertisements in the local newspaper, among other sources. We personally inspected all of these projects and summarized much of our data in tabular form. Each project listed in table 23.5 also is located on the area map (figure 23.1)

Of the 23 comparable projects, 13 are located in Central City, four in Gardenville, and six in Sands Point. The projects range from 32 to 459 units; the units range from 556 square feet to 3,040 square feet; the sales prices range from $23,800 to $174,000; and the prices range from $32 per square foot to $93 per square foot. We analyzed the 23 comparables to try to determine which ones would be most competitive with units on the subject site.

Eight of the projects in Central City are older rental buildings that are being converted to condominiums. We do not consider them to be directly comparable to what is envisioned for the subject site. Four new projects in Gardenville and Sands Point are townhouse or garden apartment-type condominiums and have more suburban-oriented locations. They are not directly competitive, either.

The eight most comparable condominium developments are found in table 23.6. They are two projects in Central City, five in Sands Point, and one in Gardenville. All of these projects are currently under construction. We have compared the prices and square footage area for the full range of units in these comparable properties, as seen in table 23.6. For the two well located luxury projects in Central City, the price per square foot ranges from $65 to $75; for the six projects in more outlying locations, the range is from $32 to $46 per square foot. This dichotomy by the type of unit is summarized as follows:

	Sales Price per Sq. Ft. of Comparable Condominiums				
Location	1 Br.	1 Br./den	2 Br.	2 Br./den	3 Br.
Central City	$65-70	$70	$66-70	$65-69	$66
Suburban	35-44	34-41	33-43	32-46	31-43

Recommended Pricing of Subject Housing Units. We believe that there is a gap in the market for the new condominium units in Central City priced between $50 and $60 per square foot, or roughly between $55,000 and $85,000. The price range for condominium units on the subject site should be established above the level received for the condominiums in the more outlying locations and below the level received for the more luxurious, centrally located projects of Hazy Bottom and Deerhall East. The subject units would be properly priced in the $55 to $60 per square foot price range.

Absorption Rates of Competitive Units. As previously seen in table 23.4, the absorption rates of the comparable condominiums ranged from 4 to 472 units per month, with large-scale developments typically ranging from 15 to 20 units monthly. The absorption rate for the subject units is expected to fall within this 15 to 20 units per month range, presuming that a temporary building is put up with model apartments to facilitate advance sales.

Amenities in Competitive Units. Amenities typically offered in the comparable condominiums surveyed include a swimming pool, exercise facilities and sauna, security guards, 24-hour switchboard service, community room, individual storage areas, and convenience shops. Only those projects in more suburban areas have sufficient land for tennis courts, putting greens, and paddle tennis. Unit features typically offered include balconies, individually controlled heating and air conditioning, marble baths and entrance foyers, parquet floors and/or carpeting, walk-in closets, eat-in kitchens or breakfast rooms, washer-dryer located in separate pantry, dishwasher, dis-

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posal, trash compactor, no-frost double-door refrigerator, self-cleaning double oven, and wood kitchen cabinets.

Competitive Developments in the Planning Stage. To analyze housing supply thoroughly, we also have compiled a list of three condominium projects in the planning stage, all of which are in Sands Point. They will have a price per square foot range of approximately $50 to $60. Furthermore, two additional buildings are planned for the Deerhall East condominium project in Central City; the next building is two to two-and-one-half years off. Two additional condominium high rises are planned for the Thornwood of Sands Point project.

We thus have identified roughly 2,500 condominium units that are scheduled for completion in the mid-1970s; under 300 of these units will be built in Central City proper. None will be built in the subject neighborhood.

Site Analysis

The fourth step in residential market research is to analyze the physical and locational aspects of the property from a marketability point of view. This helps to establish the limits on the use of the property. It includes the identification of opportunities for and major constraints on development such as 1) the availability and capacity of the transportation system, including existing and proposed highways, the availability of mass transit, and commutation patterns and their relationship to the site, 2) the availability of sewer and water hookups, 3) the zoning and building code regulations applicable to the site, such as building coverage and height, 4) the location of services as they relate to the property, and 5) adjacent land use.

In the case study, we found residential usage was well suited to the site. The pertinent locational and physical aspects of the property that we considered follow:

- Public transportation is readily available to the site and highway accessibility is excellent.
- The site is located several blocks from a convenience shopping center.
- Surrounding land use is compatible with residential development. It includes small retail stores, a parking lot, townhouses, a heating plant, and a canal. Office and retail space soon will be developed nearby.
- Although the subject property is irregular in shape and the grade slopes downward, these factors will not hinder proper site development.
- The current zoning of the site is residential multi-family. It provides a 75% maximum lot coverage and a 90-foot maximum building height.
- Sewer and water permits are readily available.

Marketing Recommendations and Conclusions

The last step in residential market research is to specify marketing recommendations with reference to the specific site. Such recommendations should give the builder a summary of the area dynamics as they relate to the site, as well as detailed guidance on the initial offering. It should include an absorption schedule for the proposed units based on the relationship of overall demand to the subject property. From this evolves an overall annual development program. It also should include specific recommendations on unit type, price, size, and mix, based on the economic and demographic composition of the primary housing market area, the existing competitive projects and their experience, the proposed competitive projects, and the demand for various units. In addition, detailed recommendations on the amenity package and product features are necessary to enhance marketability and to give guidance to the design team. A description of the characteristics of the prospective buyer in terms of age, income, and lifestyle expectations also is useful.

BLAKELY HOUSE* Gardenville	2½	1,674	[illegible]	$46	$129	2½	—	86	—	$145	Occupancy Jan. 1974. 16 stories; 2 parking spaces included; storage areas; exercise and sauna; community room; pool; putting green; receptionist; washer-dryer.
HIGHRISE VILLAS* Sands Point	—	—	—	—	—	2	1,710	72.8	$43	105	Occupancy Sept. 1974; 18 stories; $15/mo. parking; balcony; individual control central a/c; pool; sauna; putting green, shuffleboard; convenience shops; center hallways each unit; 24-hour switchboard; washer-dryer.
THORNWOOD OF SANDS POINT* Sands Point	2 2½	1,400	46 57	40 41	92 105	den 2½	1,900	75	39	139	Under construction; 15 stories; parking $3,000 per space; pool, tennis court; putting green; carpet, balcony, individual control a/c; concrete floors; breakfast area; washer-dryer, two additional buildings planned.
THE OLYMPIC PLAZA* Sands Point	—	—	—	—	—	2	1,370- 1,410	52- 55	38- 39	114- 117	Under construction; parking $3,500 per space or $30 month; balcony; individual control a/c, pool, tennis courts; party room; free outdoor parking; foyer in units; washer-dryer
SPOT ONE* Sands Point	2½	1,493	53- 60	36 40	135	—	—	—	—	—	Occupancy Mar. 1974; 16 stories; parking $3,500 per space; pool; sauna and exercise rooms; convenience shops and services in lobby; no models yet (trailer); washer-dryer.
SKYWAY TOWER* Sands Point	2	1,712	54- 59	32- 34	96- 120	2	1,842	58	31	129	Under construction; 26 stories; part of Skyway Plaza mall, hotel, theatre; security guards; exercise and sauna; pool; putting green; ice skating; party room; extra storage; breakfast room; washer-dryer; two additional buildings planned.

*Prices have been rounded slightly.
a. Selected units only.
b. Monthly maintenance includes utilities.

Case Study Conclusions

In the case study, we have made the following recommendations and conclusions. The subject site is an excellent location for a mid-rise residential building in condominium ownership. The recommended unit mix, size, and price are as follows:

	Unit Mix	Unit Size (Sq. Ft.)	No. of Baths	Price/ Sq. Ft.	Price
1 Br.	20%	1,000	1½	$60	$60,000
1 Br./den	50%	1,250	2	57	72,000
2 Br./den	30%	1,600	2½	55	88,000

We recommend that 80% of the units be one bedroom-den and two bedroom-den condominiums because they sell most readily in the subject market. The units should range in size from 1,000 to 1,600 square feet. We recommend pricing the units at $55 to $60 per square foot, or in the $60,000 to $88,000 range, depending on final determination of unit sizes. We estimate that between 15 and 20 units per month can be sold.

Suggested project amenities should include (at a minimum) a swimming pool, security guards, switchboard service, and ample storage areas. We feel that one-and-one-half to two parking spaces per unit are necessary in a luxury building.

The typical buyer of an urban mid-rise residential unit will be between 45 and 64 years old, have an income of $20,000 or more, be a member of a small household, and be living in housing that was built 15 to 25 years ago.

In summary, we have found that there is a strong demand for a luxury condominium development on the subject site. A 210-unit, eight- to ten-story mid-rise, priced at $55 to $60 per square foot, should be absorbed readily by the market within two years from the opening of a sales office with model apartments.

Use of Market Study Information

A builder or developer must be geared to utilize the information from a market study such as the one we have just finished. The completed analysis gives the architect specific recommendations as to unit concept and establishes cost parameters. The absorption analysis helps the builder or developer plan the development program realistically. The description of the prospective buyer gives direction to the advertising agency and interior decorator in the development of the marketing strategy. Most important, the market study, which represents a fraction of the total project cost, can minimize downside risk by preventing the developer from making costly errors, such as offering a product that is inappropriate for a given market. Market study recommendations also must be correlated with an investment analysis. The development may be marketable, but if the arithmetic does not work out it may not be economically feasible.

Financial Analysis Section of Feasibility Study

The market analysis provides invaluable data concerning product acceptance. People make real estate values. Because our market study has examined the various population characteristics found within a well defined market area, we can conclude that we can generate more than $16 million of gross sales revenue if 210 condominium units are produced in the recommended mix.

We have not answered the question of profitability. What concomitant costs will be incurred, and will those costs, with all their inherent risks, justify the capital investment? These are the two basic questions that will be addressed through financial analysis.

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Four steps are involved in the financial or economic investigation. First, we must provide two raw ingredients including: 1) the total cost incurred during the entire development project, and 2) a projection of reasonable sales revenue. Next, a year-by-year pretax cash flow analysis is prepared, comparing anticipated revenue with projected expenses. The resulting series of annual profits and/or losses then is equated to a specific internal rate of return by a discounting process. The fourth and final step is an after-tax cash flow analysis, resulting in another yield calculation. We no longer can hide our heads in the sand. After-tax cash flows are the standards our clients are demanding relative to their initial and subsequent capital investments. We shall follow our case study by presentation and discussion of the four basic steps involved.

Table 23.7 shows a typical cost pro forma indicating a project budget of $13,350,000. Several important factors warrant consideration. First, land value may or may not be a misnomer. We are concerned primarily with actual cost. If the land has been acquired recently or if it is currently under contract, then we are dealing with historical price. The land may have a greater or lesser value than its acquisition price, but the sophisticated developer wants to know what the return will be on the actual cost. The exception to this rule occurs when the land has been held for many years in the same ownership and the acquisition price is unrealistically low; then we might estimate current land value and use this estimate in the cost summary.

Table 23.7. Pro Forma 1974 210-Unit, 450,000 Sq. Ft. Condominium

		Total	Per Gross Sq. Ft. of Bldg.
Land value—55,500 sq. ft. @ $40/sq. ft.		$ 2,220,000	$ 4.93
Construction field costs—			
450,000 gr. sq. ft. @ $20/sq. ft.		9,000,000	20.00
Architects and engineers—			
3.5% of $9,000,000		315,000	.70
Construction loan interest—			
$9,000,000 x 11% x 45% x 1½ years		668,250	1.49
Financing fees—2%		180,000	.40
Real estate taxes		100,000	.22
Accounting, legal, and supervisory		300,000	.67
Sales costs		400,000	.89
Contingency—2% of $9,000,000		180,000	.40
		$13,363,250	
	(say)	$13,350,000	$29.67

The second major consideration is the allocation between direct and indirect construction costs. Direct or field costs refer to "brick and mortar" expenditures and include profit and overhead paid to a contractor required to supervise the construction project. The indirect expenses include architecture and engineering fees, interest on the construction loan, financing fees, real estate taxes during the construction period as well as during the sales program, accounting, legal, supervision and consulting fees, sales costs, and a contingency reserve. Not many years ago indirect expenses ran approximately 18% to 20% of the direct construction costs. At the time of our analysis, they were running closer to 25% to 30%, with long-term leasehold development reaching the upper limit of this range. (With limited construction activity, it is difficult to estimate what portion of the budget indirect costs would consume currently.) Clearly, these indirect expenses are a significant share of the total cost basis and must be recognized in a proper and thorough financial analysis.

In completing the cost pro forma section, two comments are necessary. First, the feasibility of any construction project is based on both the availability and the cost of financ-

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Table 23.6. Comparable Condominiums

Project and Location	Total Units	Absor. Rate/ Month	One-bedroom Type Unit (# Bath)	One-bedroom Sq. Ft.	One-bedroom Price* ($000)	One-bedroom Price/ Sq. Ft.	One-bedroom Month. Maint.	One-bedroom/Den Type Unit (# Bath)	One-bedroom/Den Sq. Ft.	One-bedroom/Den Price* ($000)	One-bedroom/Den Price/ Sq. Ft.	One-bedroom/Den Month. Maint.	Two-bedroom Type Unit (# Bath)	Two-bedroom Sq. Ft.	Two-bedroom Price* ($000)	Two-bedroom Price/ Sq. Ft.	Two-bedroom Month. Maint.
HAZY BOTTOM[a] Central City	51	4	1½	1,606	113	$70	$365	2	1,949	135	$70	$438	2½	2,111-2,169	146.5-151	$69-70	$474-488
DEERHALL EAST[a] Central City	124	5	1½	837-1,175	56.4-76.2	67-65	96-132	—	—	—	—	—	2 2½	1,569-1,868	104.1-128.1	66-69	— 222
BLAKELY HOUSE[a] Gardenville	289	15	1	—	31.5	—	53	1½	—	42.25	—	76	2	1,558	56.6	41	94
HIGHRISE VILLAS[a] Sands Point	252	18	1	940-1,110	41-43.8	44-40	80	—	—	—	—	—	2	1,320-1,540	52.2-61.3	39-40	90
THORNWOOD OF SANDS POINT[a] Sands Point	152	12	—	—	—	—	—	1½	946-982	33-38	35-38	69-81	—	—	—	—	—
THE OLYMPIC PLAZA[a] Sands Point	255	77	1	810	30.45	38	68	1½ 2	1,070-1,110	40-43	37-39	90-92	2	1,090-1,250	41-46	39-37	90-101
SPOT ONE[a] Sands Point	300	20	1½	900-954	32-41.4	36-44	75-85	—	—	—	—	—	2 2½	1,241-1,273	42-52.5 44-54.5	34 43	115 120
SKYWAY TOWER[a] Sands Point	940 (2 bldgs.)	468 (10 days) 472 (3 wks)	1½	992	34.5-39.5	35-40	70	1½	1,069-1,777	38.5-45.5	34-41	75-83	2	1,521-1,398	44-50.5	33-37	92-96

Project and Location	Two-bedroom/Den Type Unit (# Bath)	Two-bedroom/Den Sq. Ft.	Two-bedroom/Den Price* ($000)	Two-bedroom/Den Price/ Sq. Ft.	Two-bedroom/Den Month. Maint.	Three-Bedroom Type Unit (# Bath)	Three-Bedroom Sq. Ft.	Three-Bedroom Price* ($000)	Three-Bedroom Price/ Sq. Ft.	Three-Bedroom Month. Maint.	Comments
HAZY BOTTOM[a] Central City	2½	2,450	169	$69	$548	—	—	—	—	—	Occupancy Feb. 1974; high-rise building; parking included; valet parking; pool; roof terrace; security guards; concrete floors; central a/c; storage area; washer-dryer.
DEERHALL EAST[a] Central City	2½	2,129	137.8	65	237	3½	2,656	174.2	$66	$325	Occupancy Sept. 1973; 10 stories; parking $5,000 per space; gateman and doorman; 2 tennis courts; 2 saunas; pool; roof garden; storage area; individual control central a/c; washer-dryer; 2 additional buildings planned.

ing, i.e., construction as well as permanent mortgages. In this example, construction loan interest rates were approximately 11% and funds were available. All real estate consultants must have a thorough and intimate understanding of current financing markets. If reasonable financing terms and conditions are not obtainable, a feasibility study becomes a useless and time-consuming exercise; without proper mortgages the project is not feasible.

The second factor implicit in the cost analysis concerns architectural plans. Despite the existence of elaborate drawings signifying large investments in both time and money, the real estate consultant must review all plans, particularly with reference to product marketability; we are charged with this responsibility. Exterior architectural design and interior room layout specifically fall within our purview. Changes must be recommended if the existing concepts are incompatible with market dictates.

We rely heavily on the findings documented within the marketing section in projecting anticipated sales revenues. Table 23.8 shows an allocation among the 210 units between the three recommended unit sizes. The areas (in terms of net salable space) for each unit also are shown, and the suggested sales revenue per square foot is reflected. As shown, projected revenue from all sources is expected to equal $16,100,000.

Table 23.8. Estimated Revenue

42 1-Br.	1,000 sq. ft. units @ $60/sq. ft. =	$ 2,520,000
105 1-Br., den	1,250 sq. ft. units @ $57.50/sq.ft. =	7,546,875
63 2-Br., den	1,600 sq. ft. units @ $55/sq. ft. =	5,544,000
210 Units	Average sale price—$57/sq. ft.	$15,610,875
Sale of parking spaces—105 spaces @ $5,000 each =		525,000
Total revenue		$16,135,875
	(say)	$16,100,000

What is the best unit of comparison to use in ascertaining gross sales? We do not use a sales price per room or a sales price per apartment unit of comparison when analyzing prices of competitive units. Unit sizes vary widely and the mix between the various unit types distorts resulting conclusions. Also, a per-room unit of comparison is unreliable because rooms vary significantly in size. In urban locations, with projects requiring large capital outlays, we are obligated to be as refined as possible, and a price per square foot of rentable or salable area meets this criterion. It is true that the typical apartment renter or condominium buyer does not measure the unit to compare it against other available units, but he or she is at least subconsciously aware of the greater light and air generated by a larger unit and will base his or her "buy" or "rent" decision partially on the amount of space offered.

Is the Project Feasible?

Now we have the two basic ingredients with which a preliminary conclusion concerning project feasibility may be made. We have estimated a gross revenue of $16,100,000 and a cost of $13,350,000. We would be remiss if we simply divided the almost $3 million profit by the $13,350,000 cost basis to devise a crude profitability index. The arithmetic would show approximately a 25% return on investment capital, but to conclude that this project yields a 25% return would be grossly inadequate.

Pre-Tax Cash Flow

The time value theory of money states that a dollar in hand is more desirable (and valuable) than a dollar to be received at a future date. Applying this principle to our financial analysis (because the revenues will be received over a period of years and the expenses will be spent over that same time period), we must analyze our profit pic-

ture on a year-by-year basis. A pre-tax cash flow analysis compares anticipated revenues with corresponding expenses. The resulting profit will serve as foundation in calculating a more accurate depiction of investment yield.

Table 23.9 is illustrative of a simplified pre-tax cash flow analysis. We have anticipated a one-and-a-half-year period from the time the project is conceived to the time ground can be broken to initiate construction. The construction period should take about one year, and the sales program should take approximately a year-and-a-half. We have anticipated that approximately 70% of the sales revenue will be received in the first year of the sales program (which is the third year of the development program) and the remaining 30% will be received in the final year.

Table 23.9. Cash Flow Study, Pre-Tax

Years	($000s omitted) 1	2	3	4
Revenue	$ —	$ —	$11,300	$4,835
Financing proceeds	—	3,000	6,000	—
Total available cash	$ —	$3,000	$17,300	$4,835
Expenses				
Land costs	2,200	—	—	—
Field costs	—	3,000	6,000	—
Architect and engineer	—	220	95	—
Construction loan interest	—	198	470	—
Loan prepayment	—	—	9,000	—
Financing fees	90	90	—	—
Taxes	10	20	30	50
Accounting, legal, and supervisory	50	100	100	50
Sales costs and commissions	—	—	280	120
Contingency	—	—	125	55
Total	2,350	3,628	16,100	275
Profit or (loss)	(2,350)	(628)	1,200	4,560
Cumulative net profit or (loss)	(2,350)	(2,978)	(1,778)	2,782
Pre-Tax Yield Analysis				
Equity requirement	2,350	628	—	
Equity return			1,200	4,560
Pre-tax equity yield = 21%				

On the revenue side of the ledger we have included the proceeds of the construction loan. These funds will be disbursed at various times to pay certain expenses. Specifying the period in which these funds are to be received is a necessary and helpful process.

Of course, on the expense side of the ledger we have shown repayment of the construction loan, which helps to ascertain our pre-tax cash position accurately. An important aspect of a pre-tax cash flow is the highlighting of those years when infusion of additional capital may be required, or when significant profits can be expected.

The first year experiences a significant loss of $2,350,000, but that loss is attributed primarily to the land purchase for $2,200,000. We have presumed that the developers paid cash for the land. Owning the land on a free and clear basis permits the developer to obtain a $9 million construction loan. In the second year $628,000 of additional capital is required, but in the third year a $1,200,000 profit is realized, and in the final year a very substantial $4,560,000 profit results. The cumulative net profit over the four-year period is $2,782,000. How does this equate with our capital investment? We have seen an investment of $2,350,000 in the first year and $628,000 in the second year. We have received $1,200,000 in the third year and $4,560,000 in the fourth year. What is the in-

ternal rate of return that will equate our capital in-flows with our capital out-flows? By use of the discount tables or one of the more advanced desk-top calculators, we find a pre-tax equity yield of about 21%. This 21% appears to be an excellent return. If all factors contributing to the investment decision were considered, we would have little apprehension in advising anyone to proceed with the proposed development.

After-Tax Cash Flow

The last critical step involves an after-tax cash flow study. It is time we consider the implications of federal, state, and local income tax rulings on ultimate profitability.[1]

The after-tax cash flow study (table 23.10) is very similar to the pre-tax study; however, a few major differences exist. First, proceeds from and repayment of the construction loan are nontaxable events and cannot be included. Secondly, the cost basis of a condominium comprises both direct costs and architectural and engineering outlays. Furthermore, even though these expenses were incurred primarily in the second and third years, for tax purposes they can be reported only in the years in which sales are generated, i.e., the third and fourth years. Because 70% of the revenue is received in the third year, 70% of these expenses serve as a cost basis in reporting profit to IRS. The remaining 30% of the cost basis is accounted for in the final year.

Table 23.10. After-Tax Cash Flow Analysis

	($000s omitted)			
Year	1	2	3	4
Sales revenue	$ —	$ —	$11,300	$4,835
Deductible expenses				
Cost basis of condos (field costs, arch. and eng.)	—	—	6,500	2,800
Land basis	—	—	1,540	660
Construction loan interest	—	198	470	—
Financing fees	90	90	—	—
Taxes	10	20	30	50
Accounting, legal, and supervisory	50	100	100	50
Sales cost	—	—	280	120
Contingency	—	—	125	55
Total	150	408	9,045	3,735
Taxable income or (loss)	(150)	(408)	2,255	1,100
Taxes payable—assume 55% tax bracket	None	None	(1,240)	(605)
After-tax income or benefits	83	224	1,015	495
After-Tax Yield Analysis				
Equity investment	2,350	628	—	—
Capital return				
Profit	—	—	1,200	4,560
Tax benefits (or payments)	83	224	(1,240)	(605)
Net	83	224	(40)	3,955
End of year (investment) or return	(2,267)	(404)	(40)	3,955
After-tax yield = 10.8%				

The first year has a total expense of $150,000; no revenue is received. Presuming a 55% tax bracket, the $150,000 can offset other income and represents a credit of

1. The implications of the Tax Reform Act of 1976 have not been considered.

$83,000. From table 23.9 we see a capital requirement at the end of the first year of $2,267,000. It is important to appreciate the effects of the $83,000 after-tax credit. In this case, the amount is small, but appreciation of the theory is paramount.

The second year has little significance. The third year is interesting. With a total revenue of $11,300,000, we observe a taxable income of $2,255,000, of which $1,240,000 must be paid in taxes. On the pre-tax basis, we had a capital return of only $1,200,000, so we still have a capital outflow on an after-tax basis of $40,000.

The fourth year contributes all the after-tax profit. Sales of $4,835,000 result in taxes payable of $605,000. The cash basis shows a $4,560,000 profit, and subtracting $605,000 worth of taxes results in a net profit of $3,955,000.

Calculating an internal rate of return (pitting three capital outflows for the first, second, and third years of $2,267,000, $404,000, and $40,000, respectively, to a profit of $3,955,000 in the fourth year) results in about a 10.8% after-tax equity yield.

What After-Tax Yield is Appropriate?

Is a 10.8% after-tax yield sufficient to warrant proceeding with this development project? Will sufficient equity capital be attracted to such a development, with all of its inherent risks, that promises about an 11% annual return?

To answer these questions, we must evaluate various competitive yields generated from substitute investment alternatives, including certificates of deposit, municipal bonds, stocks, treasury notes and bills, and competitive real estate developments.

Too often the real estate consulting community has keyed into a single number, be it an equity yield to the investor or a fair market value estimate. This is misleading in consulting assignments. The permutations and combinations of variables make it ludicrous to accept the reliability of one estimate from a single set of circumstances. Changing the input data provides a broader spectrum on which a sound decision may be made. For example, what is the downside risk caused by decreasing the total projected sales revenue by perhaps 10% and extending the absorption period over a two-and-a-half year period? This yield calculation would be most helpful to know. What would be the upside parameters if all sales revenues were received in the third year and if the projected revenue were increased 5% or 10% above the original levels? The knowledge of the upside potential would serve as a tremendous inducement if it were attractive enough. Costs should be increased and decreased in a series of projections indicating a realistic range of yield potentials. Nothing is static. A client wants to know where his or her investment stands under varying economic conditions. As consultants, we must provide these answers.

Feasibility Study: Summary

The process of conducting a feasibility study is subdivided basically into two distinct but interrelated disciplines, including a market study and financial analysis.

A market study analyzes supply and demand factors (area dynamics) and aids in determining whether or not a particular property type is marketable. The necessary steps include

1. Proper definition and delineation of the market area.
2. Analysis of the demand factors. Quantitatively, through the use of demand studies and demographic data, answer the questions concerning how much demand might be experienced. Qualitatively, the number of persons comprising the potential market are further qualified by focusing on buyers capable (dependent upon disposable income levels) of bidding for the property types involved.
   Study of supply factors, including a catalog of existing competition, a survey of projects currently under construction, and an understanding of projects actively under consideration or in various stages of planning. (Generally, the appraiser is well versed in surveying existing

competition but is sometimes negligent in considering projects under construction or in the planning stages.)

4. Careful review of the site regarding its compatibility with projected land uses as to size, shape, topography, zoning regulations, and suggested density requirements.
5. Marketing recommendations. After considering all of the ramifications associated with the above data accumulation and analysis, judgment must be exercised and conclusions formed concerning:
   a. The type of product most marketable.
   b. The number and size of units and unit mix.
   c. The quality of units, emphasizing primary market segments to be served and degree of amenities.
   d. Pricing structure involving unit prices, differentiation between floors, distinctions between attractive views and less attractive locations, and varying unit layouts.
   e. Absorption periods and sales pace (or rental pace) are important considerations, particularly as they relate to the financial analysis.
   f. Other recommendations concerning the marketing program, such as a profile of the most likely user and the anticipated amenity package to be offered.

The market study informs the client about the degree of effective demand associated with a product and allows the client to accept realistic price levels that ultimately will dictate how much he or she can afford to pay for the land and allocate for the construction budget. In addition, the market study provides basic data needed to proceed with an investment analysis necessary to evaluate overall project feasibility. A project may be marketable, but it may not necessarily be feasible.

After determining the type, price level, amenity package, sales pace, and degree of effective demand, a reasonable estimate of overall sales may be computed; however, knowledge of gross sales revenue is insufficient by itself to form a meaningful profitability index.

The financial analysis portion of the feasibility study follows four basic steps.

1. A summary of anticipated sales revenue.
2. A complete understanding of the total construction budget, properly allowing for direct and indirect expenses.
3. A year-by-year pre-tax cash flow projection.
4. A year-by-year after-tax cash flow projection.

Each of the four steps has been carefully illustrated in prior paragraphs. A major caveat is reiterated for emphasis: a single set of projections is insufficient. Recognizing the existence of an imperfect market and acknowledging the myriad of possible unanticipated events (in a long-term construction project), we cannot imply a false sense of precision by proffering a single set of projections. All variables within a logical spectrum must be considered and their effects on overall profitability must be computed, with the resulting implications carefully analyzed.

Conclusions

We receive many inquiries about potential appraisal work, when the client actually needs a feasibility study (but does not know what to call it). An appraisal will tell the client what a seller should be able to get for a piece of property at a particular point in time (presuming the seller is prudent and can find a prudent buyer). A feasibility study will recommend

1. What to build—in terms of product type.

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2. How to build—in terms of unit mix, size, amenity package, and degree of luxury.
3. When to build—including on-line production and absorption schedules.
4. What reasonable range of profitability can be expected.

8

NORTHERN CORRIDOR LAND-AND-HOUSING PROJECT FEASIBILITY STUDY

by David Dowall and Ballobh Kritayanavaj

David E. Dowall and Ballobh Kritayanavaj, Northern Corridor Land-Housing Project Feasibility Study. The Bangkok Land Management Study, 1987.

I THE SCOPE OF THE FEASIBILITY STUDY: TARGETING HOUSING PROJECTS TO SPECIFIC HOUSING CORRIDORS

One of the recommendations of the Bangkok Land Management Study is for the NHA to recognize that future housing and land development will occur along the region's seven highway corridors. Housing market conditions vary between corridors with some areas exhibiting strong housing demand patterns. We recommend that the NHA separately monitor housing and land market conditions in each of these corridors. In the longer run it is advisable that the marketing and project staff of the NHA be organized into separate units, each concentrating its efforts on a specific corridor.

In this feasibility analysis we have concentrated on the northern corridor, but our assessment could have just as easily been conducted in the western corridor toward Talingchan, or to the east toward Minburi. We chose the northern corridor because the NHA was considering a site in Pathumtani and because it is the most dynamic corridor in the Bangkok region <1>. The study area in the northern corridor is delineated in Map 1. Within this area we concentrated our research and analysis along the twelve major roads located in the area: Paholyothin; Klong Luang; Rangsit-Ongkharak; Lamlukka; Ramindra; Wiphawadi-Rangsit; Cheung Wattana; Tiwanon; Pathum Samphan; Rangsit-Bangphun; Route 3111 and Route 3112. These roads are delineated on the Map.

The northern corridor was identified as one of the most rapidly growing sectors of the region. According to the NESDB, the northern corridor's population is projected to increase by 17.6 percent between 1986 and 1991, an increase of 155,000 persons, or approximately 34,000 households. In annual terms this amounts to approximately 6,900 housing units per year, about 15 percent of the Bangkok Region's total housing increase.

In the following sections of this report, we present an assessment of the current housing market conditions in the northern corridor market area. Section IV presents information on the overall demand for housing in the northern corridor. Section V describes the supply and prices of projects available in the corridor. Section VI, based on the current supply and demand

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conditions in the northern corridor, defines a development concept for a land-and-house project in the northern corridor. This section also outlines specifications for purchasing land for the project. Section VII describes our process of site selection. In section VIII we present a specific project for consideration by the NHA. Finally, section IX summarizes the results and the implications of the feasibility study.

II CURRENT DEMAND CONDITIONS IN THE NORTHERN CORRIDOR

In this section we estimate the demand for housing in the northern corridor. The analysis is based on both an assessment of overall employment and population trends, and on surveys of housing projects and recent homebuyers in the area.

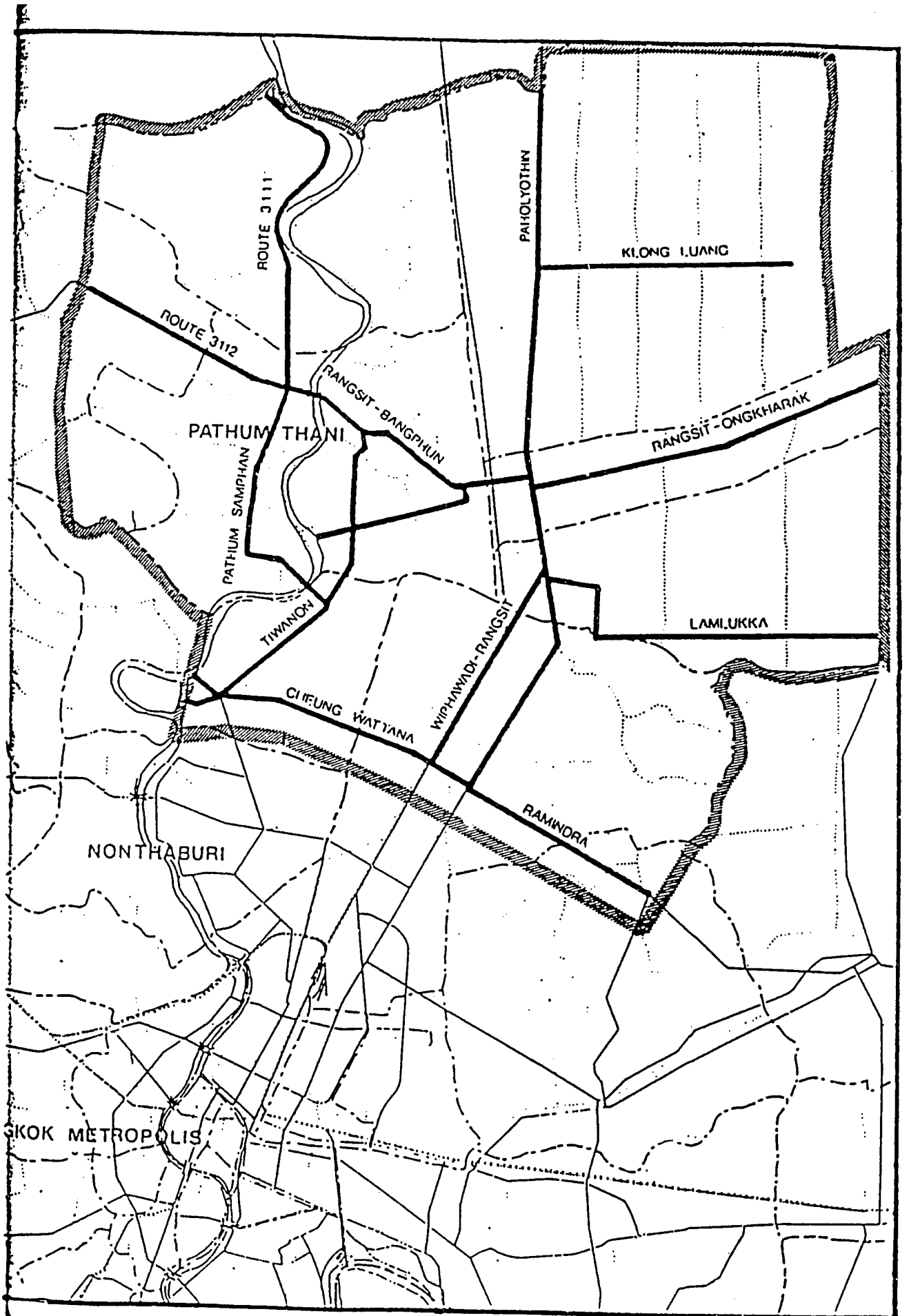
A. Population and Employment Trends in the Northern Corridor

As previously mentioned, the population of the northern corridor is projected to increase by 17 percent between 1986 and 1991. The northern corridor is emerging as the educational, high technology and government center of Bangkok. It is the location of AIT, Thammasat University, the Air Force Academy, and Bangkok University. In addition, several important industrial parks have been developed in the corridor, taking advantage of the good access to Don Muang Airport.

As employment increases the demand for housing normally rises. Based on our surveys of recent homebuyers, most of the households purchasing housing in the northern corridor work within 13 kilometers of their home, while the average diameter of the urbanized area of Bangkok is nearby 40 kilometers. Thus the principal, although not exclusive source of housing demand will come from employment growth in Patumthani and Nonthaburi. Table 1 illustrates the patterns of employment in these provinces between 1960 and 1984. During this period, these two Provinces increased their employment by approximately 200,000 jobs, accounting for nearly 10 percent of the total increase in employment in the Bangkok Metropolitan Region.

Given the excellent location of the northern corridor in terms of access to the airport and to educational institutions, employment is projected to increase rapidly over the next 15 years. Table 2 presents projections of the Short Term Transportation Review (STTR) projections of future employment. According to the STTR, the number of jobs is expected to increase by 90,000 between 1984 and 1990 (this amounts to over 18,000 jobs per year), and 124,800 jobs between 1991 and 2001, (or 12,400 per year). Because of the corridor's employment growth, many households are migrating to the area. Many others are moving to the area because of its convenient location to existing major employment centers in northern Bangkok.

The population of the northern corridor has increased from 385,371 in 1979 to 505,708 in 1984, an increase of 120,337 or 24,000 per year. Projections by the STTR of the future population in the northern corridor are presented in Table 3. They illustrate that the population in the market area will increase



MAP 1: THE NORTHERN CORRIDOR
STUDY AREA

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Table 1
Employment Growth in the Northern Corridor

Province	1960	1970	1980	1984	Absolute Change 1980-84	Percent Change 1980-84
Nonthaburi	93,000	112,000	132,000	156,000	24,000	18.2%
Pathumthani	97,000	107,000	167,000	236,000	69,000	41.3%
Total	190,000	219,000	299,000	392,000	93,000	31.1%

Source: Chulalongkorn University Social Research Institute, Final Report on Projections of Economic Activities in the BMR, Bangkok: Chulalongkorn University Social Research Institute, May, 1986.

Table 2
Employment Projections for Selected STTR Traffic Zones in the Northern Corridor, 1984 - 2001

	1984	1991	% change 1984-1991	2001	% change 1991-2001
Employment	142,764	233,400	63.5	358,200	53.5

Source: HFA Consultants, "Population and Employment Forecasts", Metropolitan Bangkok Short Term Urban Transport Review: STTR Internal Working Paper No.5, April 1985.

by 31 percent between 1984 and 1991. In absolute terms this means that 153,000 persons will move into the northern corridor between 1984 and 1991, or approximately 22,000 per year. Based on an average household size of 4.5 persons (as determined in our household survey), this suggests that approximately 4,900 households will be moving into the area per year between 1984 and 1991. This annual estimate of household migration serves as our basis for estimating the demand for housing in the northern corridor.

Table 3
Northern Corridor Population Projection
for Selected STTR Traffic Zones, 1984 - 2001

Year	Population	% change
1984	487,933	-
1991	640,794	31.3
2001	881,062	37.5

Source: HFA Consultants, "Population and Employment Forecasts", Metropolitan Bangkok Short Term Urban Transport Review: STTR Internal Working Paper No. 5, April 1985.

B. Survey of Recent Homebuyers in the Northern Corridor

To develop a precise marketing plan for a housing project, the Land Management Study team conducted surveys of recent homebuyers in the northern corridor. A total of 160 recent homebuyers were surveyed in 40 randomly selected projects which were selling homes at the time of the survey. Four households were interviewed in each project. The interviews took place during April and May of 1987.

Of the 160 interviews conducted, 152 respondents purchased units in land-and-house projects, and 8 bought units in land subdivision projects. The location of the 40 projects where households were surveyed is illustrated in Map 2.

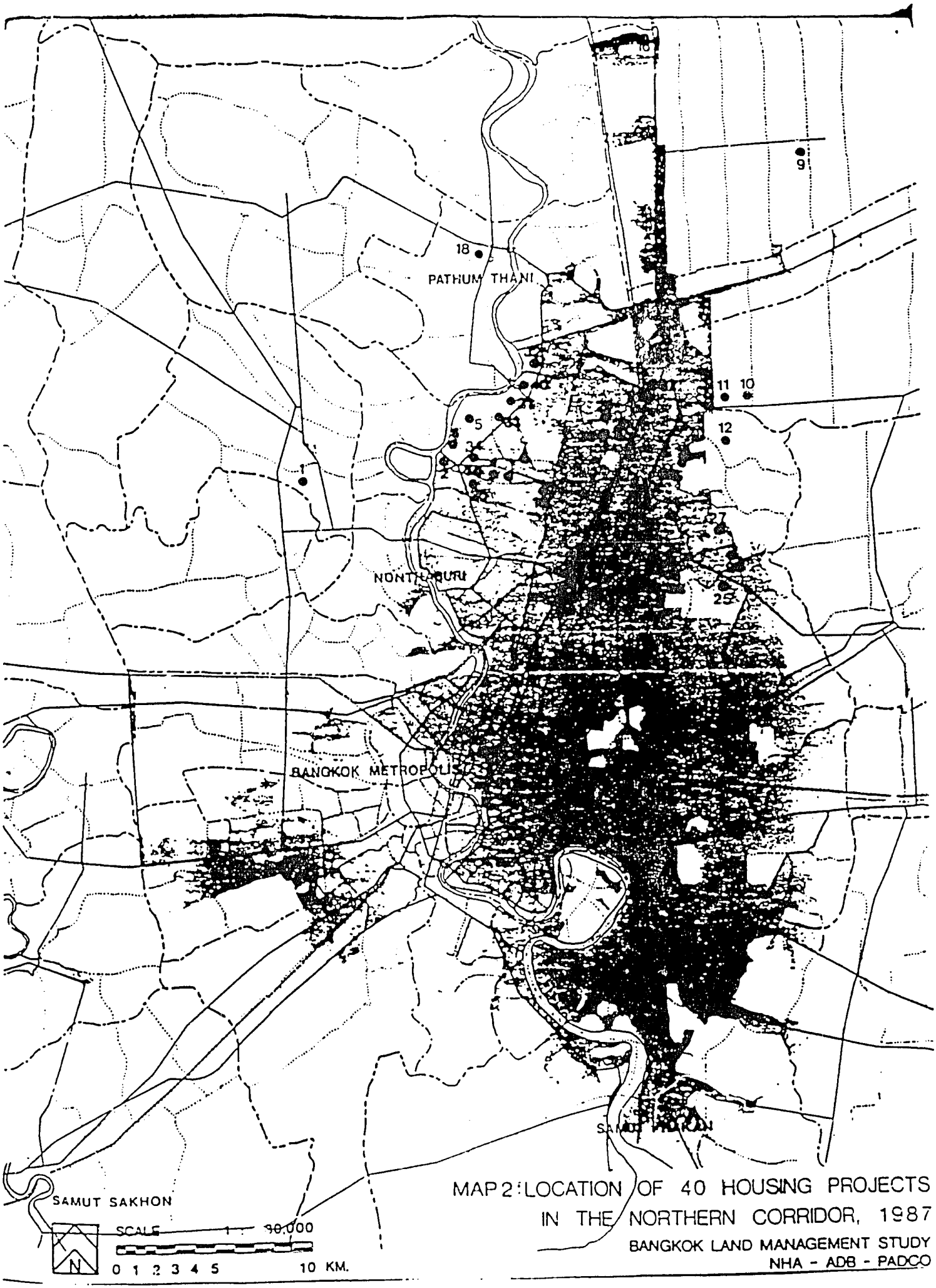
1. Profile of Households

Table 4 illustrates the basic social and economic characteristics of the households. The average age of the head of the household

Table 4
Summary Characteristics of Recent Homebuyers
in the Northern Corridor

Characteristic	Average
Age of Household Head	41.5 years
Household size	4.5 persons
Distance to Household Head's Place of Employment	12.9 kilometers
Total Number of Workers per Household	19
Distance to Spouse's Place of Employment	9.2 kilometers
Total Monthly Household Income	15,069 baht
Percent First-Time Buyers	69.

Source: Bangkok Land Management Study, 1987



MAP 2: LOCATION OF 40 HOUSING PROJECTS IN THE NORTHERN CORRIDOR, 1987

BANGKOK LAND MANAGEMENT STUDY
NHA - ADB - PADCO

was 41.5 years, with a median of 38 years. The total number of household members averaged 4.5 with a median of four persons. The predominant type of household was the single-family or extended-family household. Single person households accounted for less than one percent of the sample.

The occupation of the head of the household was mainly professional and technical, accounting for 36 percent of the total number of households. It was followed by sales workers (23 percent) and then craftsman and production workers (13 percent). Only 42 percent of the spouses indicated some form of occupation, and of those most worked in sales. In terms of occupational status, the heads of the household were mostly government employees (46 percent). On average there were 1.9 workers per household.

We asked respondents to indicate how far was their place of employment (see Table 5). The mean distance in kilometers for the head of the household was 12.9 with a median of 11 kilometers. Spouses tended to work closer to home, averaging 9.2 kilometers with a median of 2.5 km. Less than 30 percent of the heads of households commuted more than 20 kilometers to work and less than 8 percent travelled less than 30 kilometers. This suggests that few households with members working in central Bangkok or in the southern, western or eastern suburbs can be expected to buy homes in the north.

Table 5
Distance to Place of Employment of Homebuyers
in the Northern Corridor

Distance to Workplace	Percent of Respondents Working at a Distance	
	Head	Spouse
0-5 km.	37.7	53.3
6-10 km.	11.4	10.0
11-15 km.	7.0	8.4
16-20 km.	16.7	10.0
21-25 km.	10.5	10.0
26-30 km.	8.8	1.6
over 30	7.9	6.7
Average	12.9	9.2
Medium	11.0	2.5

Source: Bangkok Land Management Study, 1987

The total household income of those surveyed averaged slightly over 15,000 baht per month. Total household expenditures amounted to 11,444 baht per month. Table 6 presents the income distribution of homebuyers. The lowest quintile earned under 7,500 baht per month, the second quintile between 7,501-10,900, the third 10,901-15,000, the fourth between 15,001-19,500, and the fifth more than 19,500 baht per month.

Table 6
Income distribution of Recent Homebuyers
in the Northern Corridor

Income Quintile	Income Range (Baht per Month)
1	0-7,500
2	7,501-10,900
3	15,001-19,500
4	15,001-19,500
5	over 19,500

Source: Bangkok Land Management Study, 1987

2. Characteristics of the Houses Purchased

All of the respondents purchased units since 1982. Most of the units were purchased in 1986 (57 percent). Over 14 percent of the respondents purchased units this year. Table 7 presents summary information of the characteristics of the housing purchased by the respondents. The average purchase price was 466,756 baht. The median was 408,000 baht. The range of housing prices extends from 150,000 to 1,200,000 baht.

Table 7
Characteristics of Houses Purchased

Characteristic	Range	Average
Purchase Price (Baht)	150,000-1,200,000	466,756
Size of Plot (Sq.wah)	14-200	43
Size of House (Sq.m.)	24-324	95.5
Garden Area (Sq.m.)	3-74	16.7
Number of Bedrooms	1-5	2.6
Number of Toilets	1-4	1.7

Source: Bangkok Land Management Study, 1987.

The average size of plots was nearly 43 square wah (172 square meters). Plot sizes ranged from a minimum of 14 square wah to 200 square wah. The housing units averaged 95.5 square meters in floor area, and ranged from 24 square meters to 324 square meters. The open space in each plot, that is the amount of land not covered by the housing unit or by the garage, averaged nearly 17 square meters.

The structures were all one or two storeys in height. The number of bedrooms averaged 2.6 per unit with a range from one to five. The number of bathrooms averaged 1.7 per unit, ranging from one to four. Most units had a covered space for parking.

3. How Units Were Financed

Table 8 presents the major characteristics of the financing of houses. Most of the units were financed with mortgages. Only in 32 cases, accounting for 21 percent of the sample, did the respondent pay all in cash. In most of the cases the households saved for the downpayment and then financed the remaining amount. According to the respondents, the average amount of the downpayment was 26 percent. For one-fifth of the respondents the downpayment was quite small, falling below 50,000 baht. On the other hand, 43 percent of the respondents put down more than 100,000 baht. In most of the cases the downpayment was paid in installments over a six-month period, enabling buyers to pay the downpayment on a gradual basis.

Table 8
How Housing Units Were Financed

Percent Using Mortgage to Purchase House	79%
Percent Down Payment	26.6%
Mortgage Amount (Baht)	328,983
Monthly Mortgage Payment (Baht)	4,261
Ratio of Downpayment/Annual Income	68.8%
Ratio of Monthly Mortgage to Income	28.3%
Annual Interest Rate (percent)	11.
Term of Mortgage (years)	15

Source: Bangkok Land Management Study, 1987.

The average amount of the loan was 328,983 baht, with a median of 310,000 baht. The pattern of financing varied according to the housing purchase price, but according to the survey the average loan-to-purchase-price ratio was 73.4 percent. The standard repayment term was 15 years with an annual average interest rate of 11.75 percent per year. Based on the interest rates, loan terms and amount financed, the monthly mortgage payments averaged 4,261 baht per month, with a median of 3,800 baht. The ratio of annual household income to the downpayment was 69 percent. The portion of monthly household income going to monthly mortgage payments averaged 28 percent. This is consistent with the overall findings of the larger household survey carried out in the Fall of 1986 by the Bangkok Land Management Study.

In over 90 percent of the cases households saved for the downpayment. In only 8.5 percent of the cases did the buyers borrow money for the downpayment. Forty percent of these households borrowed from relatives and 60 percent borrowed from their employers. Regardless of the source of the downpayment, only 50 percent of the loans thus obtained required interest payments. The repayment period of these loans ranges from one to 15 years. In 80 percent of the cases the loans are due in six years or less.

'. Why Households Purchased Housing

As indicated in Table 4 the age of the buyers was 41.5, indicating that most of the households were mature. Approximately 30 percent of the buyers were trading their previous houses for more expensive houses or buying another house. Of those buying another house, only 43 percent sold their previous house. In most cases those who sold their houses used the proceeds to finance the purchase of their new house. Those who retained units rented them for income purposes.

Nearly 70 percent of the households were buying their first home. Most rented housing before purchasing their home (48 percent). Others lived with their parents or relatives (32 percent), and 20 percent lived with their employers. Most of the households lived fairly close to the house that they purchased, averaging 14.6 kilometers (8.0 kilometers median).

The reasons for purchasing a house varied, but a frequent response was that it was located near their place of employment (43 percent of the respondents). The next most frequent response was that the price and downpayment were low (16 percent). Other reasons, mentioned with about the same frequency, were: fresh air, near old house and relatives quite and calm neighborhood, and preference for the type of construction.

In most of the cases, the buyers looked at other housing projects as well as the one in which they purchased a house. Most respondents looked at two housing estates (60 percent), and 25 percent looked at three housing estates. Most of the projects were located within 12.5 kilometers of the house they ultimately purchased. This indicates that the search area of households is reasonably limited. In this case the search area was limited to the northern area.

5. Characteristics of Low and Moderate Income Households

In this section we assess the characteristics of our target market, households earning below the 1986 Bangkok median monthly income of 6,400 baht. Tables 9 and 10 illustrate the characteristics of recent homebuyers earning below the median income and the housing they purchased. These lower income households are younger (head of house is 36.4 years old) and smaller (average is 3.5 persons). Both the head and spouse tend to work closer to their home than for higher income groups (each work at an average distance of 10.5 kilometers from home).

The average income of the buyers earning below the median is 4,959 baht per month. This is considerably less than the overall average of 15,069 baht per month.

The average price of units purchased by low income groups was 372,941 baht. As expected, the size of units was smaller and they contained fewer bedrooms and bathrooms. The vast majority of the households were first-time buyers (77.3 percent). Half of the lower-income households paid all cash for their houses. Most likely these are cases where they sold their previous place of residence, or received an inheritance. For those obtaining a mortgage to assist their purchase, the loan accounted for 75 percent of the total purchase price of the unit. The average size

Table 9
Characteristics of Low and Moderate-Income Homebuyers and the Houses They Purchased

Household Characteristics	
Age of Household Head (years)	36.4
Household Size	3.5
Distance to Household Head's Place of Employment (kms.)	10.5
Distance to Spouse's Place of Employment (kms.)	10.5
Total Monthly Household Income (Baht)	4,959
Household Purchase Characteristics	
Average Purchase Price (Baht)	372,941
Size of Plot (Sq.wah)	41.9
Floor Area of House (Sq.m.)	86.8
Garden Area (Sq.m.)	27.3
Number of Bedrooms	2.3
Number of Toilets	1.4
Percent First Time Buyers	77.3
Distance to Pervious house (kms.)	31.3
Number of Offer Projects Visited	2.3
Distance to Offer Projects Visited (kms)	19.4

Source: Bangkok Land Management Study, 1987

Table 10
How Low and Moderate-Income Households Financed Their House Purchase

Percent Using Mortgage	50%
Percent Downpayment	25%
Mortgage Loan Amount (Baht)	224,181
Monthly Mortgage Payment (Baht)	2,716
Ratio of Downpayment to Annual Income	137%
Ratio of Monthly Mortgage to Income	54%
Annual Interest Rate	12%
Term of Mortgage (years)	14

Source: Bangkok land Management Study, 1987.

of the mortgage loan was 224,181 baht. The average repayment term was 14 years and the average interest rate was 12 percent. Based on these parameters the monthly loan payment averaged 2,716 baht and accounted for 54 percent of the household's monthly income.

These low and moderate income households search more thoroughly for housing than their higher income counterparts. They looked at more houses (an average of 2.3 compared with 2.0) located over a wider area.

Table 11
Summary of the Types of Housing Units
On the Market in the Northern Corridor

Type of Unit	Planned	% of Total	Sold	% of Total
Detached	7,996	55.2	2,395	34.2
Duplex	1,188	8.2	826	11.8
Townhouse	4,853	33.5	3,418	48.8
Shophouse	449	3.1	365	5.2
Total	14,486	100%	7,004	100%

Source: Bangkok Land Management Study, 1987

A. Description of the Projects

The typical project surveyed was well-located, averaging a mere 600 meters from a main road. The projects averaged 152 rai in size, with 371 units planned. As of April, 1987, these projects had sold an average of 196.5 units or 53 percent of their planned production. Most of the projects provided a range of types of units, averaging four model types per project. Generally, four types of units are currently being constructed in the northern corridor: detached houses, duplexes, townhouses and shophouses.

B. Description of the Units Available for Sale

Table 12 illustrates the characteristics of these units according to the type of unit. The size of plots ranges from 16.3 to 56.3 square wah for shophouse and detached units respectively. The most common size of plot for townhouse units is 21.7 square wah. Duplex units have plots averaging 38.5 square wah.

Table 12
Characteristics and Features of Units for Sale
in the Northern Corridor, April 1987

Characteristic	All Types	Detached Unit	Duplex Unit	Townhouse Unit	Shophouse Unit
Plot Size (sq.wah)	42.0	56.3	38.5	21.7	16.3
Floor Area (Sq.m.)	93.9	104.7	74.4	76.3	136.3
Number of Storeys	1.7	1.6	1.6	1.8	3.0
Number of Bedrooms	2.5	2.8	2.3	2.3	1.3
Number of Toilets	1.7	1.8	1.5	1.6	2.0
% with Separate Kitchens	75.8	88.9	84.2	63.3	28.6
% with Separate Living Rooms	79.6	88.9	89.2	71.4	0.0
% with Maid's quarters	10.8	18.5	10.2	0.0	0.0
% with Covered Parking	71.3	81.5	94.7	65.3	0.0

Source: Bangkok Land Management Study, 1987

In terms of floor area, the units range from 74.4 square meters to 136.3 square meters. These units are large and reflect the orientation of the private market to the middle and upper-middle income range of the market. As described below, the floor areas for units under 200,000 baht are considerably smaller. With the exception of shophouses, the units range between one and two storeys in height, have an average of 2.5 bedrooms, and 1.7 bathrooms per unit. The majority of the units (80 percent) have separate kitchens and covered carports (71 percent). Very few of the units have separate accommodations for maids.

Financing for the units is fairly consistent across all projects and types of units. For all projects the average downpayment made was 27.2 percent of the purchase price. This downpayment was normally made over a five to six-month period. Long-term mortgages averaged 176 months (14.7 years) and carried an interest rate of 11.8 percent.

C. The Price and Supply of Houses

The prices of the units offered for sale in the northern corridor area range from 130,000 baht to 630,771 baht with an average of 509,094 baht. Per square meter of floor area, the selling price of units (total price including land and house) ranges from 4,188 baht per square meter for shophouses to 6,027 baht per square meter for detached units. Table 13 illustrates the distribution planned and sold units by price category.

Table 13
Distribution of Planned and Sold Units in the Northern Corridor by Price, April 1987

Price Category	Units Planned	% of Total	Units Sold	% of Total	Number on Market	% of Total
130-199,000	946	6.5	333	4.8	613	8.2
200-250,000	491	3.4	205	2.9	286	3.8
251-299,000	853	5.9	644	9.2	209	2.8
300-350,000	1,318	9.1	1,148	16.4	170	2.3
351-399,000	1,421	9.8	1,137	16.2	284	3.8
400-450,000	6,048	41.8	817	11.7	5,231	69.9
451-500,000	888	6.1	736	10.5	152	2.0
501-550,000	466	3.2	399	5.7	67	0.9
551-600,000	612	4.2	522	7.5	90	1.2
over 600,000	1,443	10.0	1,063	15.2	380	5.1
Total	14,486	100.0	7,004	100.0	7,482	100.0

Source: Bangkok Land Management Study, 1987

The most striking finding illustrated in Table 13 is the over-supply of units in the 400,000-450,000 baht price range. Developers have planned over 6,000 units in this range and to-date they have only sold 817 units or 13.5 percent of the supply. As a result, nearly 70 percent of the unsold units are priced in this range. Units which are selling well are those priced between 251,000 and 399,000 baht and over 451,000 baht.

Table 15
Sale Rate of Units by Price, April 1987

Sales Price	Sales Per Month
130-199,000	6.1
200-250,000	5.0
251-299,000	2.1
300-350,000	3.8
351-399,000	5.6
400-450,000	4.6
451-500,000	8.0
501-550,000	3.8
551-600,000	5.8
over 600,000	3.0
Average	3.4

Source: Bangkok Land Management Study, 1987

In order to provide the NHA with a competitive project, we have surveyed the characteristics of the current land-and-house competition. Table 16 illustrates the characteristics of units sold in the northern corridor for less than 200,000. Of the 333 sold units in the 40 projects surveyed, nearly 80 percent were townhouses (263 units). Most of the low-cost units have plot sizes of approximately 22 square wah. The floor area of the units ranges from 24 square meters for a small duplex model to 48 square meters for a detached unit. The most frequent model, the townhouse, averages 33 square meters. Units have an average of 1.2 bedrooms and one bathroom and kitchen. The price of the units, per square meter of floor area, ranges from 4,063 to 8,292 baht.

Table 16
Characteristics of Units Which Sold
at Prices Below 200,000, April 1987*

Characteristics	All Units	Townhouse	Duplex	Detached
Sales Price (Baht)	192,162	190,798	199,000	195,000
Plot Size (sq.wah)	21.6	18.2	40.0	20.0
Floor Area (sq.m.)	33.3	33.0	24.0	48.0
Number of Bedrooms	1.2	1.1	2	1
Number of Toilets	1	1	1	1
Price per sq.m. of Building (Baht)	5,771	5,782	8,292	4,063

* Weighted Average of Units
Source: Bangkok Land Management Study, 1987

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E. Conclusions About Housing Market Supply Conditions

The results of our field survey indicate that there is a strong and demonstrated demand for housing units priced below 200,000 baht in the northern corridor. Units produced in this price range sell well, at about twice the rate of the overall housing market. The development community is starting to recognize the potential profitability of building houses in this price range and there are eight projects offering 613 units at prices below 200,000 baht. Most of the units currently planned for production (597 of 613) are townhouse models. According to present levels of absorption it is estimated that there is a 2.3 year supply of housing planned for production and sale at prices below 200,000.

Thus the current market conditions suggest that there is an opportunity for the NHA to develop housing priced below 200,000 in the northern corridor. In order for the NHA to capture a significant share of this low and moderate-income market segment, it must produce and deliver housing at prices well below 200,000. In fact, as will be described in the next section, we recommend that the NHA develop housing units at prices between 149,000 and 189,000 baht. With such a pricing strategy, the NHA should have no difficulty capturing 50 percent of the market targeted at households earning less than the Bangkok metropolitan area median income of 6,400 baht per month. With a 50 percent capture of the low and moderate income-market (10 percent of the total northern corridor market), the NHA can expect to sell between 400 and 500 dwelling units in the northern corridor per year.

IV DESCRIPTION OF THE PROJECT DEVELOPMENT CONCEPT

Simply stated, the development concept we propose for the northern corridor is to build a land-and-house project at prices between 149,000 and 189,000 baht per unit. The units should be mostly townhouse types on plots of approximately 20 to 22 square wah. The floor area of the units should be range between 30 and 40 square meters. The units should have between one and two fully finished bedrooms and contain a kitchen and bathroom. With product of this type the NHA can expect to sell between 400 and 500 dwelling units per year.

Because housing market conditions in Bangkok are changing quickly, the NHA should not purchase more land than it can develop and sell within two years. This means that the NHA should purchase parcels of land that are between 50 and 70 rai. Larger parcels should be avoided.

As will be fully elaborated in the next section, the maximum purchase price that can be paid for land is 360,000 baht per rai, given the specified sale-price ranges. At prices above this level it is extremely difficult to build housing and sell at 149,000 to 189,000 baht per unit without subsidies. The site should require no more than 2.0 meters of fill, and have direct road access, electrical service to the site, metropolitan water service or the potential for drilling deep water wells, and be located within 4 kilometers of a major highway with frequent public transit. The site should have a frontage of at least 100 meters.

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To demonstrate the feasibility of developing such sites without any public subsidies, we present a specific example of a feasible project. Our first step in this process was to locate a site which met the specific price and locational characteristics outlined above. The next section describes the process we used to find suitable sites in the northern corridor.

V SITE SELECTION

Based on the criteria for the project outlined above, it was possible to search for a parcel of land in the northern corridor, through a direct approach to the village headmen in the area, who traditionally act as informal brokers in land transactions on the urban fringe. In this section we demonstrate how surveys of village headmen may be used to identify sites for NHA housing projects.

In April of 1987 approximately 413 questionnaires were mailed to village and tambon headmen with jurisdiction over lands in the northern corridor. Each of the Headmen was asked to indicate whether parcels of between 30 and 60 rai were available in their district. We received 90 completed questionnaires, of which 60 were usable. The headmen identified altogether 97 land parcels currently offered for sale. Summaries of the characteristics of these parcels are presented in Table 17.

Table 17
Characteristics of Sites For Sale Identified
by Village Headmen, April 1987

Size Category (Rai)	All Parcels		without Access		with Access	
	Price Baht/Rai	Number of Parcels	Price Baht/Rai	Number of Parcels	Price Baht/Rai	Number of Parcels
10-30	241,667	24	321,333	15	108,889	9
31-50	228,065	31	248,478	23	169,375	8
51-70	181,875	16	189,286	14	130,000	2
71-114	266,944	18	244,167	12	312,500	6
115-400	129,375	8	141,000	5	110,000	3
Total Parcels		97		69		28
Average Price (Baht)	222,887		243,768		171,428	

Price Category (Baht)	All Parcels		without Access		with Access	
	Size of Parcel	Number of Parcel	Size of parcel	Number of Parcels	Size of Parcel	Number of Parcels
20,000-50,000	94.7	10	131.0	4	70.5	6
51,000-100,000	64.3	32	64.3	22	64.2	10
101,000-180,000	49.8	13	53.9	10	36.3	3
181,000-280,000	91.4	17	87.2	13	105.0	4
281,000-500,000	52.9	15	50.3	12	63.3	3
501,000-900,000	52.8	10	41.0	8	100.0	2
Total Parcels		97		69		28
Average Size (Rai)	67.3		65.8		70.9	

Source: Bangkok Land Management Study 1987

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A. Results of the Village Headmen Survey

The 97 parcels available for sale accounted for 6,526 rai. While these 6,526 rai do not constitute the total universe of parcels offered for sale in the northern corridor (since the survey response was only 22% and since the responses specifically excluded both small and large parcels), they represent 1.6 percent of the total land area of the northern corridor. This suggests that up to 10% of the land in the northern corridor may be available for purchase at the present time.

The headmen identified parcels ranging in size from 10 to 400 rai. The average size was 67 rai. The asking prices in baht per rai ranged from 20,000 to 900,000 baht, with an average asking price of approximately 222,900 baht per rai. The majority of the parcels identified by the headmen were less than 50 rai. Thirty-five percent of the parcels included in the survey were between 50 and 114 rai, the target size of the site set for the feasibility study.

The table also shows the availability of road access to these parcels. On average, parcels with road access are 21,000 baht per rai more expensive than those without direct access. The discount for lack of road access is greatest for smaller parcels. As parcels increase in size the value of access become less since buyers could obtain access from abutting property owners and spread the cost over the acquired land. This is more cost-effective for larger parcels than for smaller ones.

The results of the village headmen survey show that it is less expensive to purchase large (over 114 rai) sites. This finding holds true regardless of whether or not the site has access. Of course buying a larger site only makes sense if it can be developed and sold quickly, and carried at low financial cost.

The survey of village headmen thus generated nearly 100 parcels of land for sale in the northern corridor. This information was used by the Study Team to identify a site for inclusion in the feasibility study.

B. Selection of the Demonstration Site

To winnow the inventory of sites, we used the criteria developed from our market research. We evaluated the 97 sites according to the following standards:

1) price of 200,000-360,000 baht per rai;

2) location not more than 4 kilometers from a main road with bus service;

3) electrical service to site; and

4) water supply or deep well potential.

Based on these criteria, the 97 parcels were reduced to 31. We next mapped each site and eliminated parcels that were more than

five kilometers from Paholyothin Road, the main access road to central Bangkok. This final criterion reduced the number of potential parcels to 14.

To assess the development potential of sites we visited the headman who had suggested them. Most sites were rejected because of their great distance from Paholyothin Road, unclear or poor site access, or the need for extensive land fill. Through the process of elimination we ultimately selected a 72-rai parcel located on the Paholyothin Highway adjacent to Bangkok University (see Map 3 for location). The asking price was 550,0000 baht per rai or a 39,600,000 baht for 72 rai.

Although the site exceeded our purchase price constraint, we determined that the front portion of the site could be sold off at a high commercial price. Given the site's direct highway frontage the portion of the site adjacent to the road is extremely valuable. Interviews with Village Headmen and real estate brokers in the area indicate that commercial frontage land within 200 meters of the Paholyothin highway currently sells for 1.5 million baht per rai. Thus by selling off the front 12 rai of the site we can effectively lower the purchase price of the remaining 60 rai to 360,000 baht per rai.

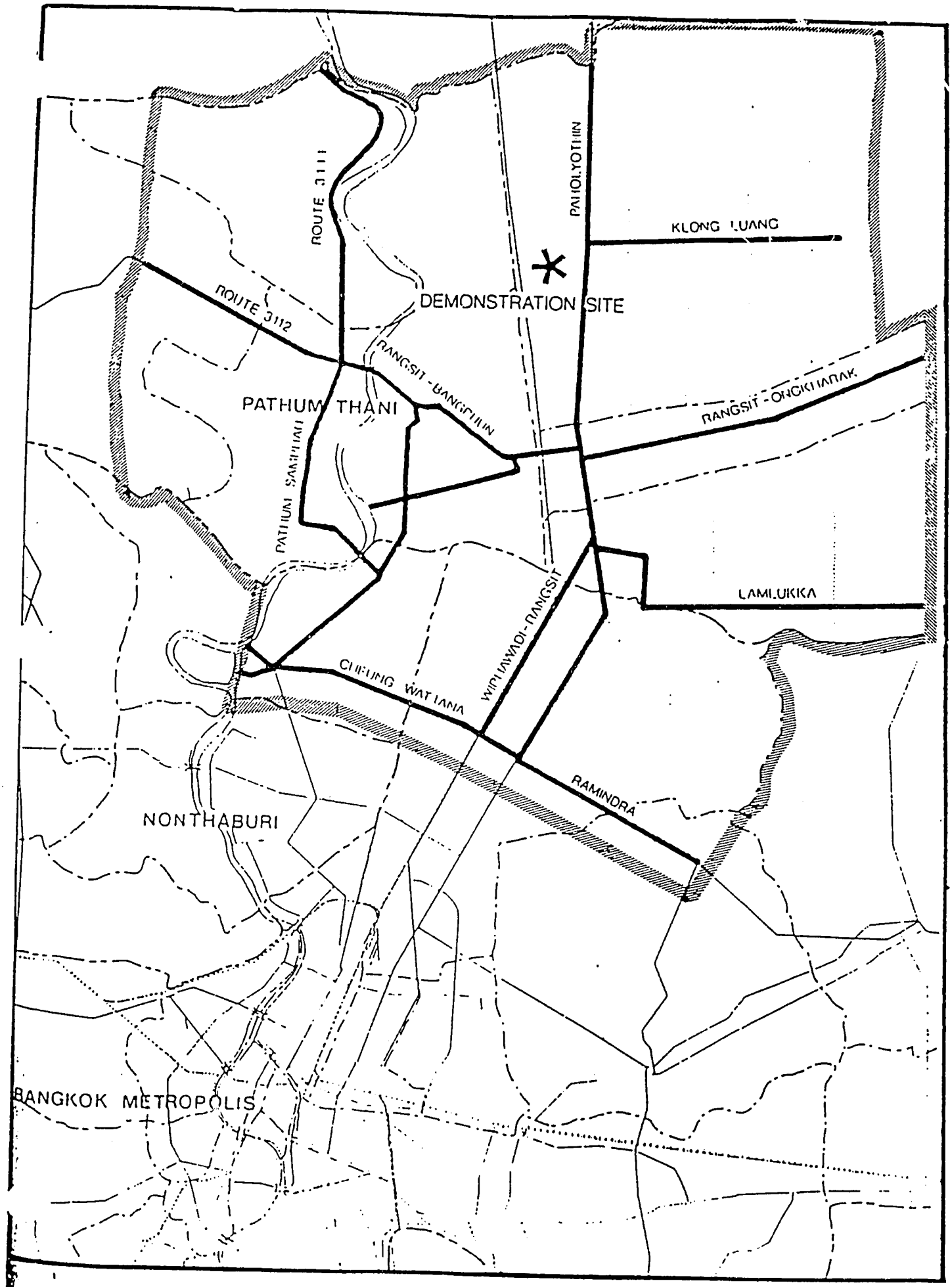
VI A SPECIFIC DEVELOPMENT PROPOSAL

We have developed a basic site plan for the 72-rai parcel which is illustrated in Figure 1. The plan calls for selling the 12-rai front portion of the site for commercial development. We estimate that these 12 rai could be sold for 18 million Baht. On the remaining 60-rai portion of the site we propose to construct 746 housing units. Table 18 illustrates the types of units and their characteristics. The plan calls for 716 townhouses and 30 shophouses.

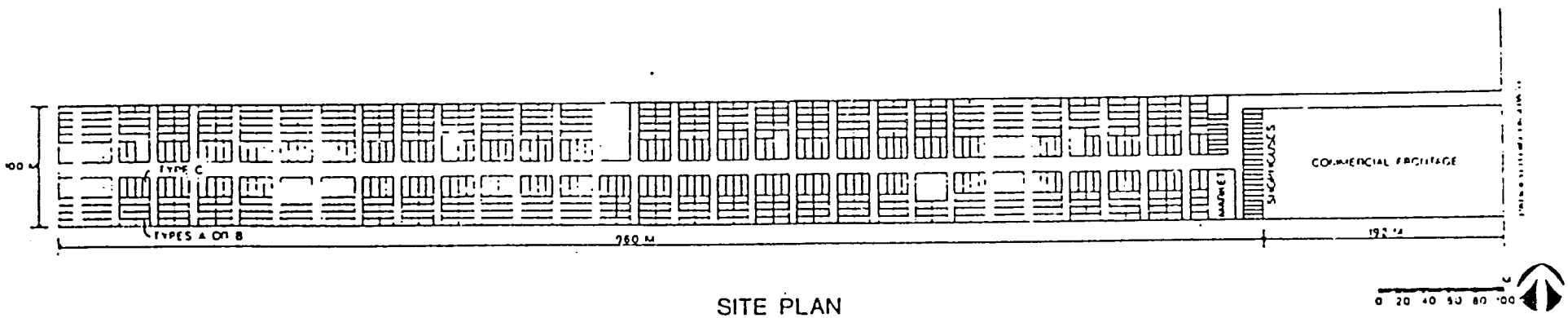
A. Housing Mix and Description

The site dimensions are 100 meters by 960 meters. A single 12-meter road bisects the site with collector streets on each side. A total of eight individual parks of different sizes are scattered throughout the site, totaling more than two rai in area. The park sites range in size from approximately 45 square wah to 302 square wah.

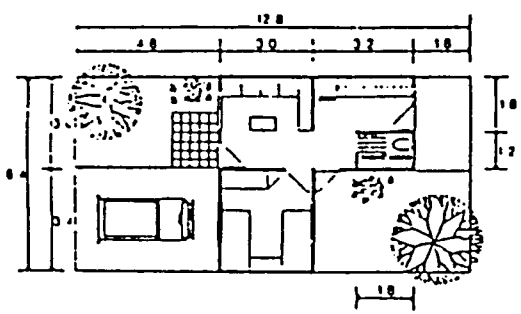
Figure 1 illustrates the three types of residential units proposed for the site. Table 18 lists the units and their main features. Type "A" is a 30.68 square meter townhouse unit. It contains one bedroom and bathroom and a kitchen. The plot is 12.8 meters by 6.4 meters, totaling 20.5 square wah in area. This 6.4 meter plot frontage is generous and makes the townhouses contained in this project more attractive than the long and thin townhouse found in other comparable projects. The unit is set back from the street 4.8 meters and thus provides ample room for auto parking. There is space for constructing an additional room in the rear of the unit totaling 10.88 square meters. The proposed price of this unit is 149,000 baht (4,857 baht per square meter). Type "A" units are located off the main road,



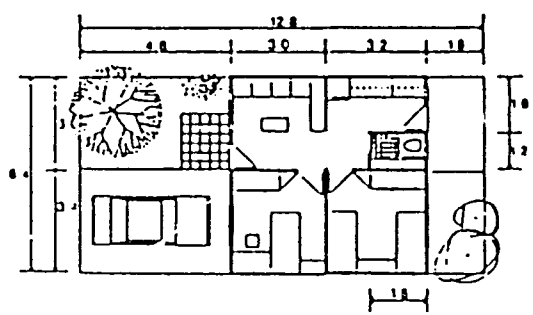
MAP 3: THE LOCATION OF THE DEMONSTRATION SITE



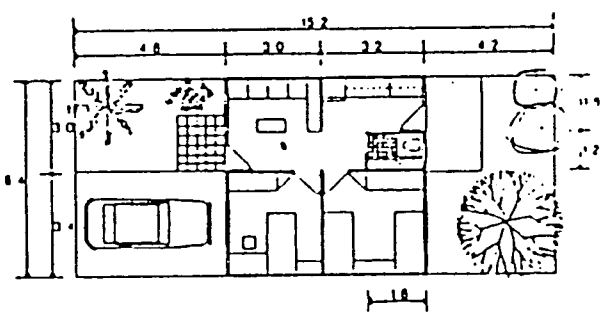
SITE PLAN



HOUSE TYPE A:
FLOOR AREA: 30.68 SQ.M.
PLOT SIZE: 20.5 SQ.W.
PRICE: 149,000 BAHT



HOUSE TYPE B:
FLOOR AREA: 39.68 SQ.M.
PLOT SIZE 20.5 SQ.W.
PRICE: 175,000 BAHT



HOUSE TYPE C:
FLOOR AREA: 39.68 SQ.M.
PLOT SIZE: 24.3 SQ.W.
PRICE: 189,000 BAHT

FIGURE 1: DEVELOPMENT PROPOSAL FOR NORTHERN CORRIDOR SITE

along the side streets. A total of 204 units of this type are proposed.

Table 18
Housing Unit Characteristics for the Demonstration Project

Characteristic	Townhouse Type A	Townhouse Type B	Townhouse Type C	Shophouse Type A	Shophouse Type B
Number of Units	204	300	212	22	8
Plot Size (Sq.wah)	20.48	20.48	24.32	15.6	16.0
Plot Dimensions (m.)	6.4 x 12.6	6.4 x 12. 8	6.4 x 15.2	4.0 x 15.6	4.0 x 16.0
Floor Area (sq.m.)	30.68	39.68	39.68	163.2	168
House Dimensions (m.)	6.4 x 3.0 + 3.2 x 3.0	6.4 x 6.2	6.4 x 6.2	13.6 x 4.0	14.0 x 4.0
Number of Bedrooms	1	2	2	4	4
Number of Bathrooms	1	1	1	2	2
Number of Storeys	1	1	1	3	3
Price (Baht)	149,000	175,000	189,000	465,800	477,000

Source: Bangkok Land Management Study, 1987.

Type "B" is a 39.68 square meter townhouse on a 12.8 by 6.4 meter plot (20.5 square wah). The unit contains two bedrooms and one bathroom and kitchen. The unit floor area is 6.4 meters by 6.2 meters. It is set back 4.8 meters from the road and thus has ample rooom for parking. In the rear of the unit there is an open area of 1.8 by 6.4 meters. This unit is priced at 175,000 baht or 4,410 baht per square meter. Type "B" units are also located off the main road, along the side streets. A total of 300 type "B" units are proposed.

The type "C" unit has a larger plot (6.4 meters by 15.2 meters, 24.3 square wah) and is located along the main road of the project. The townhouse unit is same size as type "B", with two bedrooms, one bathroom and kitchen. The plan calls for 212 type "C" units. These units will be priced at 189,000 baht (4,763 baht per square meter).

Two types of shophouses are proposed. Shophouse type "A" is a three-storey unit measuring 13.6 meters by 4.0 meters (163.2 square meters). The plot size is 4.0 by 15.6 meters (15.6 square wah). Twenty-two type "A" shophouses are located at the entrance to the project. These units will sell for 465,000 baht.

The second type of three-storey shophouse is slightly larger, measuring 4.0 by 14.0 meters (168 square meters). The plots for this type of unit are deeper, measuring 16.0 by 4.0 meters. There are 8 of these units and all of them are located at the entrance to the project. These units will be priced at 477,000

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B. The Development Strategy for the Project

Based on our estimates of current housing market conditions, the 746 units are projected to sell out in 18 to 22 months. We estimate that the project can be developed and sold in 24 months. Figure 2 illustrates a time schedule for the project. The time schedule assumes that the project is "fast-tracked" and the development and marketing program generally follows the typical pace found in comparably-sized private sector projects in Bangkok. The main differences between the proposed approach and the approach previously followed by the NHA is the quick site acquisition phase and the commencement of marketing efforts as soon as the architectural and site planning work has been completed. We suggest that the NHA build three model homes for marketing purposes, and start selling homes immediately after these model homes are completed.

C. Projected Financial Performance of the Project

Table 19 presents the land acquisition and land development costs for the project. The total land and land development cost of the project is 53,803,401 baht, approximately 3,374 baht per net salable square wah. This price is well within the price ranges of land-and-house projects we have recently surveyed in Bangkok. These costs include land aquisition and infrastructure construction costs as well as design, construction supervision, management, contingencies and interest costs for the project. The financing costs for land development assume that the full cost of the site is financed at 1 percent per month. We have assumed that the the seller is paid for the land in stages over the two-year project period. We estimate that the full cost of the land must be financed for a 16.5 month period. Infrastructure construction interest costs are estimated at 1 percent per month and will need to be carried at an average balance of 65 percent for 18 months until the project is sold out.

The costs associated with the construction of 746 dwelling units are presented in Table 20, by unit type. The total cost of constructing these units is 73,593,133 baht, for an average of 98,650 baht per unit. These costs include the direct costs for construction of the units, electrical and water connections, house registration, construction period interest, project management, supervision and overhead costs.

The total construction costs and sales revenues by unit type is presented in Table 21. The total development cost for the 60-rai land-and-house development is estimated to be 127,396,534 baht. These costs are based on private-sector standards for construction and design and reflect general project management and overhead charges used by private land and housing development firms operating in Bangkok. Thus this hypothetical project does not assume that the entire overhead of the NHA is charged to the project.

The total revenues of the project, totalling 137,010,000 baht, are generated by the sales of the four types of units on the

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FIGURE 2

ESTIMATED TIME SCHEDULE FOR PROJECT DEVELOPMEMT
NORTHERN CORRIDOR DEMONSTRATION PROJECT

DEVELOPMENT ACTIVITY	SCHEDULE IN MONTHS 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
1. SITE ASSESSMENT AND ACQUISITION	XXXXXXXXX
2. SITE PLANNING AND ARCHITECTURAL DESIGN	XXXXXXXXX
3. CONSTRUCTION OF MODEL HOMES	XXXXXXX
4. INFRASTUCTURE AND HOUSE CONSTRUCTION	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
5. MARKETING AND SALES	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

SOURCE: Bangkok Land Management Study, 1987.

Table 19
Land Acquisition and Land Development Cost
for the Demonstration Site

	Cost (Baht)
Raw Land (550,000 Baht/Rai x 72 Rai)	39,600,000
less sale of 12 Rai Frontage at 1,500,000 Baht/Rai	15,000,000
NET LAND COST	21,600,000
Fill - 2.0 meters x 60 rai (55 Baht/c.m./192,000 cubic meters)	10,560,000
Roads, 21.2 percent of site area (240 Baht/sq.meter, 20,380 square meters)	4,891,200
Drains (both sides of roads) (400 Baht/meter, 5,296 meters)	2,118,400
Water supply system (180 baht/meter, 5296 meters)	953,280
Poles and electrical system (6,000 baht/pole, 275 poles)	1,650,000
SUBTOTAL DIRECT COST	41,772,880
Financing Costs Interest on Land (1% per month for 16.5 months)	3,564,000
Construction Interest (20,172,880 65% draw 18 months)	2,360,226
Project design, supervision, overhead and contingency (10.2% of Direct Cost)	6,106,295
SUBTOTAL INDIRECT COST	12,030,521
Total Land & Land Development Cost	53,803,401
Land and Land Development Cost per Marketable Sq.Wah.	3,373

Source: Bangkok Land Management Study, 1987.

market without subsidies or cross subsidies. These prices are set to attract customers and ensure that the units will be sold off in 18 months time. The feasibility study assumes that the units will be offered on the market at terms which are competitive. This implies that buyers will have access to loans for financing the purchase of units at market interest rates of 11.5 to 11.75 percent per year, amortized over 15 years. If the NHA should choose to finance these units at higher interest rates, the sales of the units will be slower and the financial feasibility of this project substantially altered.

The spread between the cost of construction and the sales revenues associated with the project suggest that the NHA can earn a project surplus of 9.6 million baht. This surplus averages 12,900 baht per unit (ranging from 6,578 to 13,900 per unit for the townhouses and between 48,600 to 50,000 per unit for the

shophouses). The surplus of the total project is seven percent of the sales revenues.

Table 20
Housing Construction Cost by Unit Type

Cost Component (Baht)	Townhouse Type A	Townhouse Type B	Townhouse Type C	Shophouse Type A	Shophouse Type B	Total
Shell + Interior Work	11,265,696	21,427,200	15,141,888	6,462,720	2,419,200	56,716,704
Electrical Connection	510,010	750,000	530,000	55,000	20,000	1,865,000
Water Connection	489,000	720,000	508,800	52,800	19,200	1,789,800
House Registration	20,400	30,000	21,200	2,200	800	74,600
Direct Cost	12,285,096	22,927,200	16,201,888	6,572,720	2,459,200	60,445,104
Construction Interest (1% month, 15 months 65% drew)	1,197,797	2,235,402	1,579,684	640,840	239,772	5,893,495
Project Management Overhead (12% of Direct Cost)	1,474,212	2,751,264	1,944,227	788,726	295,104	7,253,533
Total Cost	14,957,106	27,913,866	19,725,799	8,002,286	2,994,076	73,593,133
Cost per Unit	73,319	93,046	93,046	363,780	374,260	98,650

Source: Bangkok Land Management Study, 1987

The project, as proposed and assessed, is clearly feasible. It could be quickly developed and sold off in two years or less. The results of the feasibility assessment suggest that the NHA Board of Directors would be well advised to purchase and develop a site, or several sites in different corridors, such as the one proposed in this study.

Table 21
Estimated Costs and Revenues
for the Demonstration Project

Type of Unit	Number of Units	Land Cost	House Cost	Revenues	Surplus
Townhouse A	204	14,094,104	14,957,106	30,396,000	1,344,790
Townhouse B	300	20,726,624	27,913,866	52,500,000	3,859,510
Townhouse C	212	17,393,092	19,725,799	40,068,000	2,949,109
Shophouse A	22	1,157,776	8,002,286	10,230,000	1,069,938
Shophouse B	8	431,805	2,994,076	3,816,000	390,119
Total	746	53,803,401	73,593,133	137,010,000	9,613,466

Source: Bangkok Land Management Study, 1987.

VII CONCLUSIONS AND RECOMMENDATIONS

A. Conclusions

This study clearly demonstrates the feasibility of developing a small 60-rai land-and-house project in the northern corridor. The feasibility analysis has determined that the demand for housing in the northern corridor for households earning below median incomes is approximately 800 to 1000 units per year. It has

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further established that should the NHA develop housing on sites located within 4 kilometers of the main Paholyothin Highway and price them between 149,000 and 189,000 baht per unit, it could sell between 400 and 500 units per year and capture approximately 50 percent of the low-income housing market in the northern corridor.

The feasibility study's survey of village headmen indicates that direct contact with the headmen can serve as an effective source for identifying sites for acquisition. Such contacts can quickly provide detailed and accurate information about the land market to NHA decision-makers.

Section VII of the feasibility study illustrates an efficient land-and-house project which can be developed on the typical long and narrow parcels that are available in the suburban areas of Bangkok. Based on construction and land development cost standards used by the private sector, we have concluded that it is financially feasible to develop housing and sell it at prices between 149,000 and 189,000 baht. In fact, projections of costs and revenues indicate that the NHA could generate a 7 percent surplus from the development such projects.

In addition to illustrating the feasibility of developing a 60-rai site in the northern corridor, this report provides a general framework for conducting market feasibility studies of specific projects. The approach described in the report has been used effectively by NHA members of the Study Team and can be replicated and applied in other corridors as well.

B. Recommendations

Based on this feasibility study, the Bangkok Land Management Study Team offers the following six recommendations to the NHA:

1. The NHA should alter its approach to land acquisition by shifting from a land-banking orientation to a project-development-and-sale orientation. Such an approach would gauge the market demand for low and moderate-cost housing projects in specific corridors of the metropolitan region. Estimates of market capture would be made and used to determine the precise size of a parcel of land to purchase for a project.

2. The NHA should focus on smaller projects which, based on projections of annual market demand conditions, can be developed and sold out in one to two years. This means that the NHA should purchase smaller parcels of between 40 to 70 rai. By purchasing smaller parcels, the NHA can avoid large interest charges for carrying land and preserve its flexibility. It would enable the NHA to shift project characteristics and specific locations to capitalize on changing market conditions.

3. The NHA should decentralize its land and housing development operations so that each of the seven highway corridors around Bangkok is the focus of a separate housing development team. The feasibility study has demonstrated the importance of up-to-date and detailed land and housing market information. It is difficult to

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collect this type of information unless NHA staff are continually present in a specific corridor, surveying housing projects, interviewing recent housebuyers, and keeping in touch with local land brokers. The NHA could develop a better understanding of the local housing markets only if it assigned staff to monitor each corridor land and housing market on a regular basis.

4. The NHA should make better use of village headmen to determine what types of land parcels are on the market. In the feasibility study we used village headmen to report on the supply of land available for sale in the market. This process generated numerous sites, several of which are well suited for NHA acquisition. Such surveys can also help the NHA Board of Directors determine reasonable offering prices for land.

5. The NHA should restructure its assignment of overhead costs to projects. In this feasibility study we assumed that overhead charges are similar to those levied by the private sector (of the order of 10%). There is no possible way that the project evaluated in this feasibility study could be made feasible if a substantial portion of the NHA's staff costs were added to the project's overhead charge.

6. The NHA should not wait to begin selling housing units until it has completed them. It should follow the practice of the private-sector and begin marketing units as soon as the land development begins and model homes are completed. In this way the projects can sell out more quickly.

If these recommendations are taken up and implemented the NHA could effectively embark on a land acquisition program to meet its planned targets. Despite the small scale of the project proposed in this feasibility study it is possible for the NHA to develop five or six such projects in the various development corridors, each tailored to the specific market conditions in these corridors. At such a level of production, the NHA could produce between 3,000 to 4,000 units per year on scattered sites in the metropolitan area. This volume would be sufficient to meet its loan commitments, as well as its targets identified in the Sixth National Development Plan.

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MAKING LAND DEVELOPMENT: THE PROCESS AND CRITICAL ELEMENTS FOR SUCCESS

by David Dowall

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INTRODUCTION

Around the world, urban development professionals are discussing ways to improve urban land development and management. Many commentators suggest that the public sector can more effectively deliver land for housing development by emulating the private sector real estate practice [see Dowall, 1987, Durand-Lasserve, 1987 and Kitay, 1987]. This paper attempts to further this dialogue by presenting a description of the land development process and outlining the critical institutional and organization elements needed for successful land development.

The process outlined below is universal in that it equally applies to both public and private agencies. As such, it is useful for determining how to best structure and staff land development agencies. This paper argues that given the dynamic character of the land development process, successful land development entities must: 1) have clear and simple goals; 2) incorporate incentives which reward high performance and risk-taking; 3) be small-sized; 4) be flexible and responsive to changing market conditions; and 5) have access to sufficient financial resources and highly talented staff.

This paper consists of three sections. The first part describes a step-by-step process of land development. The second, discusses the institutional and technical elements necessary for carrying out successful land development projects in the context of both public and private land development entities. Finally, the paper offers guidelines for establishing public land

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development agencies. For purposes of clarity and brevity, the discussion in the paper is limited to residential land development. The provides examples from both developed and developing countries.

THE LAND DEVELOPMENT PROCESS

Land development is an extremely complex process involving numerous decisions and actors. Essentially, it is a production process: where land is purchased as an input to the production of either finished residential lots or completed residential units. However, the actual process is not as simple. Land developers are faced with problems unlike other manufacturers. While they must produce a product (a finished homesite or house), it cannot be produced at the factory and shipped to the buyer; it must be developed in a specific city, at a specific site. Thus the process of finding a site, that is land acquisition, is the key element of the land development process [Kenney, 1972].

Regardless of whether the developer is public or private, the process of land development is extremely complex and involves a series of tests. Based on the work of Wheaton [1964], Kenney [1972] and the author's research on public land development agencies [Dowall, 1987], the following land development process is defined:

1). General assessment of development environment;

2). Assessment of specific parcels;

3). Finalizing land purchase;

4). Project production and marketing; and

5). Ongoing project management.

Each of these phases is described in more detail, including an enumeration of the specific steps and actions critical for completing each phase.

PHASE 1: GENERAL ASSESSMENT OF DEVELOPMENT ENVIRONMENT

The purpose of this phase is to identify the specific types of land development opportunities which can earn the developer a profit, or, in the case of the public sector, achieve a public policy objective. For large, national-level developers, this phase will result in the identification of specific metropolitan areas or towns offering development potential. The developer normally undertakes the following assessments:

0 Determine housing demand by type of product, price- range and location. Estimates of current and short-term (one-to-two years) housing demand are made. These are based on projections of population, household formation, income growth, savings and employment. The projections are subdivided according to location (specific metropolitan areas or regions), by the type of housing (e.g. two room flats, townhouses, detached units), and price of units [Sumichrast, 1985].

A private sector example of this step is the ongoing market research carried out by the Arizona-based RECORP, to determine which metropolitan areas of the U.S. offer the most potential for suburban land development [RECORP, 1988]. In the public sector, the government of Sri Lanka estimates future housing demand and needs for its urban areas [Struyk, 1987]. In Singapore, the Housing Development Board closely monitors housing demand [Goh,

1987]. These estimates provide a first-cut determination of the potential demand for land development projects. If trends are promising, the developer continues.

0 Assess the supply of housing and finished residential plots, by type and size, price range and location. In conjunction with the demand assessment, completed projects in the market area(s) are surveyed and tabulated according to: location, number of housing units or plots, and the type of units (size, number of rooms, and stories). The survey should also provide a price or rental rate for each type of unit in each project, an estimate of how well the units are selling, and a listing of amenities (swimming pools, tennis courts, football fields, bus stops and public markets, etc.).

In most cases, private land and housing developers around the world carefully survey other competitive projects [National Association of Home Builders, 1981 and Housing Management & Construction, 1986]. However, there are cases where land developers have ignored competition and gone ahead and built projects even when housing supply exceeds demand. In Valencia, Venezuela in 1982, there were an estimated 10,000 vacant private dwelling units [Gilbert and Healy, 1985]. In Jordon, there is a substantial oversupply of housing units, as construction has out-paced demand [World Bank, 1983].

In the public sector, many housing agencies have tended to discount the necessity of systematically gauging supply because they produce "lower cost housing" and assume that the demand for such housing is limitless. However, many public housing agencies have drifted up-market and are producing housing that is directly

competitive with the private sector [Bangkok Land Management Study, 1987, and Kitay, 1987]. In such cases competitive surveys are obviously needed.

0 Project future demand and supply conditions given mortgage interest rates, employment and population growth and overall economic outlook. The previous steps concentrated on current demand and supply conditions. This one projects the future demand for and supply of housing by type, price and location. The analysis should seek to gauge the strength of the housing market to absorb additional housing and land development projects [Struyk, 1987]. This step usually identifies specific segments of the overall housing market where demand exceeds supply.

0 Determine land and construction costs associated with land development projects. In order to determine whether the market offers profitable or cost-recoverable land development opportunities, the cost of developing projects, (land, land development and construction costs) must be estimated. These costs can be determined by surveying land prices and consulting contractors and engineers.

By comparing his or her "supply cost" to the competition, the developer can gauge whether there is a profit or cost-recovery potential associated with producing a specific development project. Frequently, private sector projects are modified to increase profits. Most private sector developers constantly "shop" the market to evaluate the competition. These assessments are constantly made in light of changing conditions in the land and housing markets. As land prices change,

developers seek ways to cut costs to maintain profits. Alternatively they may conclude that they must raise prices to cover rising land and construction costs [Dowall, 1988]. Informal developers are no exception; they also constantly shop the market and gauge the willingness and ability of low- and moderate-income households to purchase plots or dwelling units [Carroll, 1980 and Yonder, 1988].

In contrast, most public land development agencies devote little time to gauging housing market conditions. Most land agencies intermittently purchase land and they only periodically shop the land market [Baker and Kampholpan, 1987]. As a result they are not fully informed about land prices, construction and site development costs. Furthermore, by not closely following what developers build and market, public land developers frequently set standards which are not matched by the competition or are simply too expensive for households to purchase or rent, if costs are to be recovered [Swan, et. al., 1983 and Keare and Parris, 1982]. As pressures for cost-recovery increase, public land developers are starting to carefully assess the costs of land development in relation to sales and rental income [World Bank, 1981].

0 Assess the current pattern of land use and development controls. Of special importance to private sector land development firms is the current status of land use controls such as zoning and subdivision regulations. These controls can make land development difficult or impossible if they are too stringent. Lengthy controls can slow the development process and create financial drains on projects. Regulations increase land

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and construction costs, and can add an additional 20 to 30 percent to the cost of housing [Dowall, 1984].

In countries with complex land use controls, many developers devote considerable time to assessing their impacts on development and determining whether they can secure needed approvals. In the U.S. for example, where, in many cases, government approval of land development projects is uncertain, developers frequently rely on full-time staff to obtain development approvals. In other cases, where the permission of development is freely given or controls are ignored, such reviews are less important [Carroll, 1980, Yonder, 1988].

At the end of this process, the land development entity should have a clear notion of the current demand for and supply of housing or residential lots in a metropolitan area. This demand assessment should also identify specific locations in the region ripe for land development. The developer should have an estimate of the annual demand for housing or plots by type, price range and location. By comparing demand projections with current and future supply of housing and lots, the developer will be able to identify specific opportunities or development needs.

After completing the above steps, the developer should be able to frame a specific project in terms of type of housing or plots, price-range, location and size [National Association of Home Builders, 1981]. The project should be designed to effectively compete in the marketplace, that is, quickly sell and generate an adequate return on investment. (A fully elaborated example of such an assessment prepared for a public sector client

is reported in Dowall and Kritayanavaj, [1987].) In the next cycle of decision-making, the land developer looks for specific parcels to test his or her concept.

PHASE 2: ASSESS SPECIFIC PARCELS

In this phase the land developer searches for a feasible development project. The developer concentrates on finding one or more parcels which are located in an area where housing demand exceeds current or projected supply, and priced low enough to ensure a profitable housing product.

As a prominent U.S. residential land developer stated, "The key to successful merchant building was, and still is, picking the right location and offering the right product at the right price" [Eichler, 1982, p.79]. For the small developer, this task may be highly constrained -- limited to small lots for sale in the neighborhood where he or she operates. On the other hand, larger developers, have wider, although more complex choices. In either case making the correct choice is difficult, and requires careful assessment of the marketplace. As one large Bangkok housebuilder recently told me, "I don't really pay much attention to the actual construction and marketing of our projects anymore. My full attention is devoted to acquiring land" [Dowall,1988].

Depending on the size of the firm, whether it is public or private, and on a myriad of social, political and cultural factors, the land development agency may use a real estate broker in its search for land. The process usually proceeds as follows:

0 Identify sites for sale and those which might be purchased (obtain asking price and terms of sale offer). Small firms will usually scour the market for parcels for possible purchase [Gilbert and Healy, 1985]. They will drive around the metropolitan area searching for parcels which are located along or near main roads, and frequently work directly with the current owners of parcels. Most experienced developers will have a clear profile of the type of parcels they are looking for in terms of size, location and price. At this stage, they may also consider the possibility of combining several small parcels into one assembly, although this normally is difficult.

Larger developers will frequently work with one or more real estate brokers to identify land parcels. Often, these large developers are well-known and they do not want landowners to know that they are "in the market" [Eichler, 1982].

Public agencies will often advertise their desire to purchase land to attract sellers. Most often they purchase or option land intermittently. Because they don't routinely go out into the field to look for land, public land development agencies do not have accurate or up-to-date knowledge of the marketplace As a result, they may pay too much for land, or buy sites which are less than desirable [Kitay, 1985].

0 Check with public agencies regarding zoning, land use and subdivision controls. For each site under consideration, the land developer determines the actual permitted development for the site, given local land use and zoning controls. At this initial stage the land developer usually calculates a "rough" holding capacity of the site in terms of units or plots.

This assessment is critical for private land development firms if they must closely follow public zoning and land development controls. In contrast, public land development entities may be exempt from such controls or able to easily obtain necessary modifications. In the later case the assessment is less important, and such exemptions certainly facilitate the development process.

0 Assess the availability of water and sewer systems or potential for the construction of wells and septic systems, and gauge the availability of electrical power to the site. Here the developer determines whether the site can receive water, sewage treatment and electrical service at a reasonable cost, or that wells and septic systems can be constructed. Because of their access to information, public land developers usually have excellent knowledge of the infrastructure development plans and can use this information to identify and evaluate sites.

0 Conduct preliminary physical assessment of site to determine developability. The physical characteristics of parcels have enormous implications on the cost of land development. If the site is too steep or too low, a substantial amount of earth moving may be necessary, adding to land development costs. In low-lying areas, earthfill can double land costs for housing projects. In other cases, hillsides, floodplains and unstable soils limit a site's development potential.

0 Estimate land and housing development costs for each specific site under consideration. Based on the preliminary capacity estimate of the parcel, the land developer now can more

precisely calculate the costs of building a housing project on the site. The calculation provides estimates of land cost, site preparation and dwelling unit construction costs.

0 Estimate preliminary profit level and development risks for site. By combining the results of the cost analysis with the market information gathered earlier, the land developer next gauges the potential feasibility of building a housing or land subdivision project on a site. By comparing potential sales revenue with development costs, the developer can determines the maximum price to pay for a parcel [Dowall, 1985].

0 Select most attractive site or sites for optioning. Based on the preceding analyses, sites are ranked for acquisition according to: developability, location, marketing potential, access to infrastructure, and profit or cost-recovery potential.

Once the sites have been ranked, the developer "ties up" the top-ranking sites and continues to refine his or her analysis and makes a final go/no-go decision. In the private sector, the analysis of candidate sites may be more limited until the site has been optioned for possible purchase. Thus some of the steps outlined in this phase may actually take place in the next.

Phases 1 and 2 are largely analytical. They require careful gathering of market and cost information, as well as rigorous analysis. The process is continuous, and due to shifting market conditions, the approach and strategy of the land developer may change frequently. Essentially, this means that developers must be flexible and well-informed about market conditions. Staff must be capable of completing quick assessments as conditions change.

PHASE 3: FINALIZING THE PURCHASE OF THE LAND

After securing site options, the land developer concentrates on removing all site development uncertainties. Formal commitments are obtained from the land seller, the water and sewer district, electrical utility district, government planners (for zoning and subdivision approval) and lenders for construction and permanent financing. Before devoting considerable effort to finalizing the purchase, the developer ties up the parcel, usually by way of taking an option, or entering into a joint development agreement. In this phase the following steps are normally taken:

0 The site is optioned by the developer for a set period of time. The option gives the developer the right to purchase the parcel at or before some certain date at a set price at set terms. If the developer is going to enter into a joint development agreement with the landowner, then the option is for the right to enter into the joint development agreement [Northrup, 1986]. Entering into an option or joint development agreement presupposes that the developer has estimated a reasonable offer price for the site. Obviously, this offer should be based on the market information gathered above in phases 1 and 2. Options can be expensive to negotiate, particularly in high inflation environments. It is therefore important to correctly estimate the necessary amount of time required to arrive at a go/no-go decision: Failure to do so may result in renegotiation of options and payment of additional option fees.

For large parcels of land, purchase agreements normally call for land releases, where the seller agrees to periodically convey

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to the land developer a portion of the site. In this way the developer does not have to acquire the entire site at once, and he or she can time payments to match the sales of houses or plots [Eichler, 1982]. In the public sector, land releases are unusual; once the government agrees to purchase or exercise its option to purchase a parcel, it acquires the entire site.

0 A specific development plan is prepared for the site In this step the land developer prepares a detailed plan for the subdivision and development of the site. It should reflect current market conditions in terms of the types, sizes and prices of dwelling units or plots, subject to applicable regulations. The plan is sufficiently detailed to provide the basis for obtaining public sector development approvals and estimating the costs of development.

0 The plan is submitted to water, electrical, sewer departments for review and approval. To the extent required by local, provincial and national governmental agencies, plans for the parcel should be submitted for review and approval.

0 Prepare final assessment of the project's costs, sales revenues, and cashflow. Based on precise estimates of land and housing development costs, and housing prices and rental rates, the land developer prepares an estimate of the financial performance of the project. This estimate determines the likely flow of funds required and generated by the project given all assumptions. It provides an estimate of profits or surplus (or subsidy) generated by the project.

0 Submit formal financing proposal to lenders for approval. Based on the project's estimated financial performance, a formal proposal is prepared and submitted to lenders for approval. Lenders include banks, equity partners, multilateral and bilateral donor agencies, and governmental agencies.

0 Assuming the project is awarded all approvals, the land developer exercises the option for the site and development of the project starts.

This phase is extremely complex, requiring sophisticated staff to negotiate options and development agreements, and secure all necessary approvals and commitments. During this phase the planned projects go through continuous change, as the actors in the process insist on modifications. This is where private land developers, because of their small size and entrepreneurial style, have an edge over their public counterparts [Dowall, 1987].

PHASE 4: PRODUCTION AND MARKETING

Exercise of the option or joint development development agreement permits preparation of detailed construction and building plans. Based on these plans, the construction of roads, utilities, and residential units can be put out to bid and let to the best bidder. With construction underway, developers can initiate marketing efforts and sales of units. In most cases the land developers pre-sell as many units as possible, frequently, using "model" homes to assist in the marketing effort.

This phase incorporates the following steps:

0 Prepare detailed engineering drawings for infrastructure and buildings and project bidding.

0 Project construction. For large projects, build-out normally occurs in phases, and is geared to the sales rate of plots or housing units.

0 Prepare and execute marketing plan to sell dwelling units or plots. This plan outlines the target buyer group and specifies the various strategies to attract buyers. The plan is reviewed periodically to determine if it is working. If it is not, modifications to it and the product are made [National Association of Home Builders, 1981]. This continual modification requires great flexibility.

PHASE 5: ONGOING PROJECT MANAGEMENT

In many cases, the land developer is responsible for managing the project's common areas after sales have been completed, ensuring that owners and renters abide by the rules set forth in the purchase agreement. It also means that the developer must collect fees from residents to pay for services.

CONCLUSIONS ON THE PROCESS

The land development process outlined above is applicable to both private and public sector land developers operating in developed and developing countries. The key trait of the process is that it is complicated, requiring passage through a chain of steps and decision-points, and subject to constant change. In no way does the actual process operate in the tidy and linear manner

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suggested above. Instead, developers are forced to constantly cycle through the process over and over again until good sites are identified, developed and marketed. While it is difficult to predict whether a land development agency will effectively achieve its objectives, five key attributes are frequently reflected in successful operations. These are presented below.

LAND DEVELOPMENT IN PRACTICE: THE INSTITUTIONAL AND TECHNICAL CAPACITY OF THE PUBLIC AND PRIVATE SECTORS TO CARRY OUT PROJECTS

Over the past ten years I have worked with both public and private developers, and while there are many subtle differences between them, there are essentially five major elements which determine land development capacity:

1. goal clarity;
2. performance and risk-taking incentives;
3. scale of operation;
4. operational and strategic flexibility; and
5. resources and talent.

An agency's past or future capacity to successfully complete land development projects can be predicted by characterizing it according to each of these five elements. In this section, I will examine the capacity of both private and public land development entities according to these factors.

Goal Clarity

There is a direct relationship between goal clarity and performance. The clearer and simplier an organization's goals, the easier they will be to achieve. This simple notion, validated

over and over again in countless research studies, applies to land development. When the land developer has a simple goal or set of goals such as profit maximization and risk minimization, successful projects are easier to find and develop.

In the private sector, land developers usually focus on return on equity invested. They also consider limiting the amount of time and risk they need to take to achieve their result. These are relatively simple and clear goals to attempt to achieve: find sites and projects that generate the highest rate of profit for the minimum amount of time and risk. This might mean building a certain type and price of housing in an area where the demand for such units greatly exceeds supply. By assessing the potential costs and prices of marketable units in different areas, the developer can focus on profitable, quick-turnaround projects. Some developers, to limit their risk, do not "pioneer." They do not build in areas where other developers have not already built and tested the market [Eichler, 1982]. By focusing on these three goals (profit, time, and risk), developers can clearly assess alternatives, rank them and choose the most desirable one. Goal clarity facilitates decison-making and action.

When the goals of the land development organization become more complex, deciding the proper course of action becomes more difficult. In the private sector, the clarity of goals can turn fuzzy. For example, when large U.S. corporations moved into real estate in the 1960s and 1970s, many land development projects resulted in spectacular financial failures. ALCOA's Century City project in Los Angeles performed poorly because ALCOA was

concerned with both corporate image and financial performance [Sigafoos, 1976]. Many privately executed planned residential communities resulted in economic failures (Reston, Virginia; Eastwick, Pennsylvania; and Park Forest South, Illinois to name a few) because social and political goals became enmeshed with profit-making objectives [Sigafoos, 1976].

Unclear and often conflicting goals are most common in the public sector. Quite often, when legislation or national policies are drafted to establish public land development authorities, policy-makers mix together contradictory objectives in an effort to achieve consensus, and fail to grasp the operational implications of the policies they promulgate [Schoen, 1987]. When the agency is put into operation, the conflict inherent in simultaneously pursuing contradictory policies quickly surfaces. Even if the policies are not in direct conflict, too many objectives can severely limit the capacity of public land development authorities [Keare and Parris, 1982].

> ...projects should be kept simple, striving for realistic design and speedy implementation. Key elements, such as appropriate locations, reasonably secure tenure and efficient credit mechanisms, must be present in some measure....[the process of identifying potential land development projects] should lead in turn to more accurate <u>choices</u> as to what to do first in a given set of circumstances.

The public sector does not have the luxury of focusing on such relatively simple and clear-cut goals as profit-maximization and time- and risk-minimization. Instead public agencies are called on to tackle complex "messy" problems. Unfortunately, this usually reduces their capacity for effective action.

Performance and Risk-taking Incentives

One of the most serious problems associated with large organizations is that it is difficult to encourage employees to maintain high levels of performance and to take risks to achieve goals. While the reasons for this are complex and beyond the scope of this paper, it is generally due to the administrative style of large institutions and the patterns of rules and regulations which act to shape behavior. Since large institutions need stability, rules are set to insure constancy of action. These rules limit performance to that required, and stifle risk-taking.

Land development is full of risks and uncertainty and change. Land development personnel need to be entrepreneurial and aggressive, they have to work quickly to capitalize on emerging opportunities. In most cases, large organizations, whether they are public or private, are not well-equipped to be land developers. Large organizations do not attract entrepreneurial professionals, and they have limited tolerance for independent actions.

In the private sector, most land developers, regardless of whether they are "formal" or "informal", are highly entrepreneurial. In the U.S., for example, most land and housing developers employ fewer than 25 professionals and produce fewer than 50 units per year. These pattern is found in developing countries as well. As Eichler has vividly described, most early attempts by homebuilders to profitably expand their operations failed because they did not design an institutional structure that rewarded branch managers for high performance and for risk-

taking. Large private sector corporations have had the same problem with their real estate divisions as well.

In the public sector, most land development agencies are quite large, frequently having thousands of employees. Obviously, these agencies are much more bureaucratic in structure and style of operation. Professionals working in these operations will tend to be concerned about following the rules and playing it safe. They aren't interested in taking risks because there is no incentive to do so. Ultimately, given the possibility of conflicts arising in the execution of policies and programs, staff may opt for inaction. This pattern of inaction, produced by conflicting goals or contradictory directives from central and provincial managers has been well-documented [Amos, 1984].

The larger the organization, the more difficult it is to encourage high performance and risk-taking. However, if land development is decentralized, and branch managers given broad latitude for achieving objectives and rewarded for taking risks, staff will be more entrepreneurial. These systems are more difficult to design for the public sector than the private sector. But they are not impossible to create.

Scale of Operation

In the previous section, incentives and risk-taking were discussed in the context of the institutional style, size of the operation, and how it influences staff performance. In this section the size issue is taken up again, but in terms of the economies of scale of operation. In most cases there are diseconomies of scale in the production of land and housing

developments. That is, as the agency gets larger, the per unit cost of production increases. This is because the overhead cost of the operation increases faster than any reduction in the direct cost of production of units. Available economic research in the U.S on the economies of scale on house building suggests that there are no economies of scale beyond the production of 500 to 1,000 dwelling units per year-- a level well below that most public land development agencies produce [Masiel, 1953, Herzog, 1963 and U.S. Congress, Office of Technology Assessment, 1986]

This suggests that large land development entities have more limited capacity to produce housing efficiently. Furthermore, these larger firms are much less flexible. It is harder for them to respond to changing market conditions.

Operational and Strategic Flexibility

The capacity to respond to change requires three things: The knowledge that change is necessary. The ability to change. And the desire to change.

In many cases land development entities simply do not know that the marketplace has changed. Unless they are constantly gauging the market, most agencies will not notice shifts in demand or supply. Both private and public land development entities are subject to this oversight. In fact, many large corporations have poured millions of dollars into projects that should have been halted or radically redesigned. In many of these cases, project managers failed to properly inform executive staff about deteriorating market conditions [Sigafoos, 1976].

Lack of knowledge is more likely in the public sector, where project cashflows are not closely monitored and where it is usually assumed that they face no competition from the private sector. Without the pressure of competition, there is no incentive to constantly monitor market conditions. As a result many public agencies are blissfully ignorant about housing conditions [Baker and Kampholpan, 1987].

But even if they recognize that the market has shifted, they may not be able to adjust their course of direction because of regulations or policies. For example, a public land development agency may have to follow a regulation that it must produce plots or dwelling units at or above a minimum size, which, given current market conditions, is inappropriate. Unless the rule can be changed, the agency cannot adjust to new conditions. While most rules can ultimately be changed, it may take several months or years to do so. In the meantime the agency is out of the market.

Finally, the agency must be motivated to make necessary changes. Sometimes, decision-makers are reluctant to make changes because they are concerned that others will interpret them as corrections of mistakes. In other cases, agency staff may resist changes because of the uncertainty, turmoil and diminished political and administrative power they often create.

To be flexible, the land development entity must: 1) know that change is necessary; 2) be legally permitted to make needed changes; and 3) have the desire to change. These conditions can be found in both private and public entities, but are less prevalent in large public agencies.

Resources and Talent

The final factor shaping the capacity of the land development agency is resources and talent. Land development operations are normally multi-year ventures, and they need to be well-capitalized to be successful. Financial flows need to be constant and structured to meet the development needs of programmed projects. Private land development efforts have gotten into serious trouble because the flow of resources was not sufficient in terms of annual amounts or time commitment [Sigafoos, 1976]. Similar problems have occurred in Tunisia and Lagos where the financial supports for development actions receded [Kitay, 1985].

The staffing of land development agencies is a difficult matter worldwide. As the description of the overall land development process illustrates, land development is extremely difficult and requires analytically and politically sophisticated professionals. Finding, attracting and retaining such staff is a major challenge in both the private and public sector. In developed countries, private formal sector salaries for project managers of land development projects range from $60,000 to $200,000 per annum, and frequently include additional incentive compensation ranging from between one and five percent of the profit generated by the project.

Public sector salaries rarely approach these levels. As a result, it is difficult to attract and retain the best staff. One method to increase compensation is to create a separate development entity outside of government. In such cases, staffing

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occurs outside of the purview of government civil service regulations and higher wages can paid and incentive plans offered.

CONCLUSION: DESIGNING SUCCESSFUL PUBLIC LAND DEVELOPMENT AGENCIES

If governments truly wish to make public land development work, they should consider the following seven design guidelines:

1. Create the institutions necessary to produce timely and accurate information on land and housing market operations. No land development agency, whether it is public, private or non-profit can successfully develop land without market information.

2. Find well-trained and experienced real estate development professionals to manage public land development agencies. In the long term, increase the supply of land development professionals. This means producing professionals trained in economics, housing finance, real estate market research, land planning, architecture, construction engineering and management, and land development techniques.

3. When setting up public land development agencies, governments must avoid the temptation of burdening them with too many policy and program goals. Instead, public land development agencies should have limited and precise objectives that are easy to understand and evaluate.

4. To the extent possible, establish the public land development agency outside of existing governmental institutions and design into it the capacity to reward professionals for high

performance and risk-taking. This is much easier to do when the agency's mission is clearly defined and limited.

5. Do not create large land development agencies. Recognize the diseconomies of large-scale land development. Instead, set up several smaller land development agencies or autonomous branches to focus on specific geographic areas, target groups or types of projects. Give each smaller agency autonomy to achieve goals and reward the ones that are successful.

6. Design the agencies to be flexible; do not encumber them with too many rules and regulations. Instead, have the head of each agency or branch prepare annual development plans which outline production goals and describe strategies for achieving targets. Institute a review of plans and activities each year, and require agency managers to alter plans to meet goals and increase efficiency.

7. Accurately estimate the financial costs associated with starting a public land development agency. If the agency is created, provide financial resources necessary to underwrite its operation for at least the first three years. Later, the agency should be self-financing. Compensate staff at levels commensurate with the private sector.

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case study

SIN PATTANA THANI PROJECT

1. Introduction

Land and house development is a growing business not only because shelter is one of the four basic needs, but also because it is a type of investment. The obvious benefit of purchasing a house is that the buyer owns shelter facilities. Also, he can make profit out of it if he wants to sell it later.

Most of the real estate developers focus their attention on providing houses for the middle- and upper-classes because of their high purchasing power. However, those developers haven't responded much to the need of the lower segment of the middle-income group, due to their relatively limited purchasing power. And government housing sector has shown that cannot provide enough houses for them. Recently, some developers realizing their immediate need, decided to provide them a housing estate project in the form of inexpensive townhouses. Sin Somboon Housing Estate Company Limited is one of the companies which are now undertaking this kind of project.

2. Historical Sketch

Sin Somboon Housing Estate Company Limited was, at first, a building contractor company. It was run by Mr. Sin Pholchuay and has been a building contractor company, and most recently, it has been a land and house development company. Although it went into the later work in 1977, it was not registered as Sin Somboon Housing Estate Company until 1982.

Objectives of the Company:

1. to sell fixed assets including related products and services;
2. to provide housing according to the need of every social group; and,
3. to make a profit which can maintain and assure the progress of the company.

Successfully completed projects:

1. Sin Pattana Townhouse Project, at Soi Saphan Khaw, consisting of 185 townhouses: 103 three-storey and 82 two-storey.
2. Sin Pattana Thani Project, on Bangkruay-Sai Noi Road, consisting of 105 structure; 60 detached houses and 75 two-storey townhouses.

3. Sin Pattana Thani Townhouse Project, on Bangkruay-Sai Noi Road, consisting of 96 structures; 17 commercial buildings and 79 two-storey townhouses.

4. Sin Pattana Townhouse Project, at Soi Pin Prachakhom, Nonthaburi Province, consisting of 145 two-storey townhouses.

5. Sin Pattana Townhouse Project, at Soi Sitti Sa-ard, Nonthaburi Province, consisting of 122 two-storey townhouses.

6. Sin Pattana Thani Project, on Prachanivej 1 Road, consisting of 288 structures: 102 detached houses and 186 two-storey townhouses.

3. Case Study

3.1 Description of Sin Pattana Thani Project

The objective of this project, on Phutta Monton 4 Road, is to provide housing for lower segment of the middle-income group. The whole area of the project site is 79 rai, 3 ngan and 76 sq. wa. It consists of 795 one-storey townhouses. The area divided for each plot is 20.25 sq. wa. The house itself is built on 45 sq. meters. It consists of 2 bedrooms, a bathroom, a sitting room, a cooking area, a washing area, a car port and a small garden. Other facilities such as a meeting place, a swimming pool and a kindergarten are provided.

3.2 Background of the Project

1. Preparation

As a land and house developer, we were looking for a lot of land to develop a housing estate project. In this case, such land became available, it was considered a good location for such a project. We decided on townhouse project because this kind of housing is in demand and governmental housing estate developers cannot provide enough supply to meet it.

2. Purchasing Agreement

We bought that plot of land by making 3 payments over 18 months. The first payment, 35% of the price, was paid when the contract was signed. Another 35% at th end of 1 year and the other 30% at the end of the contract.

3. Feasibility Study

We researched into the feasibility of the project by collecting marketing information by ourselves. Then we analyzed the information and compared it with that of other companies. Our decision is based on the information obtained and the experience we have had for many years.

4. Objective of the project and the target population

4.1 Objective:

To start out a new business, inexpensive townhouse project, and to help out the government in providing housing or lower segment of middle-income group.

4.2 Target population:

5,000 - 8,000 ?

1. those whose income family is in the 7,000-10,000 baht per month range
2. those whose age is from 25 to 35+.
3. those whose family members are 2-~~3~~ 4 persons, newly-wed couples who just moved out their parents' houses.
4. those whose places of work are near the site

5. Marketing management

We used marketing mix as a guideline in marketing management.

5.1 Product Design

In designing the product, we considered most the utility of the area. It came out as a split level design with stairways, in order to create a semblance of a difference among various activities. Public facilities such as 16-meter-wide main roads, 12-meter-wide secondary roads and 8-meter-wide connecting lanes are also provided. A meeting place, a place for reception, a swimming pool and a kindergarten were also developed.

5.2 Location

The project site is located in a populated area which can be reached easily. And it is surrounded by factories. Phutta Monton 4 Road, which runs past the site, runs into Petchakasem Road and Pin Klaw-Nakorn Chaisri Road. These two roads run into the outer-ring roads.

5.3 Price

1. Price Policy

Since we aim at providing shelter for lower segment of middle income group, the price should be inexpensive.

-195,000 ฿

2. Price determination

We determine the price by considering the ability to pay of our target population and compare the price with that of other companies.

3. Price strategies

The price we set for the townhouse is more attractive when comparing with that of other companies. The price set affects the psychology of the target population, ie.,"not too expensive to afford one". Therefore, prices are 195,000 baht and not 200,000 baht. According to a psychological research, this amount of money attracts people more and we think that it is reasonable so we set it as a fixed price.

5.4 Promotion

The overall goal is to convince the potential homebuyer that the quality of the house is more that worth the price.

1. Advertising

We advertised this project to our target population through the following media:

a. newspapers: Thai Rath is our main newspaper because of its wide distribution;

b. bus mounted;

c. brochures; distributed to everybody, especially those who work near the site and who visit Phutta Monton on weekdays and holidays.

d. billboards: The purpose is to attract passers-by and d... t interested persons to the site.

2. Sales campaign

We encourage a potential buyers' decision by offering and installing much-needed mosquito screens and iron bars. These free, incentive items will not be offerred when the business goes on well.

6. Administration

6.1 Construction

After signing the contract in November 1984, we filled in the whole area which took about three months; from February-April 1985. Then we did the earthwork and started the construction. There were 3 phases of construction. In the first phase, May-October 1985, 155 townhouses were constructed. 250 were constructed in the second phase, and 390 in the third, September-May 1986, and November-June 1987, respectively.

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At the very beginning we hired 10 building subcontractors to help out with the construction, and later reduced the number of them accordingly as construction was completed.

6.2 Marketing

Within 2 months after the project opened we would sell all those 155 townhouses. We begun to sell the second lot in August 1985, and at the same time reservations for the third phase could accepted, even though the third phase had not started. We would sell them all by June 1987.

7. Financial Management

7.1 Balance

sale income	155,000,000	baht
project expense	140,000,000.50	baht

The balance in detail is as follows:

1.	expense on purchasing the land	20.28%
2.	expense on developing the land	11.39%
3.	expense on construction (townhouses, places for social purposes and kindergarten)	51.60%
4.	expense on administration and advertising	4.28%
5.	interest and revenue	1.42%
6.	tax and fees (sales tax and fees, corporate tax)	11.03%
	total expense	100%
	total income	110.32%
	net profit after tax (corporate tax)	10.32%

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7.2 Source of income

1. Construction loan

To buy the plot of land we had an loan for which the Bangkok Bank Ltd. was a guarantor. We made 3 payments. The first one, 35% of the price, was scheduled when the contract was signed. Another 35% at the end of 1 year and the last 30% at the end of 18 months.

We also borrowed foreign currency, Swiss franc, through the Bangkok bank Ltd. on behalf of the company and subsidiaries. The amount of loan is 20,000,000 baht, and the interest rate is 6% per year, with payments every 6 months. The contract has to be renewed every 2 years.

2. Longterm loan

Loans for buyers were also provided on condition that either:

i. if they make a down payment at 30% of the price, that is 55,000 baht, they are required to put down 5,000 baht first and the remaining 50,000 baht has to be paid every month for 5 months consecutively with the equal amount of money. The first payment has to be made within 2 weeks after putting down 5,000 baht and at the same time the contract must be signed. The other 70% has to be paid through the Government Housing Bank. The interest rate was 13% per year at the beginning of the project but now it is 10.75%-11.25%. The loan term is 5 years.

ii. if they make a down payment at 15%-25% of the price, they have to put down 5,000 baht first, and the remainder has to be paid every month consecutively with the equal amount of money. The first payment has to be made within 2 weeks after putting down 5,000 baht and at the same time the contract must be signed. The rest has to paid through the Bangkok Bank Ltd. or the Thai Farmers Bank Ltd. The interest rate was 17.5% per year but now it is 14.5%. The loan term is 15 years.

iii. if buyers at first make payments through the Bangkok Bank Ltd. for some time, they can then instead pay through the Government Housing Bank instead provided that the amount of money paid is 30% of the price.

7.3 Financial analysis

As for financial management, we could allocate money properly because expense on administration and advertising is only 4.28% of the total expense or 3.88% of the total income. The proportion of the loans to the capital is 1:1 because of the high liquidation of current assets resulting from the sale of the first lot to townhouses. The amount of profit is satisfactory, at 10.32%.

7.4 Comparison with this kind of project of other companies

Although this is our first townhouse project for the lower segment of middle-income group, the amount of profit we made is not different from that of other companies targetting higher income households. It is so in spite of the fact we do not aim at gaining a lot of profit from this project, but mainly at providing housing for these people.

8. Administration analysis

8.1 Buyers

Most buyers' income is 7,000-10,000 baht per month per family. 50% of them used to live with parents, 35% used to rent houses, 10% used to live in slum areas and 5% upcountry. 50% of the families have 2-3 persons, 35% 4-5 persons, and 15% more than 5 persons. 60% used to lived in urban areas of Bangkok, 25% adjacent to urban areas and 15% near the site.

8.2 Feasibility evaluation

Though we did not study the feasibility of the project systematically, the results were nonetheless good. It proves that the information we obtained from other housing estate projects can be practically applied to our designs. Most buyers were, in fact, in our target population. But their places of work are in urban areas of Bangkok, not near the site as we had anticipated.

9. Recommendations and guidelines for development

9.1 Problems and guidelines for development

a. A problem which has caused us a lot of trouble was the slowness of the bureaucratic system concerning asking for permission to have electricity, tap water into the site, and connecting the roads of the project with the highway. This resultd in higher production costs, interest payments to the bank, and also administration expenses. Tis also disrupted the administration of the project. There should be more cooperation among various government sectors to solve this problem.

b. According to the National Revolutionary Council Decree No. 286, which specifies the standard of housing estate project, the standard of a house is very high indeed. In some cases it is too ideal for us, land and house developers, to reach. But even if we use it as a guideline in constructing a house, the cost of production will be so high that lower segment of the middle-income group will not be able to afford it, or they will have to struggle a lot in order to do so. This decree should be reviewed and revised. This will lead to a lower cost of production, which in turn means that the price of a house will be less than it has been.

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c. Since their income is low, these households sometimes cannot pay the down payment promptly as scheduled. This leads to the fact that we have to pay more interest. However, this does not affect our business as a whole.

9.2 Recommendations

a. In order to carry out an inexpensive townhouse project one has to take the distance from buyers' houses to their places of work, the functional areas of the house and amenities into consideration. These will arouse their interest.

b. The administration of the project should be planned carefully because if someting goes wrong, the anticipated income will be less. We cannot put the burden on buyers since there is limitation in price based upon their income.

c. Inexpensive townhouses are in demand. If one can find a piece of land with a good location, but where the price is reasonable, developers should start out with this kind of project because of the demand; it will assure their success. Such an approach would really help those who have low income to own a house.

We hope to have many developers who are equipped with finance marketing knowledge and good team work carry out this kind of project in various parts of the country.

Pruksachart Village Project

1. Introduction

The Pruksachart Village Project was originated by Pattara Keha Co.Ltd. which started the project in 1973. The project covered a total area of approximately 600 rai, 100 of which was developed into Thai Farmers Bank Welfare Village. The rest of the area was available for sale to the public.

In the initial stage, Pattara Keha Co.Ltd. was highly successful in terms of sales and particularly in terms of advertising. Consumers were very interested since the name Pruksachart provided an image of being a village with attractive house designs and favorable social environment.

During the years 1981 and 1982, however, the project was suffering from decreasing sales. The company could sell only 20-24 houses (a total transaction of about 20 million baht) in a year, while the advertising cost ran as high as three million baht (or almost 10% of total sales.)

Pattara Keha Co.Ltd. thus approached Land & House Company about taking on the remaining part of the project. After a feasibility study, L&H finally decided to take on the project in late 1983.

2. Land & House Company History

Land & House Company group has been involved in land and housing development business since 1965 although the name "Land & House" was not used until later. At the beginning most of the projects, which were mostly commercial buildings such as those in Wang Burapa area, were operated by Song Co.Ltd., a subsidiary of L&H group. When the company's business expanded, it started buying land for its housing estate development projects in various areas, for example, Srirabsook Village Project, Prachacheun Village Project, Thanintorn Village Project, and other subsequent projects. During this initial stage, new companies were registered to operate each of the new projects which were given different names. In this way, customers in each project would not know that the other projects were also run by the same managers-owners. The company thus lost opportunities to build up customer loyalty to its products.

In 1981, when the company was running eight projects altogether in Bangkok, a marketing strategy was adopted to feature the stability of the organization. That was to add the phrase "one of L&H projects" to each project's name. The stability of the company was usually an important factor considered by customers when they made decisions regarding

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dwelling and land purchase.

In 1983, the company decided to take on Pruksachart Village Project from the former management. In accordance with the marketing plan, L&H Co.Ltd. was registered to become the operator of Pruksachart Village Project.

At present, the Thai economic situation is rapidly improving. The lower interest loan rates, in particular, have increased the purchasing power of customers who want to buy land and houses. The business of the L&H Company group has prospered so rapidly that the company now has over twenty projects in Bangkok and Chiangmai under operation. To provide a firm base for expansion, the company has registered L&H Co.Ltd. as a company in the Securities Exchange of Thailand in order to pull the capital from the market for use in expanding the company, as well as to provide an opportunity for interested people to invest in L&H Co.Ltd. stocks.

3. Pruksachart House Project

L&H's management included the study of the information provided by the former management team and the analysis of the market, including existing residents and those who were target consumers, led L&H to understand the project situation more clearly. It was deduced considered that there were controllable internal factors and uncontrollable external factors that affected the whole situation.

3.1 Assessment of internal factors (1983-1984):

1. Product and pricing policy

The price set by the former management was not suitable since the goods could not compete with competitors like Sammakorn and Chuancheun. Although the house price was about 15% higher, the house was neither more functional in terms of area use nor more attractive in terms of style. Consumers thus could, and did, compare the quality, the quantity of functional area, as well as the price.

2. Project condition

Without any serious concern about the maintenance of the environment, weeds were let grow wild near the village entrance and roads were dirty, bumpy and never repaired. On seeing these conditions, consumers were less confident in the project and reluctant to buy the companys houses, if indeed they did not change their mind completely.

3. Relations with project residents

If the management could build up good relations with project residents, it was deemed likely more customers would be introduced into the project through these residents. According to the information, the new customers purchased about 30-50% of the new houses sold. However, in 1982-1983, only 15% of new customers were introduced to the project by residents. This figure represented only 5% of old customers.

4. Advertising

Before L&H took on the project, the advertising was far from effective since the goods and the target did not agree with each other. While the good was of a higher level, in a price per unit range between 800,000 and one million baht, requiring a 200,000-300,000 baht downpayment and thus more suitable for families with a monthly income of 25,000 baht and up, the advertising was aimed at younger customers who just started their own families and who had much smaller purchasing power.

5. Project location

At that time, Pruksachart Village Project distant location was considered unfavorable compared to those of competitors. This could not be changed but L&H realized that it should be taken into consideration when planning marketing strategies.

3.2 Assessment of external factors in 1983:

1. The economic slump during 1983-1984 resulted in generally decreased purchasing power for dwelling purchase.

2. Many financial institutes were having troubles and a limit on credit extension, especially for housing purchases, was imposed by financial institutes all over the country. This worsened the dwelling market situation greatly.

3. The development of condominium projects also had a lot of impact since a condominium was a "substitute good" that could meet some's needs for shelter. Although it became somewhat unpopular later, it was certainly an alternative form of dwelling for consumers to consider.

4. The 1983 flood problem in Huamark and Bangkapi areas adversely affected the Pruksachart Village Project. Although the project area itself and Sukhaphibal 3 Road where the project was located were not flooded, consumers still found the location unfavorable since they had to take Ramkamhaeng Road to got to the project, and Ramkamhaeng Road was then the worst flooded area in Bangkok.

Consumers might take a detour by going to Bangna Road and then to New Pattanakarn Road, an additional distance of about 10 kilometres. This made it inconvenient to travel to and from the project.

5. The number of competitors was high in the area. At that time, the Bangkapi and Prakanong areas had the highest number of projects. The selling point of most competitors was mainly their price, nevertheless the gap could be filled in by L&H with the quality and features of its goods.

4. Information about Pruksachart Project (Under the new management)

Project name: The project name was changed from "Pruksachart Village" to "Pruksachart House" since the image of a housing estate in the form of a village at that time was not too favorable in consumers' point of view.

Location: On Sukhaphibal 3 Road, five kilometres from Bangkapi.

Project size: A total area of 226 rai (excluding another 200 rai in the earlier part of the project)

Project starting date: September 11, 1983

Sales opening date: September 27, 1984

Project area use: 76% for sale; 24% for public facilities

Number and size of land plots: 370 plots of 70 sq.wah size

4.1 Project undertakings in the first phase (See attached document # 1 showing house designs.):

L&H started running the project early in 1984 with sales plans to complete the project in 40 months. Based on the data analysis as mentioned above, the initial stage of the project was planned as follows:

Goods structure:

80% of the available area was to be sold as land plots with houses built on the plots; the remaining 20% would be sold as land lots only.

However, the main aim of the project (and the advertising) was to offer the land with a house built on the plot. To sell only the land was a smaller element in the marketing plan.

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Characterization of target consumers based on the data:

1. They should own a private car.
2. They should have a business of their own or work at executive levels in private companies with no rigid time schedules.
3. They should value a lifestyle in which they can spend time relaxing with family at home rather than going out. In this way, they need a home where they can really relax.
4. They should be in the age range between 35 and 60.
5. The family's monthly income should exceed 25,000 baht.

In line with the target market, the marketing mix could be determined as follows:

1. House design factor.

Pruksachart House provided a unique design, making it different from houses in other projects. With the existing good image, it was believed that adding specialties to the goods would certainly reinforce the image and give the goods a competitive edge.

2. Product policy.

As with many premium goods, there were five types of houses for consumers to choose from. All five types were similar in style but provided different amounts of functional area,i.e.

Type 1	offered 250-300 sq.m. functional area.
Types 2 & 3	offered 170-200 sq.m. functional area.
Types 4 & 5	offered 105-160 sq.m. functional area.

The facilities were generally three bedrooms, three baths, servant quarters, a drawing room, a dining room, a kitchen, and a specially designed garage which could be entirely closed for a car. Type 1 house, in particular, offered four bedrooms, four baths, and a garage for two cars as well as a private swimming pool.

The materials to be used would have to be better than those used by competitors or would have to be attractive and durable.

As for product positioning, the Type 1 house, with the one rai land plot, then the biggest house ever available, the plus a swimming pool , was the first of its kind in the market. The image of such an offer would be used in positioning the product in consumers perception. However, the main goods that would lead to the target consumers were types 2-4 houses.

3. Pricing policy.

With the target customers and the product qualification described above, it was determined that a premium pricing policy would be observed. Moreover, the house price and the land price would be calculated separately as follows:

Type 1 houses	@	1,784,000 baht
Type 2 & 3 houses	@	1,091,000 baht
Type 4 & 5 houses	@	700,000 baht

Land price was put in categories:

1. For the land with no house on the plot, the selling price was 3,900 baht per sq.wah.

2. For the land with a house built on the plot, the selling price was 3,700 baht per sq.wah.

Therefore, the prices of the goods including the land and the house were the following:

The total price of Type 1 house on a 400 sq.wah plot with a swimming pool was 3.9 million baht.

The total price of a Type 2 or Type 3 house on a 120 sq.wah plot was 1.6 million baht.

The total price of a Type 4 Or Type 5 house on a 70 sq.wah plot was 900,000 baht.

Marketing Promotion Policy

As L&H just started managing the Pruksachart House Project, the company set two main objectives for its sales promotion efforts.

1. To create as much awareness as possible among consumers which would contribute to the sales later on.

2. To meet the sales target as aimed.

Various forms of marketing promotion were used depending on the objective. For example, the use of media advertising oriented to the mass public was meant to create awareness and to continue building on the image created by the earlier part of the project. Meanwhile, the public relations and the use of billboards and magazines were supposed to reinforce the advertising and to keep continuously reminding consumers of the project.

Sales performance in the first phase.

The project campaign generated a total sales of 116 million baht, 25% of which was from the sales of Type 1 house, 36% from the sales of Types 2 & 3 houses, 16% from the sales of Types 4 & 5 houses, and 23 % from the sales of land plots with no house on the plots.

4.2 Project undertakings in the second phase. (See attached document # 2 showing house designs.)

The success of the first phase far exceeded the target. However, only six months later, there were many new investors-especially with housing projects in the Huamark & Bangkapi areas. The higher-than-normal margin which resulted from the pricing strategy was what attracted those investors. These new investors then used the Me-too-product strategy cutting the selling price by no less than 15% of that of Pruksachart. The number of Pruksachart customers was thus decreasing rapidly.

At the same time, the project was facing a production problem since the sales and the production capacity were not correlated. The house construction was slow and the company could not respond to their competitors who were copying the house designs as effectively as it wished.

Consequently, the sales of units in the Pruksachart House Project were suspended from late 1984 to mid 1985.

During that time, the company was planning to relaunch the project to solve the marketing problem, fighting with competitors. The situation then was concluded as follows:

1. The research on consumers indicated that Pruksachart Project was highly popular and had a very good image among consumers but the price was considered unsuitable as it was too high.

2. The project site proved to be disadvantageous when compared to some competitors.

3. The construction of the houses to be delivered to customers would be later than expected and could be delivered during the middle of 1985.

4. The number of high-income customers who favored owning a house in a housing development was not high enough for the project to justify the continued use of old strategies and marketing mix until the project was completed as scheduled. If the old strategies were continued, the project would have to be extended for at least another 2-3 years.

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5. The improvement of the village's internal environment included the renovation of the swimming pool, and brought great satisfaction to Pruksachart residents who thus supported the projects under the management of the L&H team.

The above assessment of the situation led to a modified strategy as follows:

The target group would be the same as that in the earlier strategy but professional managers were more likely to be targets than business owners.

The new marketing mix:

Product policy.

Six new designs of houses were available. These houses were designed to make an efficient utilization of interior space using the mediterranean sytle with angular interior plans. This helped reduce the construction cost per sq.m., reflecting the efficient and the worthwhile use of the house design.

The functional area of each group of house types remained the same, except the first group to which another type was added. Consequently, there were three groups of house types: the first group with 250 sq.m. functional area, the second group with 180 sq.m. functional area, and the third group with 150 sq.m. functional area.

In addition, all house types would feature the use of wood in surface decoration both inside and outside the building. Wood then was easily available and not so high-priced. This met the needs of general consumers who valued natural materials.

Pricing policy.

With the new product policy, the house price of these new types was lowered by 15% for which consumers could still get the same amount of living space with a particular beauty of its own.

Not only did the company work on the cost structure that favored the price reduction, it also planned the strategy for intensive market penetration. This was to counter the competitors using Pruksachart's earlier designs. To prevent history from repeating itself, the price strategy was utilized in order to block new investors from coming in.

Sales promotion strategy.

In this second sales opening, everything was carefully planned, including the designing of houses, the price setting, and the construction of complete model houses for customers to visit and imagine living in such a house. Aiming at inviting as many potential customers as possible to visit the houses, the company heavily relied on public mass media advertising. It was believed that if customers with potential to buy a house had the chance to visit the project, they would be so impressed with the design, the price and the atmosphere that they could decide easily.

The advertising concept was the six new designs from L&H at a more economical price, using the elegance of herons

which conveyed the idea of how natural beauty contributed to the value of leading a life in the project.

The production plan was also considered carefully so that it could go hand in hand with the number of customers who could flock in at the same time. Production planning was an important part of this second campaign since the company had learned a lesson from the previous campaign.

Performance in the second phase.

The real success of Pruksachart Project was achieved at this stage when the sales were continuous. There was not any more marketing obstacles throughout until the beginning of 1987. In short, the project was so successful that only 10% of the area for sale was left available.

4.3 Project undertakings in the third phase. (See attached document # 3 showing house designs)

The project in the second phase was successful, achieving its goals as planned. Only 10% of the total area was left to be sold but this remaining area was in the front part of the village and regarded the prime site. Furthermore, there were still enough customers to sell the houses to until the project was filled up.

However, the problem with production factors prompted the need to adjust the strategy again. That was the problem of the Mediterranean house style requiring wood as essential material in decoration. This style was the strong point of Pruksachart houses, however, wood became more and more expensive and indeed hardly available.

In adjusting the strategy, new houses were designed. These designs were based on the concept of the old product, i.e. emphasis on making the most use of the construction cost, but using hip roofs with angular interior plans. In this way, there was very little waste of space. Use of wood was also avoided.

Sales in the third phase began in the second quarter of 1987. Marketing effort was not very high but the remaining land was sold out in only two months.

At present, Pruksachart Project is considered finished, the company is waiting only to deliver the last lot of goods to customers. The project is expected to close completely in late 1988.

In conclusion, the project is highly successful.

Buyers' Profile

In operating the Pruksachart House Project, L&H divided the operation in to three phases with careful planning and consistent follow-ups to study the problems and adjust the subsequent strategies.

The survey of project residents in early 1988 revealed the following details.

Age range:	25 - 30 years old	29%
	31 - 35 years old	33%
	36 - 40 years old	25%
	41 - 45 years old	13%
	over 46 years old	0%
Occupations:	Entrepreneurs	4%
	Government officials	18%
	Employees	46%
	Shop owners	25%
	Self-employed	7%
	Others	0%

Present office locations:

Pranakorn, Pomprab, Sampantawong	6%
Bangrak, Patumwan, Yannawa	11%
Dusit, Phyathai, Huaykwang	11%
Prakanong, Bangkapi, Samutprakarn	50%
Bangkhen, Patumtanee, Nontaburi	11%
Minburi, Nongjok, Lardkrabang	6%
Other provinces	6%

Previous dwelling location before moving into the project:

Bangrak, Patumwan, Yannawa	12%
Dusit, Phyathai, Huaykwang	4%
Thonburi, Klongsan, Rajburana	8%
Bangkok Yai, Talinchan, Nakonpatom	4%
Prakanong, Bangkapi, Samutprakarn	65%
Bangkhen, Patumtanee, Nontaburi	4%
Other provinces	4%

Ownership status at previous dwelling:

Owner	84%
Live-in with parents	16%
Live-in with non-relatives	0%

6. Financial performance of Pruksachart House Project

The costs of the project can be categorized in percentage of total sales as follows:

1.	land	22%
2.	land improvement & development (including land-filling)	15%
3.	construction	43%
4.	operation management & advertising	4%
5.	interest	7%
6.	sales tax and corporate tax	6%
	Total costs	97%
	Net profit	3%
	Total sales	100%

7. Conclusions and recommendations.

Khun Anant Asawapokin, Managing Director of L&H Co.Ltd.gave an opinion that the key to the project's success was the systematic management. The information for study should be complete and emphasis should be put on the objective of buying marketable land and selling it with profit. Khun Anant also recommended investors in land allocation and development business to consider these factors.

1. The project site distance and travelling time.

2. The development of public utility system both by the government and public enterprises.

3. The knowledge about buyers.

4. Price setting. It is not advisable to compete with competitors. Instead, the gap in the market should be sought and considered.

5. Land-filling cost. This is variable cost depending on the price and the geographical feature.

6. The period of time to process the request for construction permission license and title deeds.

Patumwan Place Project

1. Introduction

The economic expansion as well as the faster rate of pressure on population increase in Bangkok puts the use of land. The population density in Bangkok has also been on the rise, especially in the inner city area where there is a high need for intensive use of land. The cost of land keeps rising. Developers have become interested in the problem of how to make maximum use of land. The concept of expanding a building vertically rather than horizontally has become more acceptable. Also, in the past decade, construction technology in Thailand progressed so much that high-rise structures are not new to Bangkok people any longer.

People have begun to take a more positive view of life in high condominium building, perceiving such a lifestyle with more understanding. Resident behavior has also changed in accordance with the expansion of developed urban society. The development of places to live in the form of a condominium is interesting as it is likely to be a significant form of dwelling for Bangkok's residents in the future.

As there has been a high demand for a study involving condominium project mangagement, both for an academic review and for use as case study, the workshop organizers are pleased to present Patumwan Place Project, a highly successful condominium project under the management of Mankong Kehagarn.

2. Company history in brief

Mankong Kehagarn Company was set up in 1981 by Mankong Stapat Ordinary Partnership, a long-established partnership in construction and construction materials trading. Mankong Stapat itself was founded in 1956 and has been contractor for the construction of various types of structures such as schools and commercial buildings. It entered the housing estate business in 1976 and finally set up Mankong Kehagarn Company.

The company's work references include the land development and the construction of trade centers such as Lardkrabung Rungruang Trade Center and Burirum Trade Center. As for housing estates, the projects managed by the company were Chuancheun Community Projects I, II, III on Prachacheun Road (about 400 units), Chuancheun Community Projects I, II in Huamark area on Sukhaphibal 3 Road (about 300 units), Chuencheum Keha Uttayan Project passing Tung Mahamake (about 100 units), Chuancheun Community on Lardprao Road, Chuanchuen Parkville

Project (about 1,000 units), and Chuancheun Greenville (about 300 units), on Talingchan-Bangbuatong Road, Chuancheun Ramintra Project (about 1,000 units) and Chuancheun Bangkhen Project (about 1,000 units). It is obvious that the company has managed a high number of projects all over Bangkok in various important communities.

Consequently, it can be seen that the company has had a wide experience in real estate business for over 30 years, from being contractor to land allocation and development. This enabled the company to fully understand both general and specific situations of this kind of business. This is in line with the company's goals and objectives to be involved in the real estate business and related services based on quality and reasonable price, as well as to develop housing solutions for the progress and the betterment of the public, the society, and the country.

3. The case study

3.1 Project details

Patumwan Place Project is a 278-unit condominium project on an area of 1 rai 3 ngarn 15 sq.wah on Phyathai Road near Patumwan intersection.

The project consists of

1. a small 10.5 X 10.5 m. four-storey office building with a total space of 441 sq.m., and

2. a 40 X 35 m. 17-storey residential condominium building with a total area of 20.230 sq.m. and the following types of condo units:

Type A	Allamanda	with an area of about 90 sq.m. (28 untis)
Type B	Bellflower	with an area of about 90 sq.m. (28 units)
Type C	Cattleya	with an area of about 67 sq.m. (26 units)
Type D	Dahlia	with an area of about 48 sq.m. (140 units)
Type E	Edelweiss	with an area of about 36 sq.m. (56 units)

3. Services and facilities

Conveniences include 173 parking spaces, three 15-person elevators, swimming pool, a supermarket, direct telephone lines, TV and radio systems, coffee shops, power generators, and a big meeting hall.

For safety, there are fire prevention systems, fire escapes, a helipad, the design of open space of 20 X 20 m. size in the middle of the building to reduce the risk of fire spread

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cross the building, thunderbolt prevention system, and a 24-hour security service.

Additional amenities are a 10-level man-made waterfall, a botanical garden, and a deck for a panoramic view of the city.

In addition to all this, there are the condominium office, a system of "living-together management" by the condominium corporation, laundromat, and a waste water treatment system.

3.2 Project background

3.2.1 Project preparation.

After the feasibility study, the company had an idea of investing in the construction of a condominium structure. There was a study of the market situation, and the potential of such an investment. The study was systematically carried out by the expert personnel of the company. The study results made the company confident of the market and the investment. It then started looking for a suitable piece of land to implement the project.

3.2.2 Land purchase.

The company purchased the land in August 1982 using its own capital. The land ownership was completely transferred in February 1983.

3.2.3 The feasibility study.

After buying the land, a more detailed feasibility study was carried out by the company personnel with the emphasis on the following:

1. the survey of other projects which were either ongoing or were going to start mainly in terms of location, price, factors, and design;

2. the analysis and the conclusion of the market situation; and,

3. the recommended guidelines for the company development.

According to the study, the demand for low cost condominiums, under 400,000 baht a unit, was very high and the demand for condominiums costing over 400,000 baht a unit for the middle income group was increasing. To be in line with the company's development trends, it was preferable for the company to put up a condominium for the middle income group for the following reasons.

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First, the low cost condominiums can be associated with maintanance problems. Second, in offering higher cost condominiums, problems of living together among different income groups can be avoided. Third, the target group with middle range income is likely to provide a higher yield.

However, this condominium development project was the first of its kind to be undertaken by the company which had been mainly earlier involved in housing estate projects . The company started to take up a different kind of project for these reasons.

1. The development at that time of housing estates was facing a lot of problems and obstacles, such as complex regulations and difficulties in requesting for permission.

2. The company had established the policy to diversify into other kinds of dwelling development business, or other types of real estate than housing estates.

3. The study and the analysis of the market indicated that there was a high potential in developing condominiums.

Based on the feasibility study results, the project objectives and target group were determined.

4. <u>The project objectives and target group.</u>

4.1 The company set the following objectives for Patumwan Place Project.

1. To provide satisfaction for customers by offering a condominium in the city center with many facilities and a natural atmosphere. The 'live where you work' concept was illustrated by the fact that the condominium residents could travel to and fro their workplace in a few minutes. The price was also reasonable when compared to other projects.

2. To set attractive terms for customers ,along with a quality good, in order to sell-out all units in the project before the construction was completed.

3. To build up the image of a leading and reliable company in all kinds of dwelling construction with quality goods offered at reasonable prices. This would later help promote sales of other projects of the company.

4. To provide information about and to encourage a favorable perception of living in condominiums.

4.2 Target group.

The target group set by the company was the modern and progressive middle income group who wanted to conveniently travel between their home and workplace in a short time. This group included business people working in these areas such as Siam Square, Samyan, Surawong, and Witayu, medical doctors of Chulalongkorn Hospital, lecturers and officials of Chulalongkorn University and Trium Udom Suksa School, business entrepreneurs in the country who made regular visits to Bangkok for business, parents in the country who needed a place for their children studying in Bangkok, companies which frequently needed an accommodation for foreign visitors, newlyweds who wanted to separate the family from their parents, regular foreign visitors, as well as investors who were interested in owning condo units to rent them out or to sell them later for profit.

5. Problems and obstacles

5.1 Bad news in the media about condominium projects

Both before and after the sales began, there was news in the mass media, including newspaper, magazines, radio and television, about those condominium projects that had to be cancelled because of various problems. In addition, there were articles expressing concern about the idea of living together in condominiums, and about condominiums turning into "skyrise slum", etc.

5.2 News about earthquakes, IBM Building on fire, and a TV series titled "Condominiums"

Shortly after the beginning of the sales effort, additional bad news affecting condominium sales kept coming in. The news stories ranged from the land movement in Bangkok and nearby provinces, which actually happens only once in very many years, to the fire at the IBM building. The fire problem was considered quite serious since the firemen found it very difficult to put out the fire, although the building on fire was only eight storey high. Moreover, there was a TV series featuring problems of living together in condominiums, including the picture of a condo building collapsing at the end of the program.

6. Marketing management

6.1 Public relations

In accordance with the above objectives and the target group, the company carried out the following activities for public relations purposes.

1. A booklet titled "Interesting Information about Condominiums" was published and distributed to the target group and other interested people in order to provide the correct knowledge and understanding of condominiums. In addition, to disseminate the information further and to encourage the positive image of condominiums, articles and interviews were given to mass media. The company also took part in seminars and exhibitions concerning dwelling development.

2. When the Condominium Trade Association was set up, the company's managing director was elected chairman. The public relations via the association was emphasized to boost the confidence of potential customers in the project.

6.2 Sales promotion.

Also in line with the project objectives and target group, the company implemented the following for the purpose of sales promotion.

6.2.1 Giving discounts.

An attractive discount rate was offered to customers who purchased the units before construction started,in addition to the possibility of making the payment in installments with no interest charged since these customers had a special trust in the company. After this period, the company offered another discount rate to those customers who made payments quickly. This rate was equal to the prime rate which was higher than the fixed deposit interest rate.

The company also provided flexibility towards target customers by setting an allowance for immediate discount in case there were a negotiation.

6.2.2 Setting flexible terms of payment for customers.

This helped increase the customers' purchasing power. The interest charged with the installment payments made to the company was set at a reasonable rate. The sales representatives were also authorized to immediately extend the installment due to another two installments if it was so desired by the customers.

6.2.3 The allocation of parking space ownership and co-ownership to customers was based on the first-come, first-served basis.

6.3 Distribution channels and sales effort

6.3.1 Distribution channels consisted of the following:

1. The company's sales representatives;and,
2. The sales teams particularly established for the project. Two team managers were hired. They then recruited their own members.

6.3.2 Sales effort

In order to achieve the sales objectives, these sales efforts were put forth:

1. The stimulation of sales by setting the target for the two sales team to encourage competition;
2. The payment of commission in a progressive rate, i.e. if a team could succeed in their sales effort beyond the minimum set target, the team members would get an incentive in the form of a higher rate of return on their effort;
3. The arrangement of training programs by well-known speakers for sales representatives which aimed at providing knowledge and understanding of the products as well as sales techniques and;
4. The control of, and the co-ordination with ,all departments concerned in order to adjust to individual customers.

6.4 Advertising

Based on the project objectives, the advertising concept emphasized the strong points of the product, including the better atmosphere and the more convenient location when compared to competitors.

6.4.1 An advertising agency was commissioned to manage the promotion of the project by closely co-ordinating with the company.

The first campaign began in October 1982 when the project started. After the foundation stone was laid and construction began, there was an intensive campaign starting in March 1983 for three consecutive months.

6.4.2 The company allocated a budget for advertising by considering the sales estimates and the comparison of performance with competitors.

As for media selection, the advertising budget was allocated most to newspapers, radio spots, magazines, and other types of media such as exhibitions .

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6.5 Sales operations and performance.

The condominium plans sent to potential customers for public realtions purposes resulted in the sales of 30% of the total units before construction began. The sales increased at a faster rate after the construction started and the condominium took shape. All the units were sold out, as planned ,before the completion of the project .

6.6 Pricing goals and strategies.

Pricing goals were

1. to achieve the sales target within a set time,
2. to achieve the yield rate as desired.

6.6.1 Pricing strategies

With regards to pricing, the company based its decision on the survey results. The company's condominium price was a little lower than competitors' of similar quality. If the price was the same as competitors', the company's quality would be better. Considering their purchasing power the price set was also supposed to be realistic for the target customers

The price set was 10,500-12,000 baht per sq.m. while that of other condominiums of similar quality then was between 11,000-12,500 baht per sq.m.

6.6.2 Price adjustment

The price was adjusted every 3-6 months depending on on the time,the opportunities, and the demand-supply factor. Many types of condo units were available and some types were sold more quickly than others. The company thus adjusted the price of those types that sold quickly and only a few units of which were left.

6.6.3 Terms of installment sales and ownership transfer.

The project offered many types of possible payments to customers.

1. To pay 3.5% downpayment on the contract signing date and pay the rest in 24 installments to the company. No interest would be charged.

2. To pay 3.5% downpayment on the contract signing date and pay the rest in 50 installments to the company. A 7.5% interest flat rate would be charged.

3. To pay the downpayment in 12 installments to the company and pay the rest in 120 monthly installments to a bank.

   The number of installments and the interest rates were adjusted in accordance with the construction time and banks' interest rate.

4. To pay 50% of the whole amount first and pay the other 50% on the day of ownership transfer.

5. To pay the whole amount first and transfer the ownership later.

The company offered a special discount to the last two types of payment.

6.6.4 Terms of ownership transfer

For those customers who paid cash, the company would transfer the ownership to them immediately as soon as the registration of condominium corporation was completed. As for those customers who bought the units under the terms of installment sales, the ownership was transferred to them as soon as they had fulfilled the terms of making downpayment so that they could pay in installments further to the bank.

7. Construction management.

The construction started in February and went on continuously until it was completed in November 1984, taking a total period of almost 2 years. The construction time schedules could be detailed as shown below.

		Number of weeks	from	until
1.	Structural work			
	Ground preparation	4	February 1983	
	Building foundation	18	March 1983	July 1983
	Building body	43	July 1983	June 1984
2.	Architectural work			
	Ceiling, floor, and wall decorations	19	March 1984	August 1984
	Painting	11	June 1984	September 1984
3.	Electrical work and fire prevention system installation	47	October 1983	July 1984
4.	Public health work	51	July 1983	August 1984
5.	Finishing work, eg. arranging the place, the roads, and the waterfall, etc.	11	August 1984	November 1984

8. Financial management

8.1 Investment budget

Income from sales	180 million baht
Total expenses	140 million baht

Expenses can be put into the following categories:

Cost of land	16.8%
Cost of construction	63.9%
Administration expenses	
Architectural and engineering design work	0.71%
Office expenses and salaries	1.77%
Work supervision and construction office	2.12%
Advertising and public relations	2.48%
Interest	4.25%
Taxes and fees	8.14%
Net profit before tax	28.57%
Net profit after tax	18.57%

8.2 Capital sources

The project capital came from three sources: owner's capital, loans, and income from downpayment.

In purchasing the land, the project owner invested his own capital and was offered the terms of payment to pay 70% of the land cost six months after signing the contract with no interest charged.

For land improvement and construction, the company was given a financial support of about 30 million baht amount from the Thai Military Bank,or one third of the land improvement and construction budget. The bank also charged the interest at prime rate throughout the loan period.

As for the long term loans for customers institutions , the project was supported by various financial institutes namely, the Government Housing Bank, the Thai Military Bank, the Citicorp Finance & Securities (Thailand) Company. These institutions charged about 17% annual interest and allowed the payment to be made in installments within 10-15 years.

8.3 Financial analysis

Considering the budget structure, we can see that the project had allocated its budget efficiently, keeping the 1:1

ratio of loans to capital. This illustrated that project was no risk.

9. Performance analysis

9.1 Benefits of the feasibility studies

Benefits to marketing.

The correct and accurate results of the feasibility studies enabled the company to determine the target group and its real needs effciciently. This, in turn, resulted in effective and accurate marketing strategies. The public relations, the advertising, as well as other marketing techniques all succeeded.

Benefits to designing.

Knowing the needs and the consumer behavior of customers, the company could design the condominium in such a way that it was economical, beautiful, and most functional. The design also allowed the combination of various types of units to meet the needs of those customers who wanted a bigger condo unit.

9.2 The correlation between the target group and the actual purchasers.

According to the survey of customers who bought project condos, it could be concluded that the customers were the same group as that targeted by the company. This was mainly the result of the following:

1. the feasibility studies which brought about the success in line with the market situation,
2. the systematic market segmentation which resulted in aiming at the right target; and,
3. the flexible strategies of the company.

10. Guidelines for development and recommendations

Having operated the project, the company summarized the problems and suggested possible solutions as follows:

1. The physical problem was the selection of the area and the location which was suitable for the product and the target group. In addition, developers should also have the ability to purchase land at a suitable price.

2. The understanding of the market, both the real market situation and the target market in line with the product, was the basis in determining the strategies and planning the operation. Experienced developers would certainly have an

advantage in that they could see the problems with deeper understanding, while also seeing the market trends and expansion directions.

3. Developers should have considerable capital when condominiums are high-rise buildings and the whole structure need to be completed.

4. Entrepreneurs who do not have much knowledge of the real estate business and who are inexperienced should pay more attention to feasibility studies. With such studies, many new entrepreneurs would not have failed.