

JAMES A. GRAASKAMP COLLECTION OF TEACHING MATERIALS

V. INDUSTRY SEMINARS AND SPEECHES - SHORT TERM

A. Appraisal Organizations

15. 1985

- b. "Real Estate Feasibility Analysis and Creative Problem Solving", sponsored by L.A. Chapter 5 AIREA, May 28-29, 1985; Similar seminar given September 13-14, 1984 (See Section V. F. 16. of JAG Collection)

REAL ESTATE FEASIBILITY ANALYSIS  
AND  
CREATIVE PROBLEM SOLVING

Presented by:

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Doubletree Hotel - Orange, California

Sponsored by:

Chapter 5  
American Institute of Real Estate Appraisers  
Los Angeles, California

## REAL ESTATE FEASIBILITY

Presented by

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### FIRST HOUR

#### I. Basic Concepts and Definitions

- A. Real estate is a tangible product - defined as artificially delineated space with a fourth dimension of time referenced to a fixed point on the face of the earth.
1. Real estate is a space-time unit, room per night, apartment per month, square foot per year, tennis court hours, or a condominium for two weeks in January at a ski slope.
  2. To the space-time abstraction can be added special attributes to house some form of activity.
  3. Improvements from survey market to city layouts to structures define space.
  4. Legal contracts and precedents define time.
  5. Rights of use are defined by public values, court opinions.
  6. Private rights to use are those which remain after the public has exercised its rights to control, to tax, or to condemn.
- B. A real estate project is a cash cycle business enterprise which combines a space-time product with certain types of management services to meet the needs of a specific user. It is the process of converting space-time needs to money-time dimensions in a cash economy.
1. A real estate business is any business which provides expertise necessary to relate space-time need to money-time requirements and includes architects, brokers, city planners, mortgage bankers, and all other special skills.
  2. The true profit centers in real estate are in the delivery of services and cash capital. Money is an energy transfer system.
  3. Equity ownership is the degree to which one enterprise controls or diverts cash from another real estate enterprise.

4. Public has direct ownership to the degree real estate taxes take a percentage of tenant income in excess of service cost.
5. Consumer must view space as a total consumption system involving direct cost, surface cost, transportation cost and negative income of risk.
6. The best real estate project is the one which has the lowest net present value of cost as the sum of cost to the consumer production sector and public sector.

C. The real estate process is the dynamic interaction of three groups, space users (consumers), space producers, and the various public agencies (infrastructures) which provide services and capital to support the consumer needs. (See Exhibit 1.)

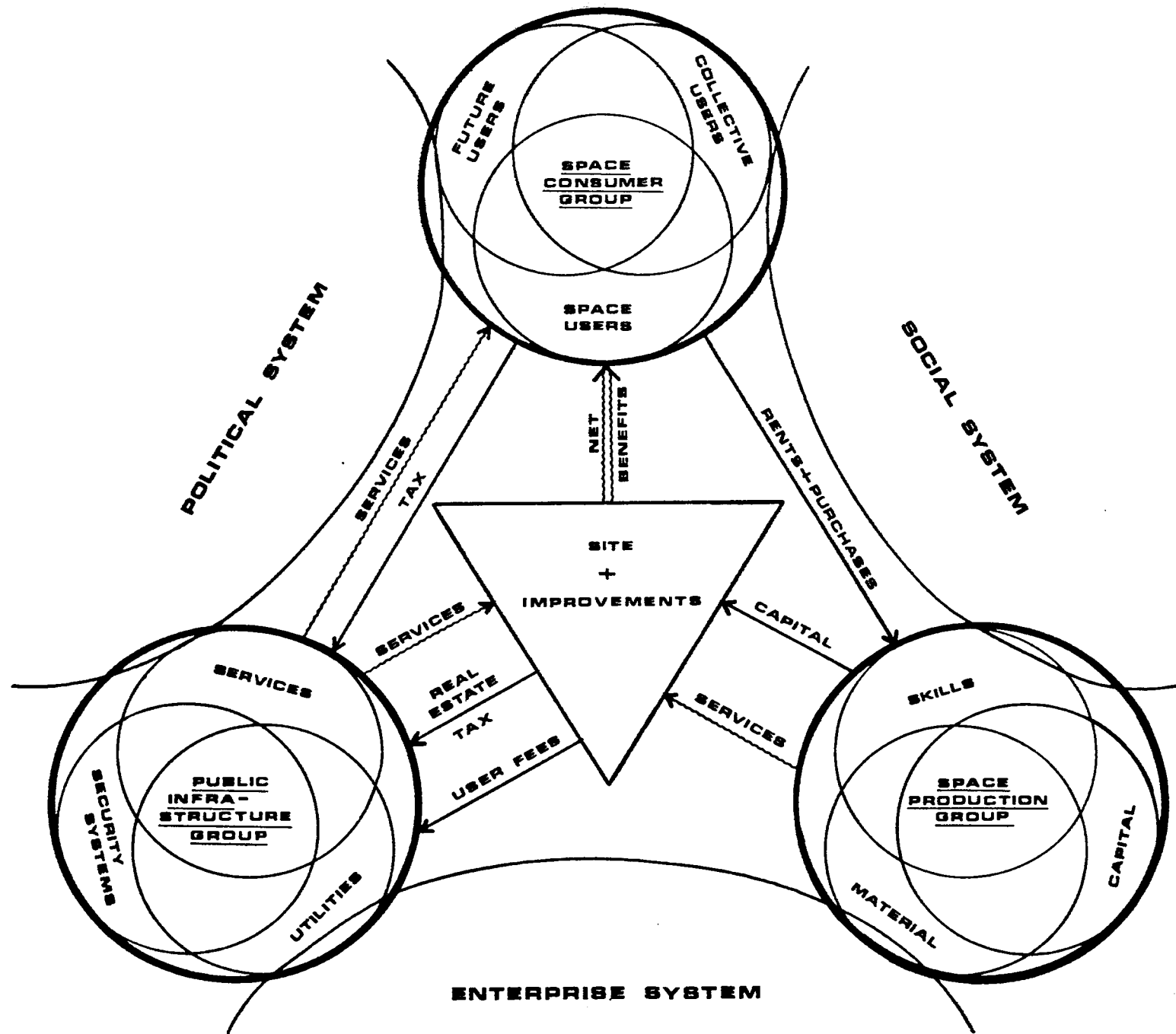
1. Each of these three decision groups represent an enterprise, an organized undertaking. All are cash cycle enterprises constrained by a need for cash solvency, both short and long term.
2. A desirable real estate solution occurs when the process permits maximum satisfaction to the consumer at a price that he can afford within the environmental limits of land while permitting the consumer, producer, and the government cash cycle to achieve solvency--cash breakeven at a minimum, after full payment for services rendered.
3. Solvency of the total process, not value, is the critical issue.
4. Land is an environmental constraint and not a profit center.
5. Land provides access to a real estate business opportunity and is not the opportunity itself. Real estate business wants to control land to create a captive market for services.

D. Land is the point where demand and supply forces find cash solvency. Location is a manufactured attribute. Site attributes are exploited to reduce outlays and to increase receipts and include:

1. Physical attributes
2. Legal-political attributes
3. Linkage attributes
4. Dynamic attributes
5. Environmental attributes

E. Recognition of the fact that profit maximization must be limited by concerns for physical environment, and community priorities for land use has resulted in redefinition of the most basic concept in appraisal;





## THE REAL ESTATE PROCESS

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i.e., highest and best use, in the authorized terminology handbook sponsored by the American Institute of Real Estate Appraisers and the Society of Real Estate Appraisers. Compare the 1971 definition with that for 1975:

Highest and best use concept -

"A valuation concept that can be applied to either the land or improvements. It normally is used to mean that use of a parcel of land (without regard to any improvements upon it) that will maximize the owner's wealth by being the most profitable use of the land. The concept of highest and best use can also be applied to a property which has some improvements upon it that have a remaining economic life. In this context, highest and best use can refer to that use of the existing improvements which is most profitable to the owner. It is possible to have two different highest and best uses for the same property: one for the land ignoring the improvements; and another that recognizes the presence of the improvements.

P. 57, Real Estate Appraisal Principles and Terminology, Second Edition, Society of Real Estate Appraisers 1971.

"Highest and Best Use: That reasonable and probable use that will support the highest present value, as defined, as of the effective date of the appraisal. Alternatively, that use, from among reasonably probable and legal alternative uses, found to be physically possible, appropriately supported, financially feasible, and which results in highest land value. The definition immediately above applies specifically to the highest and best use of land. It is to be recognized that in cases where a site has existing improvements on it, the highest and best use may very well be determined to be different from the existing use. The existing use will continue, however, unless and until land value in its highest and best use exceeds the total value of the property in its existing use. Implied within these definitions is recognition of the contribution of that specific use to community environment or to community development goals in addition to wealth maximization of individual property owners. Also implied is that the determination of highest and best use results from the appraiser's judgment and analytical skill, i.e., that the use determined

from analysis represents an opinion, not a fact to be found. In appraisal practice, the concept of highest and best use represents the premise upon which value is based. In the context of most probable selling price (market value) another appropriate term to reflect highest and best use would be most probable use. In the context of investment value an alternative term would be most profitable use."

Real Estate Appraisal Terminology, Edited by Byrl Boyce, Ph.D., SRPA, Ballinger Publishing Co., Cambridge, Mass., 1975. (Emphasis added.)

F. The purchase of a piece of real estate today involves the acceptance of a great many assumptions about the future. Those who take care to validate these assumptions in a period of transition as to public land use control tend to have the most successful investment.

1. Business decisions today make explicit recognition of their assumptions and the need to act under conditions of uncertainty.
2. Business risk is the difference between assumptions about the future and realizations, and the proforma budget and the end of the year income statement.
3. Risk management is the control of variance between key assumptions and realizations.
4. An appraisal is a set of assumptions about the future productivity of a property under conditions of uncertainty.

G. The concept of highest and best use of land was a commodity concept which did not consider externalities adequately. It is being replaced by concepts of most fitting use and the concept of most probable use.

1. The most fitting use is that use which is the optimal reconciliation of effective consumer demand, the cost of production, and the fiscal and environmental impact on third parties.
2. Reconciliation involves financial impact analysis on "who pays" and "who benefits" - thus the rash of debate on how to do impact studies.
3. The most probable use will be something less than the most fitting use depending upon topical constraints imposed by current political factors, the state of real estate technology, and short-term solvency pressures on consumer, producer, or public agency.
4. Most probable use means that an appraisal is first a feasibility study of alternative uses for a site in search of a user, an investor, and of public consent.

- H. In seeking the most fitting and most probable use, the inner city planner and private property appraiser must interact to determine how community objectives and consumer production sector solvency can be achieved simultaneously.
1. A real estate decision has only two basic forms. Either a site is in search of a use and consumer with the ability to pay, or a consumer, need or use with a defined ability to pay is seeking some combination of space-time attributes he can afford.
  2. The individual consumer with needs and budget is the drive wheel.
  3. The public sector represents the community owned consumer service delivery system, seeking to minimize marginal cost to the consumer and average cost to the community at large.
  4. The production sector responds to a derivative demand for engineering and management expertise.
- I. Critiquing the form and adequacy of a real estate solution is analogous to the artistic concept of judging the success of an art object by relating form of the solution to the context to which it was created.
1. Context includes those elements which are fixed, given, or objective, and to which any solution must adapt.
  2. Form-giving elements are those variables within the artists control, i.e., options or alternatives at a particular time.
  3. A solution is judged for its correctness or success in terms of the degree of fit of the form proposed to the content.
  4. Feasibility analysis is concerned with the degree of fit or the extent of misfit between a proposed course of action and the context within which it must operate or fit.
  5. Success therefore depends on how appropriately the problem is defined; testing feasibility depends primarily upon accurate and comprehensive definition of the context.

J. An enterprise is any organized undertaking, and a real estate problem or project always begins from the viewpoint of some enterprise relative to its environment.

1. The systems engineer sees the eventual form of an enterprise, in terms of both its configuration and behavior, as representing a negotiated consensus between two general sources of power--the power of the environment to dictate form and behavior of the organization on the one hand, and the power of the organization to decide for itself what its characteristics and behavior will be on the other.
2. The systems engineer uses "power of the environment" as a dynamic alternative to the static implications of context and adds dynamic element of behavior to the elective responses of the form-giver.

## REAL ESTATE FEASIBILITY

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### SECOND HOUR

#### I. Feasibility Analysis

- A. The concept of feasibility is elusive and much abused. Combining the systems concept of enterprise under conditions of uncertainty and the physical design concept of fit leads to the following definition:

"A real estate project is 'feasible' when the real estate analyst determines that there is a reasonable likelihood of satisfying explicit objectives when a selected course of action is tested for fit to a context of specific constraints and limited resources."

- B. The problem of defining objectives and measuring success depends almost entirely on correctly defining the problem and values of the client.
1. The nature of a decision process must be made explicit.
  2. Defining a problem in terms of inherent characteristics must be addressed today.
  3. The nature of risk and risk management must be made explicit because the definition implies uncertainty by means of a subjective probability, "reasonable likelihood of succeeding."
  4. There is a need to identify and measure the weight elements of success.
  5. There is a need to identify and dimension the limited resources of the client in terms of personnel, expertise, cash, and time for commitment and completion.
  6. Definition of decision process and problem lead to proper description of work project for the analyst.

- C. The general theory of the management process for any enterprise can be converted to real estate semantics for feasibility:

|                                     |  |
|-------------------------------------|--|
| Values, objectives, policy          | Strategic format                             |
| Search for opportunity alternatives | Market trend analysis                        |
| Selection of an opportunity         | Merchandising target with monopoly character |
| Program to capture opportunity      | Legal-political constraints                  |
|                                     | Ethical-aesthetic constraints                |
|                                     | Physical-technical constraints               |
|                                     | Financial constraints                        |
| Construction of program             | Project development                          |
| Operation of program                | Property management                          |
| Monitoring and feedback             | Real estate research                         |

- D. These basic elements and definitions then lead to the requirement of a correct report title. Most feasibility reports go wrong on the title page because the analyst did not clearly understand to which elements of context and form his report was to be addressed. Seldom does the analyst do a complete feasibility study as a single report on his own. Components may be provided by others and the sequence of set may differ in each case depending on how the consultant understands the client. Therefore, a report should be entitled as one of the following:

1. Strategy study: selection of objectives, tactics, and decision criteria.
2. Market analysis: Economic base studies or other related aggregate data review.
3. Merchandising studies: consumer surveys, competitive property analysis, marketability evaluation, etc.
4. Legal studies: opinion on potential legal constraints, model contracts of forms of organization, and politician briefs.
5. Architectural and engineering studies: alternative building envelopes, structural solutions, and net usable space and space relationships, together with technical resolutions of problems in the physical context adequate for budgeting and marketing work.
6. Compatibility studies: project impact on various groups affected in terms of their attitudes, expectations and vested interests in the status quo and community goals.
7. Financial studies: cash flow budgets, potential risk and sensitivity analysis, fiscal impact analysis, and alternative sources of capital, tax implications, etc.

E. Feasibility analysis is a sub-topic within the generally expanding literature of problem solving. Any Counselor or problem solver is urged to read the following:

1. The Art of Problem Solving, Russell L. Ackoff, John Wiley & Sons, New York, 1978.
2. The Complete Problem Solver, John R. Hayes, The Franklin Institute Press, Philadelphia, 1981.
3. Strategic Planning in Emerging Companies, Steven C. Brandt, Addison-Wesley Publishing Company, 1981.

Ackoff subdivides any problem into five types of components:

1. The decision maker--the person or persons faced with the problem as a group or individual.
2. The controllable variables--those aspects of the problem situation the decision maker can control.
3. The uncontrolled variables--those aspects of the problem situation the decision maker cannot control but those which, together with the controlled variables can effect the outcome of his choice. The uncontrolled variables may be quantitative or qualitative, but together they define the problem environment, in the language of Ackoff, or the context in the language of Christopher Alexander.
4. Constraints imposed from within or without on the values of the controlled and uncontrolled variables. For example, the consumer places a limit on how much he is willing to pay for rent, although rent levels themselves are often set by cost factors beyond his control.
5. The possible outcomes produced jointly by the decision makers choice and the uncontrolled variable.

Ackoff further refines problem solving:

A problem is said to be solved when the decision maker selects those values of the controlled variables which maximize the value of the outcome; that is, when he has optimized. If he selects values of the controlled variables that do not maximize the value of the outcome but produce an outcome that is good enough, he has resolved the problem by satisficing. There is a third possibility: he may dissolve the problem. This is accomplished by changing his values so that the choices available are no longer meaningful. For example, the



problem of selecting a new car may be dissolved by deciding that the use of public transportation is better than driving oneself. It may also be dissolved by moving to within walking distance from work so that driving is no longer required. We use "solving" loosely to cover all three alternatives.

Ackoff also points out that many problem solvers are reactive responding to the immediate irritation which leads us "to walk into the future facing the past - we move away from, rather than toward something. This often results in unforeseen consequences that are more distasteful than the deficiencies removed." Recall D.D.T. Problem should be proactive by specifying the ideal outcome and looking for ways to move in that direction. "The chances of overlooking relevant consequences are minimized when we formulate a problem in terms of approaching ideals ... focusing on an ideal reveals the relationships between things that can be done in the future and tends to make us feel simultaneously with sets of interacting threats and opportunities, to treat them as a whole, as a system of problems.

From that it is important to learn that:

Planning is dealing with sets of interacting problems  
Problem solving is finding alternative routes to approach an ideal solution  
Feasibility analysis is testing a specified course of action for its likelihood of fulfilling the ideal  
 An appraisal is a fictitious feasibility study in which human behavior is assumed to be normative

F. The Hayes text is a rich collection of problem solving and decision making methods. Hayes believes that problems should be represented with doodles, flow charts, simple diagrams, or other graphics. He sees the problem solving process as correctly representing the goal, correctly specifying the initial state of affairs, correctly specifying the differences between the current state of affairs and the goal, the restrictions in moving toward the goal and operators available to advance affairs to the goal. He defines decision technique for conditions of certainty, uncertainty, or competitive conflict. Hayes develops for strategic viewpoints:

1. The mini-max strategy which assumes that "nature is against us" so that the object is to choose the strategy that will minimize the disaster, although it has the unfortunate property that may also eliminate the best possible outcome.

2. The maxi-max strategy chooses the course of action which could provide the best of the best possible outcomes, but it does not defend you against the possibility of enjoying the worst possible outcome.
  3. The Hurwitz strategy allows a compromise between the pessimistic and the very optimistic strategies above while allowing one to modify the probabilities with a factor for the level of optimism or pessimism of the decision maker.
  4. Minimizing maximum regret strategy may be most significant for real estate investors as in phasing the project or buying standby credit at an exorbitant rate.
- G. Hayes describes four general types of decisions which require different decision procedures: decisions under certainty, under risk, under uncertainty, and under conflict. In the case of certainty the facts are known and static, and it is only necessary to rank in terms of desirability. Consider four student apartments as described in Exhibit 1. Hayes demonstrates five different methods which may be useful for making decisions under certainty:
1. Dominance which determines that one alternative dominates if it is at least as good as the other properties and is better in one attribute on at least one property. (See Exhibit 2.)
  2. The lexicographic method which ranks like a dictionary specifying the most important attributes first and then resolving ties in ranking by going to the second most important attribute second. The weakness is that the selection process ignores all but the most important attributes so that the selection may have serious unattractive secondary attributes.
  3. Additive weighting takes all attributes into account but gives them different weights depending on value systems of observer. It does not recognize interactions of attributes so it can lead to inappropriate decisions by ignoring interactions just as lexicographics ignore minor attributes. (See Exhibit 3.)
  4. Effectiveness indices take into account interactions, such as the profitability index which takes present value of premises relative to total capital budget.

## Student Apartments

| A1                                 |  | A2                                 |   |
|------------------------------------|--|------------------------------------|---|
| brightness:                        | always needs artificial lighting             | size of rooms:                     | cramped   |
| cleanliness:                       | needs vacuuming                              | noise level:                       | usually quiet                                   |
| kitchen:                           | new stove, sink, and refrigerator            | general repairs:                   | needs no repairs                                |
| noise level:                       | frequently noisy                             | brightness:                        | very bright throughout the day                  |
| size of rooms:                     | average                                      | cleanliness:                       | needs vacuuming                                 |
| general repair:                    | needs no repairs                             | landlord attitude:                 | cordial   |
| distance from place of employment: | 15 minutes                                   | distance from place of employment: | 60 minutes                                      |
| landlord attitude:                 | indifferent                                  | kitchen:                           | stove, sink, and refrigerator in good condition |
| A3                                 |  | A4                                 |   |
| distance from place of employment: | 20 minutes                                   | general repair:                    | needs no repairs                                |
| brightness:                        | fairly bright                                | brightness:                        | very bright                                     |
| landlord attitude:                 | very friendly                                | noise level:                       | often quiet                                     |
| cleanliness:                       | ready to move in                             | size of rooms:                     | small   |
| kitchen                            | stove, sink, & refrigerator, old but useable | distance from place of employment: | 45 minutes                                      |
| noise level:                       | sometimes noisy                              | kitchen:                           | stove & refrigerator in good condition          |
| general repair:                    | needs one week repair work                   | landlord attitude:                 | cordial   |
| size of rooms:                     | comfortable                                  | cleanliness:                       | ready to move in                                |

EXHIBIT 2  
Alternatives

|                     | 1                             | 2                             | 3                           | 4                             |
|---------------------|-------------------------------|-------------------------------|-----------------------------|-------------------------------|
| Distance in Minutes | 15 Min                        | 60 Min                        | 20 Min                      | 45 Min                        |
| Size of Rooms       | Average                       | Cramped                       | Comfortable                 | Small                         |
| Kitchen             | New stove, etc.               | Stove, etc. in good condition | Stove, etc. old but useable | Stove, etc. in good condition |
| General Repair      | Needs no Repair               | Needs no Repair               | Needs one Week work         | Needs no Repair               |
| Cleanliness         | Needs Vacuuming               | Needs Vacuuming               | Ready to Move in            | Ready to Move in              |
| Noise Level         | Frequently Noisy              | Often Quiet                   | Sometimes Noisy             | Often Quiet                   |
| Brightness          | Always needs artificial light | Very Bright                   | Fairly Bright               | Very Bright                   |
| Landlord            | Indifferent                   | Cordial                       | Very Friendly               | Cordial                       |

Only one alternative dominates another in this problem: Alternative 4 dominates Alternative 2. Alternative 4 is as good as Alternative 2 in "kitchen," "general repair," "noise level," "brightness," and "landlord," and it is better in "distance," "size," and "cleanliness." Alternative 1 does not dominate Alternative 2 because, while it is better in some properties, such as "distance," it is worse in others.

## EXHIBIT 3

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## Alternative Apartments

|                       | 1                                 | 2                                 | 3                               | 4                                 | Weight |
|-----------------------|-----------------------------------|-----------------------------------|---------------------------------|-----------------------------------|--------|
| Distance in Minutes   | 15 Min (4)                        | 60 Min (1)                        | 20 Min (3)                      | 45 Min (2)                        | 7      |
|                       | 28                                | 7                                 | 21                              | 14                                |        |
| Size of Rooms         | Average (3)                       | Cramped (1)                       | Comfortable(4)                  | Small (2)                         | 4      |
|                       | 12                                | 4                                 | 16                              | 8                                 |        |
| Kitchen               | New stove, etc. (5)               | Stove, etc. in good condition (4) | Stove, etc. old but useable (3) | Stove, etc. in good condition (4) | 3      |
|                       | 15                                | 12                                | 9                               | 12                                |        |
| General Repair        | Needs no Repair (5)               | Needs no Repair (5)               | Needs one Week work (2)         | Needs no Repair (5)               | 2      |
|                       | 10                                | 10                                | 4                               | 10                                |        |
| Cleanliness           | Needs Vacuuming (4)               | Needs Vacuuming (4)               | Ready to Move in (5)            | Ready to Move in (5)              | 1      |
|                       | 4                                 | 4                                 | 5                               | 5                                 |        |
| Noise Level           | Frequently Noisy (2)              | Often quiet (4)                   | Sometimes Noisy (3)             | Often quiet (4)                   | 1      |
|                       | 2                                 | 4                                 | 3                               | 4                                 |        |
| Brightness            | Always needs artificial light (1) | Very bright (5)                   | Fairly Bright (3)               | Very Bright (5)                   | 1      |
|                       | 1                                 | 5                                 | 3                               | 5                                 |        |
| Landlord              | Indifferent(3)                    | Cordial (5)                       | Very Friendly (4)               | Cordial (5)                       | 1      |
|                       | 3                                 | 5                                 | 4                               | 5                                 |        |
| Sum of Value X Weight | 75                                | 51                                | 65                              | 63                                |        |

5. Satisficing approach requires the decision maker to identify the minimum value he is willing to accept for each of the attributes, rejecting alternatives which fail the test, and accepting the first alternative which meets all the minimal values tests. (For example, a building with a debt cover ratio no less than 1.2, a cash on cash yield of 9%, leasable area no less than 60,000 square feet in an office building no more than five years old with one parking stall per 300 square feet of G.L.A.) (See Exhibit 4.)

#### H. Summary of systems in Exhibit 5.

Success may be measured by any of the above systems with lists of attributes selected by the analyst as relevant tests of alternative courses of action, such as:

1. A check list of physical attributes
2. A check list of critical linkage attributes
3. A check list of dynamic behavioral attributes
4. A check list of attributes or services (given weighted point scores)
5. Financial ratios measuring risk, such as cash breakeven, rate of capital recapture, loan ratios or sensitivity to specified contingencies
6. Probability distributions of alternative outcomes and standard error
7. Psychological gratifications
8. Specified legal attributes
9. Measures of impact on environment

- I. Data base management on personal computers will require that you learn to use decision rules dealing with certainty, conflict, and difference by understanding the advantages and disadvantages of each rule.

## EXHIBIT 4

Worksheet Containing MUSTS and WANTS,  
With Appropriate Weights Added, For a House-Purchase

## MUST OBJECTIVES: Resource Limits and Requirements

Down payment not to exceed \$10,000  
 Monthly payment (principal, interest, taxes, and insurance)  
     not to exceed \$300  
 Minimum of four bedrooms  
 Minimum of two bathrooms  
 Location outside of downtown area, within 45-minutes driving  
     time to office parking lot  
 Occupancy within 60 days

WANT OBJECTIVES: Best use of resources, maximum results and returns,  
minimum disadvantage

|  | Weight |
|--|--------|
| Minimum down payment . . . . .                               | 6      |
| Lowest monthly payment . . . . .                             | 10     |
| Location conveniently close to work . . . . .                | 7      |
| Able to use present furnishings, drapes . . . . .            | 5      |
| Shelter for two cars . . . . .                               | 4      |
| Public transportation nearby . . . . .                       | 4      |
| Location convenient to elementary and high schools . . . . . | 8      |
| Location convenient to shopping center, stores . . . . .     | 7      |
| Workshop and storage space available . . . . .               | 2      |
| Stable resale value . . . . .                                | 7      |
| Attractive; modern style and appearance . . . . .            | 5      |
| Good landscaping; trees, shrubs . . . . .                    | 4      |
| Large play area for kids . . . . .                           | 5      |
| Large, modern kitchen with a view . . . . .                  | 2      |
| Large, comfortable family room . . . . .                     | 3      |
| Location on quiet street, in good neighborhood . . . . .     | 4      |
| Minimum maintenance cost to house . . . . .                  | 7      |
| Minimum risk - tax increase or special assessments . . . . . | 4      |

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Source: Page 198, The Rational Manager by Charles H. Kepner and Benjamin B. Tregoe.

## EXHIBIT 5

## Decision Making Methods

| Method              | Type           | Use this method   | Cost of computation required | Number of alternatives examined |
|---------------------|----------------|---|------------------------------|---------------------------------|
| Dominance           | Optimizing     | for preliminary screening of alternatives                             | low                          | all                             |
| Lexicography        | Optimizing     | when attributes are very different in weight                          | very low                     | all                             |
| Additive Weighting  | Optimizing     | when it is important to find the best alternative                     | high                         | all                             |
| Effectiveness Index | Optimizing     | when it is very important to get best alternative                     | very high                    | all                             |
| Satisficing         | Non-optimizing | when the cost of examining the whole set of alternatives is very high | very low                     | some                            |



## REAL ESTATE FEASIBILITY

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### THIRD HOUR

#### I. Problem Perceived by the Client

The original problem as perceived by the client is generally ill-defined or misdirected as the problem becomes understood by the analyst.

A. There are several reasons for the shift in perception by both parties, such as:

1. Implicit assumptions by the client as to the services offered by a real estate appraiser
2. Implicit assumptions and poor sequencing in the decision process
3. The bias of viewpoint, because everyone is an expert on real estate
4. A bias introduced by training, previous experience, or peer group controlling the client

B. The consultant must begin by attempting to discover the sequence or protocol of decisions which have brought the client to that point to discover what has been taken for granted, what has been overlooked, and what will be needed.

C. Education can't provide the tools for this critical initial step in the relationship between counselor and client. Ackoff pointed out that educators generally produce only competence, communicativeness, and concern while the characteristics that makes for outstanding managers are courage and creativity. Hayes goes on to define creativity as "A special kind of problem solving, that is the act of solving an ill-defined problem. Ill-defined problems are those which require problem solvers to contribute to the definition of the problem from their own resources."

- D. The consultant must structure the initial interview and subsequent intermediate report sessions to ask the client explicitly about the following:
1. His concept as to the "essence" of his business
  2. His preferred method of meeting entrepreneurial risk
  3. His preferred method of dealing with governmental regulation and news media
  4. His preferred method of personnel compensation
  5. His style of value decision trade-offs between qualitative and quantitative issues
  6. His perception of his risk position and his risk utility "curve"
  7. His personal non-business objective
  8. His reasons for being involved with real estate (a simple question revealing, in most cases, tremendous naivete and lack of in-depth preparation by the client)
- E. In the process of developing the assignment with the client, keep in mind the following questions:
1. What is the Problem at hand?
  2. From what Viewpoint or Perspective should the problem be analyzed?
  3. What Judgments seem to be appropriate?
  4. What Assumptions should be adopted?
  5. Is the resulting Premise realistic?
  6. What Derivation Process should be applied?
  7. What Conclusion results?
  8. What Alternative choices are available?
- F. Since the problem perceived by the client may be poorly defined, the analyst needs to convert the stated problem into a sequence of issues which relate to the enterprise decision process outlined earlier. (See Exhibit 1.)
1. That stated question, "How much should I pay for the land?" is a step in implementation of the program. Go back to the statement of objectives, "Why do I need to invest in land?" and the search for opportunities, "How did we choose this piece of land?"
  2. In general, you must discover what has been done, what explicit assumptions have been made, what implicit assumptions seem to be operating, and who made the decisions thus far. (See Exhibit 2.)

## EXHIBIT 1

## SCOPE OF SERVICES

| BASIC BUSINESS                  | BASIC SERVICES   | COMPONENT ACTIVITIES            | INFORMATION TRACTS & CRITICAL DETAILS   |
|---------------------------------|--|---------------------------------|---|
| Real Estate Investment Analysis | Development Coordination   | Planning & Programming          | Analysis of Economic Context Re:<br>Past Growth Trends<br>Economic Base & Volatility<br>Strengths & Weaknesses<br>Recent Trends & Changes<br>Future Economic Outlook including<br>- Growth Potential<br>- Growth Constraints<br>- Investment Considerations   |
|                                 |  | Site & Use Analysis             |   |
|                                 | Development Feasibility Analysis   | Economic Analysis of Region     | Analysis of Specific Property Types Re:<br>Past Directions of Growth<br>Major Growth Factors<br>Future Growth Areas<br>Sub-Area Differentiation<br>Historic Supply/Demand Relationships<br>Future Demand Trends<br>Absorption Capacity<br>Recent Trends & Projected Construction  |
|                                 |  | Construction Cost Analysis      |   |
|                                 |  | Highest & Best Use Analysis     |   |
|                                 |  | Market Analysis                 |   |
|                                 | Appraisal  | Marketability Analysis          | Analysis of Specific Property Types Re:<br>Rent Levels & Trends<br>Vacancy Levels & Trends<br>Quality Differences<br>Locational Differences<br>Lease Terms & Differences  |
|                                 |  | Location Analysis               |   |
|                                 |  | Rent & Vacancy Survey           |   |
|                                 | Income Property Analysis (potential or previous acquisitions & problem properties) | Market Price Analysis           | Analysis of a Specific Property Re:<br>Revenue Assumptions (1st year & Growth)<br>Expense Assumptions (1st year & Growth)<br>Reserves and Capital Replacement Req'ts<br>Financing Assumptions<br>Depreciation Assumptions<br>Resale Assumptions<br>Return Comparisons   |
|                                 |  | Value-Price Determination       |   |
|                                 |  | Financial Return Analysis       |   |
|                                 |  | Transaction Structuring         |   |
|                                 | Acquisition, Sale, Trade, Refinancing Assistance                                   | Hold/Sell/Refinance/Evaluation  | Formulation of Investment Criteria Re:<br>Economic expectations (nat'l & local)<br>Realistic Return Levels for alternate markets and property types<br>Risk/return tradeoffs<br>Diversification (geographic & prop. type)<br>Management Strategies<br>Alternate investment vehicles   |
|                                 |  | Investment Strategy Formulation |   |
|                                 |  | Acquisition Negotiation         |   |
|                                 |  | Sale & Debt Packaging           |   |
|                                 | Property Management & Analysis   | Property Search & Evaluation    | Formulation of Search Methodology Re:<br>Comparison/Selection of Markets<br>Identification/Solicitation of available properties<br>Contact with Owners and/or Brokers<br>Determination of Market Preference Points (Cap rates, cash-on cash returns, expense ratios, and market trends)<br>Approximation of Value to Buyer<br>Determination of Upside Potential |
|                                 |  | Buyer Identification            |   |
|                                 | Management Assistance  | Management Analysis & Planning  |   |

## EXHIBIT 2

4

FEASIBILITY ASSIGNMENT AND ACCOUNTABILITY WORKSHEET  
 XYZ APPRAISAL COMPANY  
 XXX STREET ANYWHERE, U.S.A.

Name of Client: \_\_\_\_\_ Date: \_\_\_\_\_

Assignment Description: \_\_\_\_\_

| FEASIBILITY INPUT   | PROVIDED<br>BY | APPROVED<br>BY | SEQUENCE AND<br>DATE AVAILABLE |
|---|----------------|----------------|--------------------------------|
| 1. Definition of questions and strategic objectives               |                |                |                                |
| 2. Definition of success criterion                                |                |                |                                |
| 3. Ranking of criteria by priority                                |                |                |                                |
| 4. Definition of specific site                                    |                |                |                                |
| 5. Definition of market opportunity                               |                |                |                                |
| 6. Space user profile   |                |                |                                |
| 7. Space consumer preference survey                               |                |                |                                |
| 8. Space product definition                                       |                |                |                                |
| 9. Aggregate and market forecast and absorption rate              |                |                |                                |
| 10. Merchandising capture rate by product mix                     |                |                |                                |
| 11. Legal and political constraints assumed for user and investor |                |                |                                |
| 12. Site constraints and site development plan                    |                |                |                                |
| 13. Architectural constraints and plans                           |                |                |                                |
| 14. Environmental impact assumptions                              |                |                |                                |
| 15. School district impact assumption                             |                |                |                                |
| 16. Municipal infrastructure and revenue impact                   |                |                |                                |
| 17. Aesthetic and social impact                                   |                |                |                                |
| 18. Land cost assumptions   |                |                |                                |
| 19. Improvement cost assumptions                                  |                |                |                                |
| 20. Indirect cost assumptions                                     |                |                |                                |
| 21. Operational cash-flow budget assumptions                      |                |                |                                |
| 22. Income tax liability assumptions                              |                |                |                                |
| 23. Financing and refinancing assumption                          |                |                |                                |
| 24. Other   |                |                |                                |

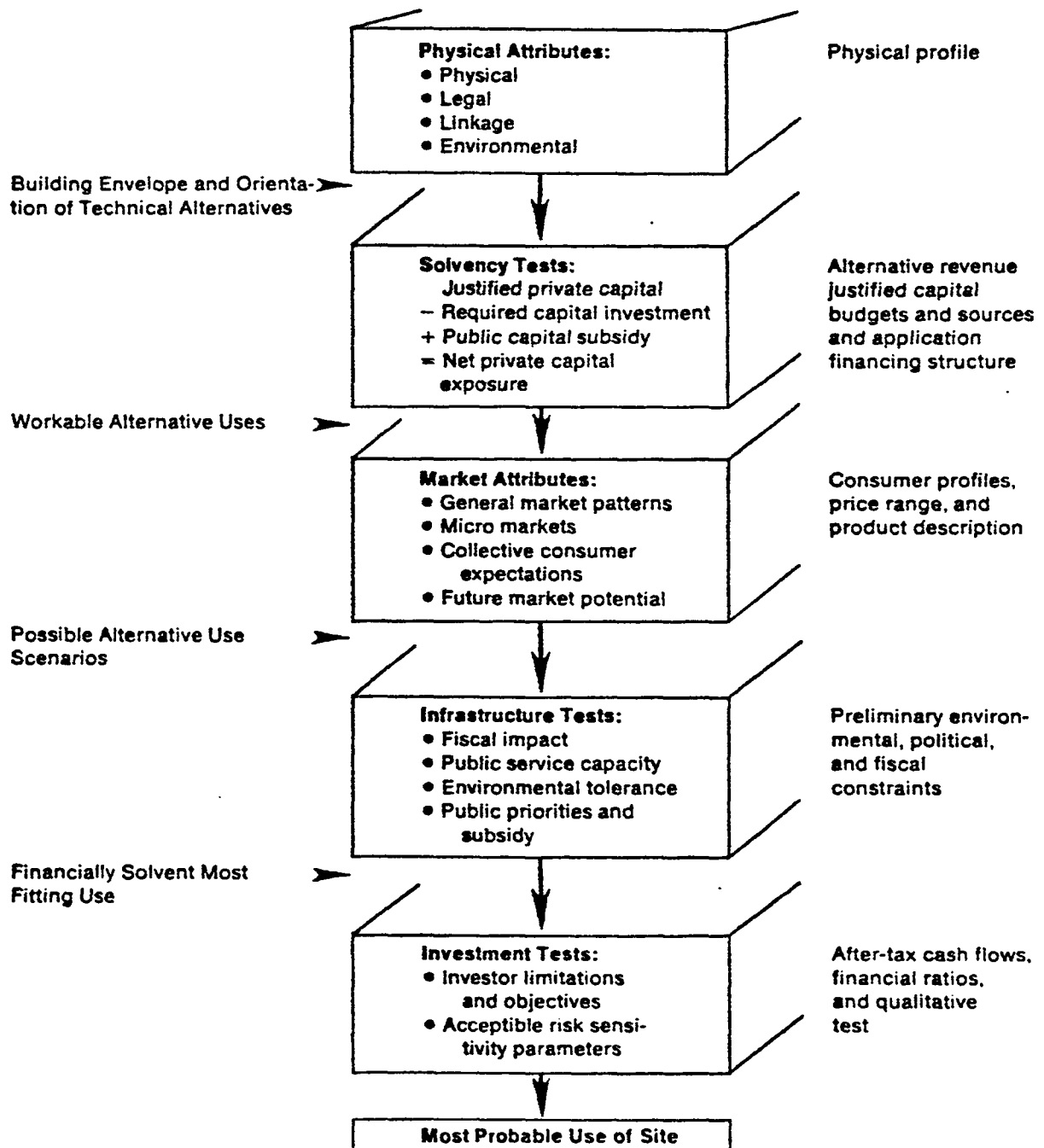
Accepted by Client \_\_\_\_\_  
 (Date)

Worksheet suggested in part by John Rasmussen, Feasibility Research Group,  
 210 Michigan Theater Building, Ann Arbor, Michigan 48108.

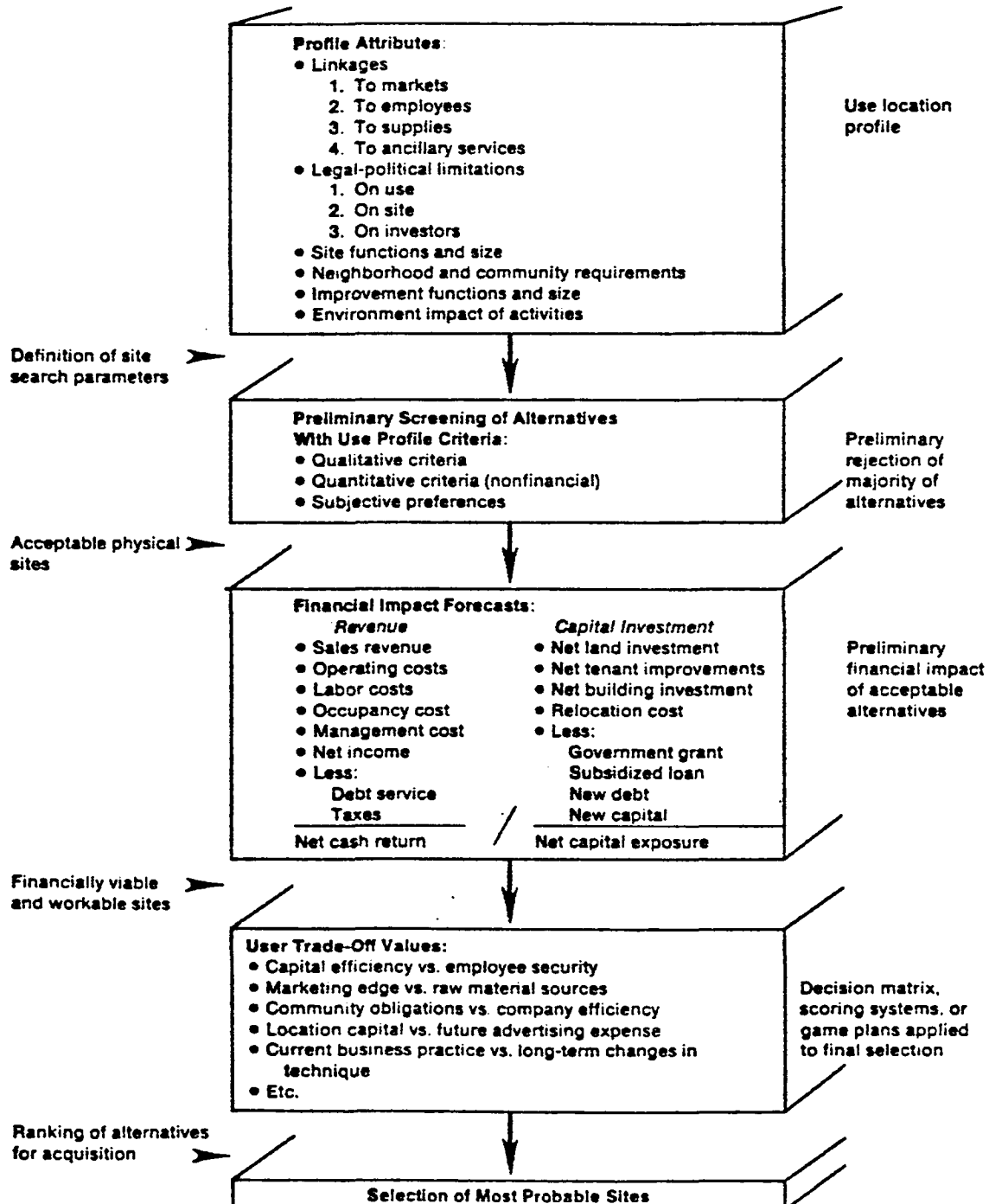
3. A useful technique is always to reverse the question or place it in some hierarchy of values.
    - a. For industrial real estate assume that working capital is preferable to fixed assets. Therefore,
    - b. Own no real estate - shift real estate problems by purchasing procedures.
    - c. If you can't shift space needs, lease short term
    - d. If you want the option of long term leases, negotiate a long term lease for rental discount and then give back part of the discount if you cancel under a change of conditions clause.
    - e. Own or build only as last resort
  4. One creative think system recommends conversion of new problem by analogy to old format; retail location is useful for any multi-tenant space just as commodity terms made describe a mortgage. Familiar problems may need a purge of conventional answers by conversion to strange analogies.
- G. Another way of understanding the problem is to relate it to scope of services you can offer, as in Exhibit 1, or the ideal way to approach a solution for the client. For example:
1. It is preferred to identify locational need and use requirements of a user before searching for a specific site. (See Exhibit 3.)
  2. If the site is already owned by a specific client, it is then necessary to adapt the use to the specific limitations of the site. (See Exhibit 4))
  3. In the absence of a site in search of a use or a use in search of a site, the problem is to search for an investment opportunity in real estate. (See Exhibit 5.)
  4. Limitations of a site owned may require the consultant to solve both a disposition and an acquisition problem.
- H. Definition of a report medium and viewpoint of an intended audience is critical in the early stages of defining the assignment.
- I. In distinguishing between judgment and assumptions, the analyst may need to be an expert on experts, helping to select members of a team of specialists under the control of a generalist.

## EXHIBIT 3

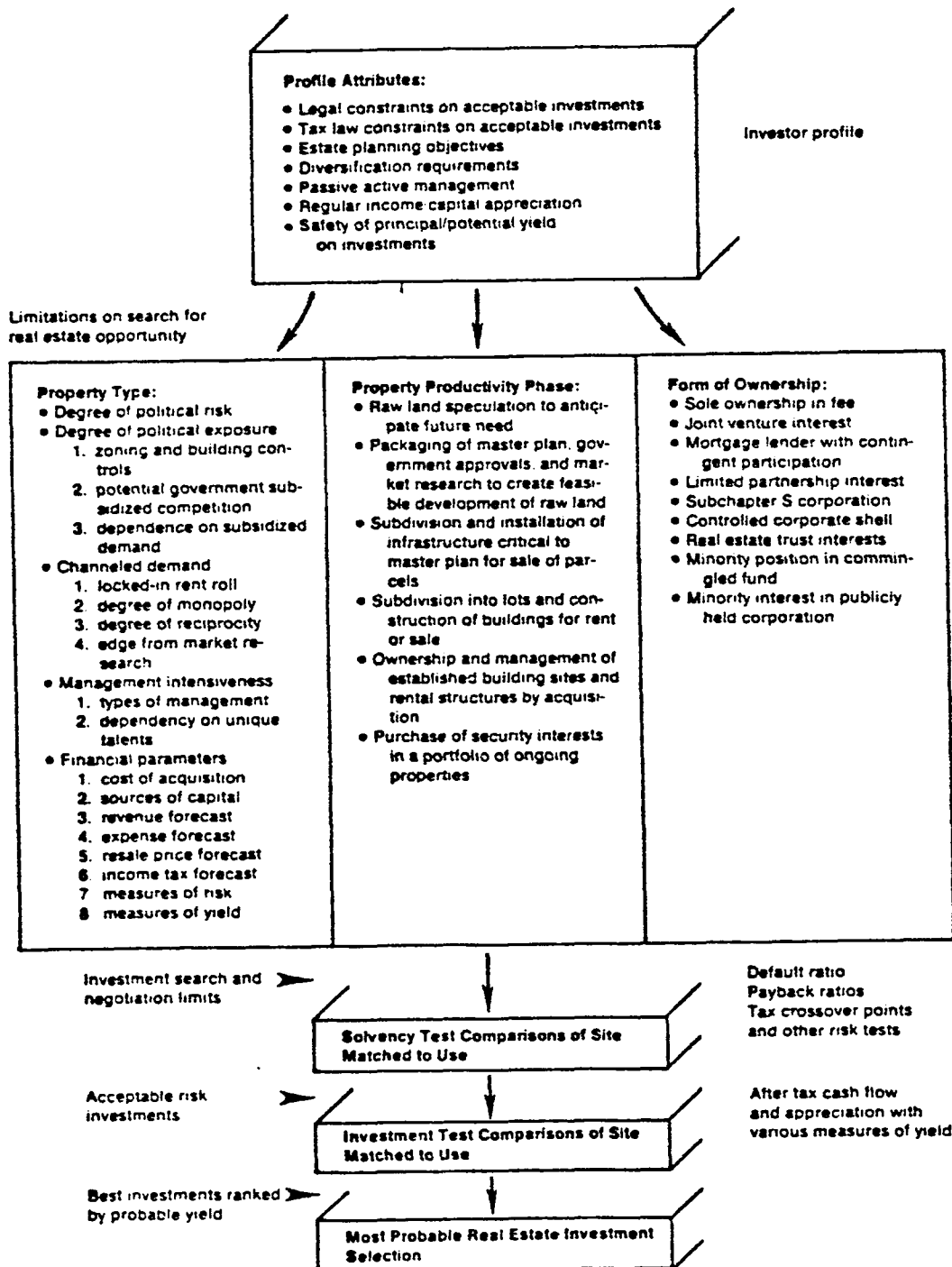
## Analysis Process: In Search of a Use(s) For a Site



### Analysis Process: The Search For a Site For a Use(s)



# Process for Investor Selection of Real Estate





## REAL ESTATE FEASIBILITY

Presented By

Professor James A. Graaskamp, Ph.D., CRE, SREA  
University of Wisconsin School of Business

FOURTH HOUR

### ANALYSIS OF LAND AND IMPROVEMENTS

#### I. BASIC CONCEPTS

Site analysis begins with a specific site and structures or stems from the market revenue approach as a set of site specifications which will control the search for alternatives. Today there is no such thing as raw land or a vacant lot. A site suitability study recognizes every site as having:

- A. Static attributes--physical characteristics of size, shape, topography, soils, etc.
- B. Legal attributes--public controls, private agreements, and potential legislation defining use.
- C. Linkage attributes--relationships to other sites which may tend to generate movements of goods and people to the subject site.
- D. Dynamic attributes--characteristics which affect behavior such as visibility, prestige, or feeling of fear or anxiety.
- E. Environmental impact attributes on physical, social, or economic factors both on and off the site.

#### II. PHYSICAL ATTRIBUTES

Static site attributes which begin to narrow the potential market alternative uses should include both the facts and their implications for productive use in such topic areas as:

- A. Size, shape, and lot area
- B. Topography, soils, geology, slope stability, bearing capacity, septic suitability, potential for subsidence, etc.
- C. Water table, wells, streams, ponds, storm water swales, shoreland edges, bulkhead lines, flood plain designations, etc.
- D. Flora and fauna which enhance marketability or which might cause environmental impact litigation.
- E. Concealed utility easements, old foundations, etc.
- F. Existing on-site utility services and capacity.
- G. Access points to public thoroughfares or private right-of-ways.
- H. Site improvements such as paving, retaining walls, pedestrian paths, culverts, etc.
- I. Landmark attributes or historical site features
- J. Define physical system sub-systems
  - 1. Foundation system
  - 2. Structural system
  - 3. Floor system
  - 4. Ceiling system
  - 5. Roof system
  - 6. Exterior wall system
  - 7. Interior wall system
  - 8. Horizontal circulation system
  - 9. Vertical circulation system
  - 10. Life-safety system
  - 11. HVAC system
  - 12. Site circulation system
  - 13. Social control system

### III. LEGAL ATTRIBUTES

Legal attributes should move from specific limitations on the site imposed by rights of others to private covenants, private controls, etc. It is important to recognize not only the black letter law but the composition of those authorities who have discretionary responsibility for interpretation, enforcement, or amendment of these controls relative to future uses of the site.

- A. Legal interests, vested or continued of other persons in the site.
- B. Legal description, its accuracy, and implied transfers.
- C. All local ordinances defining alternative setback lines and height limitations in order to identify alternative building envelopes permissible on the site.
- D. Private covenants limiting use, reuse, or modification of the property (urban renewal covenants, landmark building facade bequests, etc.)
- E. Applicable zoning and building code limitations on use and the critical constraints of each relative to floor area ratio (FAR) bulk, parking requirements, dwelling units (DU), etc.
- F. Special zoning options which may be available at owner's option such as rezoning, down-zoning, PUD zoning, etc.
- G. Special controls imposed by other communities through extra-territorial zoning, tax conservancy commitments, urban renewal districts, tax increment districts, county regulation of subdivision, and overlapping jurisdiction.
- H. Special state constraints on uses affecting shorelands, state highways, state airports, etc., including state industrial building codes.

- I. Special federal constraints such as airport approach zone districts, harbor and river commissions, office of environmental protection, Department of Housing and Development (HUD), provisions for the handicapped (HEW), and many more.
- J. Since the building process takes time, impending legislation is important, and regulations require interpretation or public hearings so that public attitudes and expectations may modify black letter law.
- K. A hidden source of regulation are the rules which control the lending institutions which lend the money. For example, they cannot lend on any properties located in a designated flood plain except under certain conditions which include community participation in flood prevention programs.
- L. Attitudes of sewer, water, and highway commissions.
- M. Planner's views of physical barriers to restrict "sprawl".
- N. Following the legal attribute inventory, an analysis of the static and legal attributes should be summarized in terms of competitive advantages and disadvantages for costs, pricing, and marketing.
  - 1. Some attributes lead to higher cost which the front door approach may reveal as leading to excessive rents or prices.
  - 2. Some static or legal attributes can provide monopoly advantages because its suitability is unique relative to lands all around it, because of exemption from certain regulations, or existing approvals of development plans, including licenses for dredging, building code variances, etc.
  - 3. Static attributes will also help identify "best use" or the most probable buyer.
  - 4. Lack of fit between static site attributes and merchandising data is a basic cause of unsuccessful projects.

#### IV. LINKAGES

Linkage attributes have to do with functional network relationships or points of interaction with activity centers which may generate users or provide the infrastructure which support the site.

- A. Streets, sidewalks, rail, and transit systems serving the site.
- B. Access points.
- C. Utility services are linkages, too.
- D. Capacity of existing systems to absorb unit volume generated on site and implications for off-site improvements budgets.
- E. Relationship of subject site to generators of potential needs and uses for the subject site.
- F. Neighborhood demographics (population, age, employment, income, etc.)
- G. Relationship to competitive alternatives and projects and exposure to interception of linkages.

#### V. DYNAMIC ATTRIBUTES

Dynamic attributes have to do with the mental or emotional responses which a site or project stimulates as it affects decision-making behavior. These decision makers may be property buyer, regulators of site use, customers of establishments located on the site, or peer groups which set community attributes or make decisions for others by proxy (Board of Elderly Care Organization).

- A. Image conditioning of the approach zone.
- B. Visual factors in terms of prominence of the site, views from the site, potential for controlled sight lines, etc.
- C. Anxiety factors of access and security.

- D. Noise as a function of traffic count or of nearby land uses.
- E. Prevailing air currents and airborne pollution (phosphate plants or sulphite paper mills, for example).
- F. Political images established for a site by the public positions of local politicians or vested interest groups.
- G. Historical community reputation and values attached to the project site and structures.
  - 1. Recycling of old buildings within existing urban areas is fashionable among architects and the upper class.
  - 2. Recycling may establish historical roots and images.
- H. Perceived supply and demand factors.

## VI. OFF-SITE ENVIRONMENTAL IMPACTS

The real estate product today must respond not only to the needs of the individual consumer in the market place but to the collective community of consumers which represent the community political environment. The landscape builds like a reef, the cumulative bones of thousands of individual decisions. This decade will witness a final transition from relative laissez-faire attitudes of land as a commodity to highly democratic regulation of land as a public resource and land use as a privilege granted by the public. If the proposal won't sell at City Hall, there will be no opportunity to market the product to individuals. Therefore, the project must consider in its feasibility procedures and in constraints imposed by pre-architectural programs the impact on the environment of:

- A. Physical factors of the environment.
  - 1. Soil stability and water tables beyond the site boundaries.
  - 2. Eutrophication of lakes and streams.

3. Disruption of environmental edges, plant, and wildlife areas.
  4. Impact on energy resources.
  5. Contribution to social disintegration.
  6. Aesthetic and urban design.
- B. Social factors of the environment.
1. Displacement of existing residents and neighborhood units.
  2. Contribution to social integration or mobility barriers.
  3. Contribution to land use heterogeneity.
  4. Contribution to regional and community master plans.
- C. Economic factors of the environment.
1. Direct impact on real estate tax revenues.
  2. Direct impact on other governmental revenue.
  3. Direct impact on incremental government.
  4. Secondary contributions to local government revenues.
  5. Secondary cost burdens created for local communities.
- D. Real estate business ethic environment.
1. Impact on supply equilibrium.
  2. Impact on associated contractors.
  3. Impact on families of project sponsor.
  4. Legitimacy of financing structure.

- E. Silhouette of proposed project in terms of public perception of impact.
- F. Relationship of impact assessment to:
  - 1. Scale of project.
  - 2. Vulnerability of project sponsor to secondary consequences of political discretion.
  - 3. Stamina of project sponsor in the face of public pressure.

## VII. MOST PROBABLE USE MATRIX

Definition of the site attributes permits the appraiser or the planner to hypothesize some alternative uses for the site. (Exhibit 1.) The appraiser should be able to set up a series of back door, revenue to justified budget parameters for these uses to suggest the parameters within which cash flows might crunch.

This technique is not unlike the residual approach, it has the same potential for misleading, but when combined with a sensitivity approach, does identify the conditions critical for financial solvency.



# FEASIBILITY OF ALTERNATIVE USES

|   | <u>Scenario 1</u>  | <u>Scenario 2</u>  | <u>Scenario 3</u>   | <u>Scenario 4</u>  | <u>Scenario 5</u>  | <u>Scenario 6</u>   |
|---|--|--|---|--|--|---|
| <u>Feasibility Factor</u>   | <u>Return to Former Use</u>  | <u>Purchase by Welfare Agency</u>  | <u>Conversion to Class B/C Office</u>   | <u>Conversion to Apartments with Office on 1st Floor</u>   | <u>Conversion to Apartments with Existing Bar</u>  | <u>Demolition and Sale of Site</u>  |
| Market Demand Risks   | Demand very elastic relative to price unless room rates subsidized by welfare agencies   | Welfare agencies lack capital resources to purchase and remodel facilities, given the absence of government funding                              | Office market becoming more price sensitive; would not accept neighborhood and lack of parking unless rents were lower than necessary to support remodeling | Strong demand for spacious two bedroom units in CRD area   | Though there is a strong demand for affordable downtown housing, consumer survey shows tenant reluctance to live above noisy/potentially malodorous bar-restaurant | Soft market for vacant sites which cannot be assembled into larger plot-tage; parking revenues from 20 spaces inadequate to carry clearance costs |
| Legal/Political Acceptability                                     | Inconsistent with long term City goals for Olin Place  | Mixed acceptability as interim use as housing for transient males by some groups; favored by welfare advocates and disfavored by local residents | Neighborhood resistance to increased demand for street parking  | Preferred use, given need for downtown housing and political statements by alderpersons for reduction of bar business in residential neighborhoods | Preferred use for housing is compromised by existing bar management agreement  | Inconsistent with constituency favoring landmark designation  |
| Technical Construction Problems and Capital Cost Risks            | Failure to repair within one year may have jeopardized grandfathered non-conforming building conditions. Otherwise this use has lowest construction risks of Scenarios 1 through 5 | Capital costs of renovation to state standards excessive for short term use  | Variance needed for parking requirement of 1 stall per 300 SF to 1 stall per 2,500 SF of office space   | Spacious apartments with views provide favorable rent/cost per SF ratio--housing code creates more remodeling risk than commercial code            | Apartment mix cheapened by retaining existing bar operation--smaller units require more plumbing and bring less favorable rent/cost per SF ratio                   | None  |
| Relative Investment Power Based Upon Revenue Generation Potential | \$192,765  | \$120,380  | \$80,331 -  | \$103,220  | (\$10,513)   | \$13,778  |
| Special Income Tax Advantages or Public Subsidies Available       | None   | None   | Rehabilitation tax credit of 20% for older commercial building conversion plus possible industrial bond financing   | Possible historic landmark status for 25% rehabilitation tax credit plus tax incremental financing (TIF) assistance                                | Possible historic landmark status for 25% rehabilitation tax credit. TIF less likely because increase in tax is smaller  | None  |
| Real Estate Tax Consequences to City                              | Modest increase in assessed value  | Loss of \$194,300 tax base with tax-exempt agency as owner   | Real estate tax base would be multiplied approximately 3 times the present assessment   | Real estate tax base would be multiplied approximately 3 1/2 times the present assessment  | Real estate tax base would be multiplied approximately 2 1/2 times the present assessment  | Loss of approximately \$140,000 of tax base   |

## REAL ESTATE FEASIBILITY

Presented By

Professor James A. Graaskamp, Ph.D., CRE, SREA  
University of Wisconsin School of Business

FIFTH HOUR

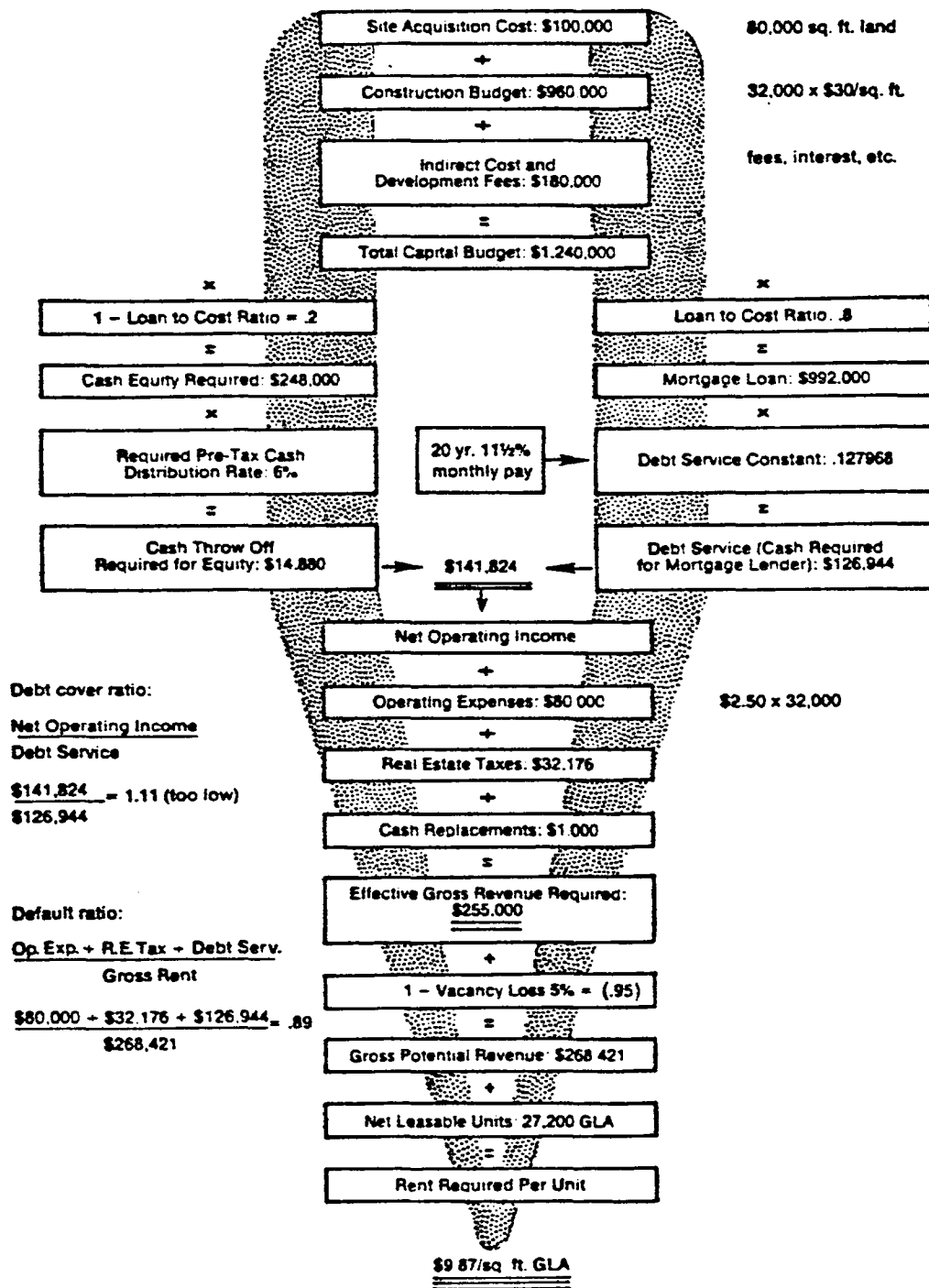
### I. FINANCIAL PARAMETERS AND ANALYSIS

The forecasting of future money returns to a present investment is the ultimate business problem and the dynamics of these problems explains the actions of consumer, producer, and the society.

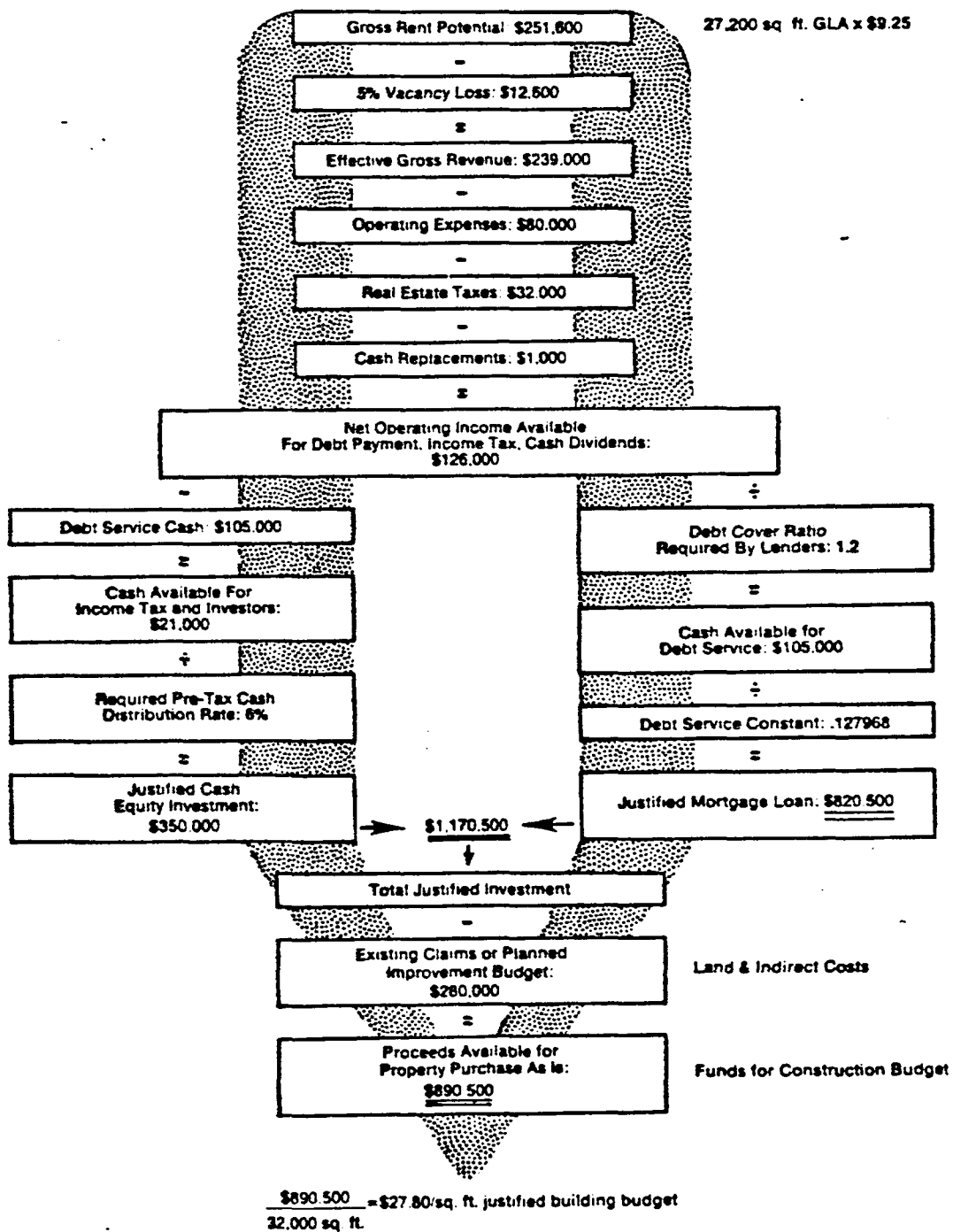
- A. An investment in a bond can be defined as to when it begins in time, when it is sold, when coupons are collectible, and total costs and total receipts under alternative outcomes. Thus, yield is easily computed and risk depends on whether you can rely on the promisor.
- B. Real estate financial forecasting seldom enjoys such a rigid set of financial specifications and therefore seldom enjoys conservative conditions of certainty. An investment in real estate really means somebody "bought" a set of assumptions.
  - 1. Risk is the potential variance between assumptions and realizations between proforma prospects and the historical balance sheet and P & L statements.
  - 2. Degree of professionalism is measured, ultimately, by the care with which assumptions are made and supported by careful research.
- C. Basic cash flow analysis depends on four essential set of assumptions:
  - 1. Schedule of cash outlays (capital costs and expenses.)
  - 2. Schedule of cash receipts (periodic and reversions).
  - 3. Net cash flows for each period (negative and positive).
  - 4. Devices for comparison of alternatives

5. However, it quickly becomes apparent when accounting for the dollars "in and out" that not all dollars are the same. Some are current expenses while others represent acquisition of assets and many are shared with local and federal government through various tax processes.
- D. A single period proforma is the first test of financial parameters.
1. A given purchase price can be converted to a necessary rent level in the market (Front Door Approach, see Exhibit 1).
  2. A given market rent level can be converted to a justified capital budget (Back Door Approach, see Exhibit 2).
  3. While lenders prefer debt cover ratios for back door approach, equity investors should prefer risk orientated Default Ratio Approach (Exhibit 3).
- E. Basic elements of proforma can then be expanded over time to include the following assumptions:
1. Definition of desired profit centers
  2. Definition of time line over which events will still take place
  3. Assumptions on the capital budget and sequence of source and application of funds.
    - a. Direct construction or purchase cost
    - b. Indirect and capitalized carrying cost
  4. Financial plan
    - a. Credit amounts and terms
    - b. Equity amounts and terms
    - c. Holding power

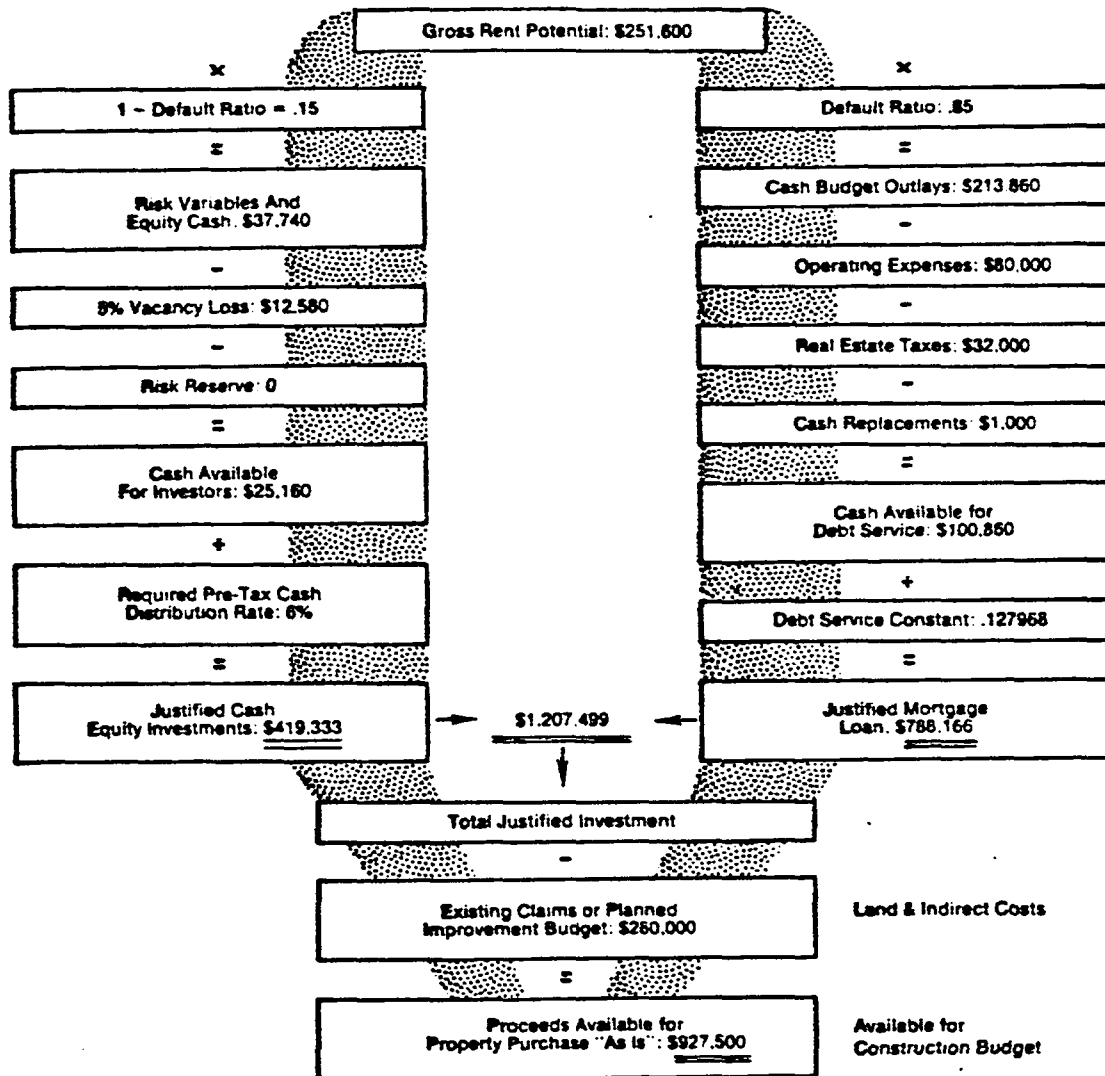
### Loan to Cost Ratio Approach (Frontdoor Approach)



**Debt Cover Ratio Approach  
(A Backdoor Approach)  
Lender's Point of View**



**Default Ratio Approach  
(Another Backdoor Approach)  
Developer's Point of View**



\$37/sq. ft. of gross area for justified building budget

5. Profits classified as to type and tax
    - a. Cash from operations
    - b. Cash from capital gains
    - c. Cash surplus from financing
    - d. Cash from tax savings on other income
  6. Selected measures of profitability
    - a. Definition of investment
    - b. Definition of profit
    - c. Selected ratios of profit to investment
  7. Selected measures of risk
    - a. Payback periods
    - b. Capacity for variance
    - c. Variance controls
- F. For a rental investment property, the general format for determining after-tax cash flows for each period or year would generally be as follows:

PART I. ANNUAL (PERIODIC) RETURNS TO INVESTORS

1. Estimate potential gross cash income; Cash income from space sales
2. Deductions from potential gross
  - a. Normal vacancy
  - b. Seasonal income loss
  - c. Collection losses
  - d. Franchise fees, deposits returned, etc.
3. Add "other" income from service sales
4. Derive effective gross income
5. Deduct operating expenses (on expected cash outlay without accrual reserves)
  - a. Fixed expenses
  - b. Variable expenses
  - c. Repairs and maintenance
  - d. Replacements

6. Derive net\_operating\_income (NOI)
7. Deduct annual\_debt\_service
  - a. Contract interest
  - b. Supplementary variable interest
  - c. Principal amortization
8. Derive cash\_throw-off
9. Add back principal\_payments\_and\_replacements
10. Deduct tax\_depreciation\_allowance
11. Derive taxable\_income
12. Determine marginal\_income\_tax on real estate income
13. Deduct income tax from cash throw-off (H)
14. Derive after-tax\_cash\_flow
15. Add tax\_savings\_on\_other\_income (if K is negative)
16. Add surplus\_from\_refinancing
17. Derive spendable\_after-tax\_cash

## PART II. RESALE (REVERSION) RETURNS TO INVESTOR

1. Estimated\_resale\_price (end of period)
2. Deduct broker's commission and other transaction\_costs
3. Derive effective\_gross\_proceeds from sale



4. Deduct all credit claims outstanding (end of period)
  - a. Short and long term note balances due
  - b. Prepayment penalties
  - c. Deduct equity shares to non-owner interest
5. Derive pre-tax reversion to equity
6. Deduct tax claims on ownership interest
  - a. Deduct capital gains tax
  - b. Deduct income tax on disallowed accelerated depreciation
  - c. Deduct surtax on taxable preferential income
7. Derive after-tax resale proceeds to investor

(See Exhibit 4)

- G. Financial risk is the variance between proforma budgets and historical accounting of results. Since loss of assets or of income expectations from static perils can be minimized by means of insurance devices for prediction and leveling of shock losses, financial risk management then becomes a matter of shaping incentives to reduce dynamic risks and provide a cushion or tolerance for surprise in the financial parameters of the enterprise.
- H. The first level of risk analysis are gross statements of the maximum potential loss and the cushion for partial losses.
  1. The loan to value ratio is an inexact measure of the maximum potential loss to the lender to a presumed salvage value of an asset. One minus the LTV plus the amount of personal guarantee is the measure of the borrower's maximum potential loss.
  2. Financial judgment expects that the maximum potential loss would be only a fraction of net worth of either party.

P R O F O R M A  
INVESTMENT ANALYSIS OF

FOR  
DEMO.PROBLEM

R E P O R T   S E C T I O N   N U M B E R   1                      P A G E   1  
=====

|                   |            |                                |            |
|-------------------|------------|--------------------------------|------------|
| * GROSS RENT      | \$ 74368.  | * RATE OF GROWTH OF GROSS RENT | 0.0000     |
| * EXPENSES        | \$ 4738.   | * RATE OF GROWTH OF EXPENSES   | 0.0000     |
| * R E TAXES       | \$ 5868.   | * RATE OF GROWTH OF R E TAXES  | 0.0000     |
| * INCOME TAX RATE | 0.5000     | PROJECT VALUE GROWTH OF        | 5.0000     |
| * VACANCY RATE    | 0.0688     | WORKING CAPITAL LOAN RATE      | 0.1200     |
| EQUITY DISCOUNT   | 0.0970     | EXTRAORDINARY EXPENSES         | \$ 0.      |
| RESALE COST       | 0.0650     | REINVESTMENT RATE              | 0.0700     |
| WKG CAPITAL RS    | \$ 0.      | CAPITAL RESER INTEREST RATE    | 0.0000     |
| INITIAL COST      | \$ 429674. | INITIAL EQUITY REQUIRED        | \$ 107419. |

ALL '\*' VALUES ARE AVERAGE AMOUNTS FOR HOLDING PERIOD. OF 5 YRS.

R E P O R T   S E C T I O N   N U M B E R   2                      P A G E   1  
=====

C O M P O N E N T   S U M M A R Y

| TITLE        | PCT.<br>DEPR | BEGIN<br>USE | USEFUL<br>LIFE | DEPR<br>METHOD | COST       | SCH |
|--------------|--------------|--------------|----------------|----------------|------------|-----|
| LAND         | 0.00         | 1            | 0.             | 0              | \$ 87304.  | 0   |
| IMPROVEMENTS | 0.90         | 1            | 33.            | 4              | \$ 342370. | 0   |

M O R T G A G E   S U M M A R Y

| TITLE          | INTR<br>RATE | BEGIN<br>YR. | END<br>YR. | TERM | ORIG<br>BALC | PCT<br>VALUE |
|----------------|--------------|--------------|------------|------|--------------|--------------|
| FIRST MORTGAGE | 0.0942       | 1            | 27         | 27   | \$ 322254    | 0.750        |

P R O F O R M A  
INVESTMENT ANALYSIS OF  
  
FOR  
  
DENO.PROBLEM

R E P O R T   S E C T I O N   N U M B E R   3  
=====

PAGE 1

CASH FLOW ANALYSIS

|                                | 1979   | 1980   | 1981   | 1982   |
|--------------------------------|--------|--------|--------|--------|
| 1 GROSS RENT                   | 74368. | 74368. | 74368. | 74368. |
| 2 LESS VACANCY                 | 5114.  | 5114.  | 5114.  | 5114.  |
| 3 LESS REAL ESTATE TAXES       | 5868.  | 5868.  | 5868.  | 5868.  |
| 4 LESS EXPENSES                | 4738.  | 4738.  | 4738.  | 4738.  |
| 5 NET INCOME                   | 58648. | 58648. | 58648. | 58648. |
| 6 LESS DEPRECIATION            | 15562. | 14855. | 14180. | 13535. |
| 7 LESS INTEREST                | 30903. | 30638. | 30346. | 30025. |
| 8 TAXABLE INCOME               | 12183. | 13155. | 14122. | 15088. |
| 9 PLUS DEPRECIATION            | 15562. | 14855. | 14180. | 13535. |
| 10 LESS PRINCIPAL PAYMENTS     | 2634.  | 2899.  | 3191.  | 3512.  |
| 11 CASH THROW-OFF              | 25111. | 25111. | 25111. | 25111. |
| 12 LESS TAXES                  | 6091.  | 6578.  | 7061.  | 7544.  |
| 13 LESS RESERVES AT 730.000    | 730.   | 730.   | 730.   | 730.   |
| 14 CASH FROM OPERATIONS        | 18290. | 17803. | 17320. | 16837. |
| 15 WORKING CAPITAL LOAN(CUM B) | 0.     | 0.     | 0.     | 0.     |
| 16 DISTRIBUTABLE CASH AFR TAX  | 18290. | 17803. | 17320. | 16837. |
| 17 TAX SAVING ON OTHER INCOME  | 0.     | 0.     | 0.     | 0.     |
| 18 SPENDABLE CASH AFTER TAXES  | 18290. | 17803. | 17320. | 16837. |

## EXHIBIT 4 (Continued)

REPORT SECTION NUMBER 4

PAGE 1

11

## CASH FLOW ANALYSIS

=====

|                              | 1979    | 1980    | 1981    | 1982    |
|------------------------------|---------|---------|---------|---------|
| MARKET VALUE                 |         |         |         |         |
| 19 BY METHOD - 5 - AT 0.0000 | 429674. | 429674. | 429674. | 429674. |
| 20 LESS RESALE COST          | 27929.  | 27929.  | 27929.  | 27929.  |
| 21 LESS LOAN BALANCES        | 319621. | 316722. | 313531. | 310019. |
| 22 PLUS CUM. CASH RESERVES   | 730.    | 1460.   | 2190.   | 2920.   |
| 23 B/4 TAX NET WORTH         | 82854.  | 86483.  | 90404.  | 94646.  |
| 24 CAPITAL GAIN (IF SOLD)    | -18591. | -9254.  | 83.     | 9421.   |
| 25 CAPITAL GAINS TAX         | -3718.  | -1851.  | 17.     | 1884.   |
| 26 TAX PREFERENCE TAX        | 0.      | 0.      | 0.      | 0.      |
| 27 INCOME TAX ON EXCESS DEP  | 3112.   | 5871.   | 8292.   | 10391.  |
| 28 TOTAL TAX ON SALE         | 1253.   | 4946.   | 8309.   | 12275.  |
| 29 AFTER TAX NET WORTH       | 81601.  | 81537.  | 82095.  | 82370.  |

REPORT SECTION NUMBER 5

PAGE 1

## YEAR OF ANALYSIS

=====

|                                | 1979    | 1980    | 1981    | 1982    |
|--------------------------------|---------|---------|---------|---------|
| BEFORE TAX RATIO ANALYSIS      |         |         |         |         |
| 30 RETURN ON NET WORTH B/4 TAX | 0.0051  | 0.3469  | 0.3357  | 0.3247  |
| 31 CHANGE IN NET WORTH B/4 TAX | -24565. | 3629.   | 3921.   | 4242.   |
| 32 CASH RTN ON ORIG CASH EQUIY | 0.2338  | 0.2338  | 0.2338  | 0.2338  |
| 33 PERCENT ORIG EQUITY PAYBACK | 0.1703  | 0.3360  | 0.4972  | 0.6540  |
| 34 PRESENT VALUE OF PROJECT    | 420678. | 437887. | 453529. | 467748. |

## EXHIBIT 4(Continued)

REPORT SECTION NUMBER 6  
=====

PAGE 1

## YEAR OF ANALYSIS

=====

|  | 1979 | 1980 | 1981 | 1982 |
|--|------|------|------|------|
|--|------|------|------|------|

## AFTER TAX RATIO ANALYSIS

=====

|                                |         |         |         |         |
|--------------------------------|---------|---------|---------|---------|
| 35 RETURN ON NEW WORTH AFT TAX | -0.0701 | 0.2174  | 0.2193  | 0.2084  |
| 36 CHANGE IN NET WORTH AFT TAX | -25818. | -63.    | 558.    | 276.    |
| 37 CASH RTN ON ORIG CASH EQUIY | 0.1703  | 0.1657  | 0.1612  | 0.1567  |
| 38 PERCENT ORIG EQUITY PAYBACK | 0.1703  | 0.3360  | 0.4972  | 0.6540  |
| 39 PRESENT VALUE OF PROJECT    | 413317. | 421485. | 429041. | 435362. |

|                                |        |        |        |        |
|--------------------------------|--------|--------|--------|--------|
| 40 NET INCOME-MARKET VALUE RTO | 0.1365 | 0.1365 | 0.1365 | 0.1365 |
| 41 LENDER BONUS INTEREST RATE  | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 42 DEFAULT RATIO               | 0.5936 | 0.5936 | 0.5936 | 0.5936 |

REPORT SECTION NUMBER 7  
=====

PAGE 1

## YEAR OF ANALYSIS

=====

|  | 1979 | 1980 | 1981 | 1982 |
|--|------|------|------|------|
|--|------|------|------|------|

## MODIFIED INTERNAL RATE OF RETURN ANALYSIS

=====

## RETURN ANALYSIS WITHOUT SALE

=====

|                                |         |         |         |         |
|--------------------------------|---------|---------|---------|---------|
| 41 CUM. AFT TAX SPENDABLE CASH | 18290.  | 37373.  | 57309.  | 78158.  |
| 44 MOD. I.R.R. ON ORIG EQUITY  | -0.8297 | -0.4102 | -0.1889 | -0.0764 |
| 45 MOD. I.R.R. ON CUM. EQUITY  | -0.8297 | -0.4102 | -0.1889 | -0.0764 |

## RETURN ANALYSIS WITH SALE

=====

|                               |         |        |        |        |
|-------------------------------|---------|--------|--------|--------|
| 46 CUM. CASH LESS ORIG EQUITY | -7528.  | 11492. | 31985. | 53110. |
| 47 CUM. CASH LESS CUM. EQUITY | -7528.  | 11492. | 31985. | 53110. |
| 48 MOD I.R.R. ON ORIG EQUITY  | -0.0701 | 0.0521 | 0.0908 | 0.1057 |
| 49 MOD I.R.R. ON CUM. EQUITY  | -0.0701 | 0.0521 | 0.0908 | 0.1057 |

## R E P O R T     S E C T I O N

=====

## SENSITIVITY ANALYSIS

=====

ANALYSIS YEAR IS    2 = 1980

|                         |        |        |        |        |
|-------------------------|--------|--------|--------|--------|
| DEFAULT RATE - NEEDED - | 0.8300 | 0.8300 | 0.8300 | 0.8300 |
| DEFAULT RATE - ACTUAL - | 0.7979 | 0.7979 | 0.7979 | 0.7979 |
| DIFFER -                | 0.0321 | 0.0321 | 0.0321 | 0.0321 |

TO CHANGE THE DEFAULT RATE .01  
CHANGE ANY ONE OF THE FOLLOWING

|              |      |      |      |      |
|--------------|------|------|------|------|
| CASH OUTLAYS | 1979 | 1980 | 1981 | 1982 |
| =====        |      |      |      |      |

|                       |    |         |         |         |         |
|-----------------------|----|---------|---------|---------|---------|
| REAL ESTATE TAXES     | BY | 0.0917  | 0.0917  | 0.0917  | 0.0917  |
| TOTAL EXPENSES        | BY | 0.1135  | 0.1135  | 0.1135  | 0.1135  |
| FIXED EXPENSES        | BY | 0.1135  | 0.1135  | 0.1135  | 0.1135  |
| VARIABLE EXPENSES     | BY | 0.0000  | 0.0000  | 0.0000  | 0.0000  |
| TOTAL INTEREST PNTS.  | BY | 0.0181  | 0.0182  | 0.0184  | 0.0186  |
| TOTAL PRINCIPAL PNTS. | BY | 0.2119  | 0.1926  | 0.1750  | 0.1590  |
| WORKING CAPITAL LOAN  | BY | 0.0000  | 0.0000  | 0.0000  | 0.0000  |
| GROSS INCOME          | BY | -0.0080 | -0.0080 | -0.0080 | -0.0080 |
| FIXED INCOME          | BY | -0.0080 | -0.0080 | -0.0080 | -0.0080 |
| VARIABLE INCOME       | BY | 0.0000  | 0.0000  | 0.0000  | 0.0000  |

## COMPONENTS

=====

|                      |      |         |         |         |         |
|----------------------|------|---------|---------|---------|---------|
|                      | 1979 | 1980    | 1981    | 1982    |         |
| INITIAL INVESTMENT   | BY   | 0.0917  | 0.0917  | 0.0917  | 0.0917  |
| LAND                 | BY   | 0.4452  | 0.4452  | 0.4452  | 0.4452  |
| IMPROVEMENTS         | BY   | 0.1033  | 0.1033  | 0.1033  | 0.1033  |
| ENTREPRENEURIAL SKIL | BY   | -0.9866 | -0.9866 | -0.9866 | -0.9866 |

## MORTGAGES

=====

|                |      |        |        |        |        |
|----------------|------|--------|--------|--------|--------|
|                | 1979 | 1980   | 1981   | 1982   |        |
| FIRST MORTGAGE | BY   | 0.0166 | 0.0166 | 0.0166 | 0.0166 |

## EXHIBIT 4 (Continued)

## REPORT SECTION

=====

## SENSITIVITY ANALYSIS

=====

ANALYSIS YEAR IS 2 = 1980

TO CHANGE CASH RETURN BEFORE TAXES BY 1000.  
 CHANGE ANY ONE OF THE FOLLOWING

| CASH OUTLAYS          |    | 1979   | 1980   | 1981   | 1982   |
|-----------------------|----|--------|--------|--------|--------|
| REAL ESTATE TAXES     | BY | 0.0415 | 0.0415 | 0.0415 | 0.0415 |
| TOTAL EXPENSES        | BY | 0.0514 | 0.0514 | 0.0514 | 0.0514 |
| FIXED EXPENSES        | BY | 0.0514 | 0.0514 | 0.0514 | 0.0514 |
| VARIABLE EXPENSES     | BY | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| TOTAL INTEREST PNTS.  | BY | 0.0082 | 0.0082 | 0.0083 | 0.0084 |
| TOTAL PRINCIPAL PNTS. | BY | 0.0960 | 0.0872 | 0.0792 | 0.0720 |
| WORKING CAPITAL LOAN  | BY | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| GROSS INCOME          | BY | 0.0045 | 0.0045 | 0.0045 | 0.0045 |
| FIXED INCOME          | BY | 0.0045 | 0.0045 | 0.0045 | 0.0045 |
| VARIABLE INCOME       | BY | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

| COMPONENTS           |    | 1979    | 1980    | 1981    | 1982    |
|----------------------|----|---------|---------|---------|---------|
| INITIAL INVESTMENT   | BY | 0.0415  | 0.0415  | 0.0415  | 0.0415  |
| LAND                 | BY | 0.2015  | 0.2015  | 0.2015  | 0.2015  |
| IMPROVEMENTS         | BY | 0.0468  | 0.0468  | 0.0468  | 0.0468  |
| ENTREPRENEURIAL SKIL | BY | -0.4466 | -0.4466 | -0.4466 | -0.4466 |

| MORTGAGES      |    | 1979   | 1980   | 1981   | 1982   |
|----------------|----|--------|--------|--------|--------|
| FIRST MORTGAGE | BY | 0.0075 | 0.0075 | 0.0075 | 0.0075 |

3. Conventional wisdom of the lender is that the pain of loss for the equity position will be sufficient to generate payment in almost all events or that the guarantees will be adequate to reduce minimum loss to zero.

4. Net income ratio:

$$\frac{\text{Net income}}{\text{Purchase price} + \text{additional cost} - \text{Overall rate or cap rate}} \text{ should reveal danger of reversed leverage}$$

5. The fallacy of such first level, over-simplified regulatory ratios is that value is the same as cash, that paper capital is as significant as cash available to meet the monthly payment, and that investor incentives are found solely or primarily below the net income level.
- I. Second level ratios begin to analyze and measure the relationship of specific assumptions one to another and in a way which provides relative measures of incentive, importance, and contribution to financial insecurity.

1. Construction loan to marginal cash cost of the borrower is such a balance sheet test ratio. The increment in risk of maximum loss for the borrower is the increase in his maximum potential loss as a result of financing the project.

2. Debt cover ratio:

$$\frac{\text{Net operating income}}{\text{Debt service}}$$

3. Default ratio:

$$\frac{\text{Operating expenses} + \text{real estate taxes} + \text{short term debt} + \text{interest} + \text{principal payments}}{\text{Gross rent}}$$



4. Payback ratio:

$$\frac{\text{Cumulative spendable cash}}{\text{Original budget} - \text{original debt} + \text{amount of personal guarantees}}$$

5. Spendable cash = distributable cash from operations + refinancing surplus + tax savings to other income + cash profits for services rendered.

6. All of these second level ratios assume a revenue stream called effective gross rent will simply be reallocated by the natural heirarchy of the income statement. That premise involves the major assumption of any enterprise, i.e., there are an adequate number of customers who prefer and who can afford the enterprise product.

J. Third level risk ratios are those which link the space-time product to the money-time reflections in balance sheets and P & L statements. These ratios require some primary research.

1. Building efficiency ratio:

$$\frac{\text{Gross leasable area}}{\text{Gross building area}} \quad \text{or} \quad \frac{\text{Usable area}}{\text{Gross leasable area}}$$

or

$$\frac{\text{Gross leasable area}}{\text{Total site area}} \quad \text{or} \quad \frac{\text{Rentable area}}{\text{Usable area}}$$

or

$$\frac{\text{Building surface area}}{\text{Gross leasable area}}$$

## 2. Vacancy ratio:

$$\frac{\text{Space unit} \times \# \text{ of units} \times \text{rental payment periods per year} \times \text{turnover rate} \times \text{rental payments lost} \times \text{rent}}{\# \text{ of units} \times \# \text{ of payments} \times \text{rent per period}} = (\text{gross rent})$$

1-bedroom apartments x 20 x 50% turnover  
x 1 month lost x \$200/mo.

$$\frac{20 \times 50\% \times 1 \times 200}{20 \times 12 \times 200}$$

$$\frac{2000}{48000} = \frac{1}{24} = 4.2\%$$

## 3. Absorption rate:

$$\frac{\text{Units sold or leased per period}}{\text{Total supply of units available for sale or lease}}$$

## 4. Capture rate:

$$\frac{\text{Units in specific project sold or leased per period}}{\text{Total competitive units sold or leased per period}}$$

5. Sensitivity models or tables permit measurement of a change in one variable as compared to all other variables to establish the parameters of tolerance or to identify the most useful areas for further modification of the financial structure.

6. A significant weakness of second level ratios is the fact that they do not deal with time or the opportunity costs of money for comparison of investments with alternative patterns of cash outlays and receipts.

K. Third level ratios modify comparisons for the influence of time, between one period and another or for cumulative periods of time. Prospective rates of return compare one time period with another while retrospective rates are concerned

with cumulative results. Probability models display the frequency distribution over time of alternative outcomes when certain variables are permitted to vary according to some pattern and parameter.

#### Prospective rates

1. Return on net worth before tax:

$$\frac{\text{Cash throw-off} + \text{change in net worth}}{\text{Net worth at end of previous period}}$$

2. Return on net worth after tax:

$$\frac{\text{Spendable cash} + (\text{change in net worth} - \text{change in taxes on sale or transfer})}{\text{Net worth at end of previous period} - \text{taxes on sale or transfer}}$$

3. Cash on cash before taxes:

$$\frac{\text{Cash throw-off}}{\text{Total cash budget less original debt}}$$

4. Cash on cash after tax:

$$\frac{\text{Distributable cash} + \text{tax savings to other income}}{\text{Total cash budget less original debt}}$$

#### Retrospective rates

5. Internal rate of return is that rate which makes the net present value difference between the present value of outlays and the present value of receipts equal to zero.
6. The modified internal rate of return (weighted average portfolio return) is the internal rate of return which makes the net present value difference of the outlays discounted at the opportunity cost of money and the cumulative receipts compounded at the reinvestment rate equal to zero. (The only difference between MIRR and the financial management rate of return FMRR is that the latter uses an average cost of

capital rather than recognizing short-term financing of deficit operations.)

7. Profitability index:

$$\frac{\text{Net present value of return}}{\text{Total cost of acquisition}}$$

8. Net cumulative cash after taxes less original investment with and without resale proceeds after taxes on sale or transfer.

L. Sensitivity analysis involves fine tuning of controllable variables and testing of tolerance of project for variance or surprise. There are many computer systems which permit testing of physical plan (Exhibit 5) or tax and finance implications (Exhibit 6).

M. New attempts to create real estate indexes of performance by property type over time are now experimental.

1. Problems in accounting standardization.

2. Problems in accounting/appraisal interface.

3. Problems in appraisal standard practice.

## SHOPPING CENTER CASE STUDY

DATE: 3/11/ 79  
 BLDG: 1  
 RUN : 1

GROSS SQUARE FEET IN BUILDING: 60242.  
 BUILDING EFFICIENCY : 100.0 PCT  
 NET LEASEABLE SQUARE FOOTAGE : 60242.

LAND AND CONSTRUCTION COST : \$ 1766571.  
 LOAN TO COST RATIO : 75.0 PCT  
 ORIGINAL LOAN AMOUNT : \$ 1324929.

EQUITY REQUIREMENT : \$ 441643.

PERMANENT INTEREST RATE : 9.625 PCT  
 TERM OF LOAN 27. YEARS

ANNUAL DEBT SERVICE : \$ 137885.

## ANNUAL DOLLARS

|   |         |
|---|---------|
| GROSS INCOME : 60242. SQ FT AT \$ 3.67      | 221088. |
| LESS: VACANCY OF 3.77 PCT                   | 8335.   |
|   | -----   |
| GROSS EFFECTIVE INCOME                      | 212753. |
| OPERATING EXPENSES: 60242. SQ FT AT \$ 0.77 | 46386.  |
|   | -----   |
| NET OPERATING INCOME                        | 166367. |
| DEBT SERVICE (10.41 PCT CONSTANT)           | 137885. |
|   | -----   |
| PRO FORMA CASH FLOW                         | 28482.  |

RETURN ON EQUITY 6.45 PERCENT

DEBT SERVICE COVERAGE: 1.207

DEFAULT RATIO : 83.35 PERCENT

PROGRAM STOP AT 17870

USED 17.97 UNITS  
 /COST OFF

ACCRUED CHARGES SINCE SIGNIN

\$ 3.82 COMPUTER

6.35 CONNECT

5.70 CHARACTERS

\$ 15.87 TOTAL

EFFICIENCY = 89.8

00028.09 CRU 0000.46 TCH 0041.46 KC

OFF AT 16:59CST 03/12/79

## INPUT DATA LISTING

BUILDING ID 1  
DATE 3 11 79

## TITLES

TITLES SHOPPING CENTER CASE STUDY

SQ FT IN TRACT 255698.00

RUN NO. 1

|                          |                    |       |    |
|--------------------------|--------------------|-------|----|
| CONSTRUCTION-SHELL       | 0. SQ FT AT \$     | 0.    | \$ |
| CONSTRUCTION-INTERIOR    | 0. SQ FT AT \$     | 0.    | \$ |
| TOTAL BUILDING COST      | 60242. SQ FT AT \$ | 19.69 | \$ |
| GRADE PARKING 654.55SQFT | 275.00SPACES @ \$  | 0.50  | \$ |

STRUCT. PKING 0. SQFT 0. SPACES @ \$ 0.

LANDSCAPING 0.  
FF AND E 0.

RESTAURANT 74538.00

## FEES

|                |                   |
|----------------|-------------------|
| ARCHITECTURE   | 0.                |
| ENGINEERING    | 0.                |
| LOAN FEES      | 20000.00          |
| CLOSING COSTS  | 0.                |
| TAXES AND INS  | 0.                |
| OPTIONAL TITLE | OPTIONAL EXPENSES |
| LEASING FEES   | 10640.00          |

|                             |            |
|-----------------------------|------------|
| CONSTRUCTION INTERIM RATE   | 10.000 PCT |
| CONSTRUCTION PERIOD         | 8 MONTHS   |
| LAND INTERIM RATE IS        | 0. PCT     |
| 255698.00 SQUARE FEET AT \$ | 1.30       |

INTERIM RATE 0. PCT FOR 0. MONTHS

COST PER MONTH 0. FOR 0. MONTHS

OTHER LAND COSTS 0.

## CONSTRUCTION COST ESTIMATE

## SHOPPING CENTER CASE STUDY

DATE: 3/11/ 79  
BLDG: 1  
RUN : 1

| CONSTRUCTION COSTS                              |                          | DOLLARS     |
|---|--------------------------|-------------|
| TOTAL BUILDING COST                             | 60242. SQ FT AT \$ 19.69 | \$ 1186165. |
| GRADE PARKING                                   | 275. SPACES AT \$ 327.   | 90001.      |
| RESTAURANT                                      |                          | 74538.      |
| SUBTOTAL CONSTRUCTION                           |                          | 1350704.    |
| LOAN ORIGINATION FEES                           | AT 1.5 PCT               | 20000.      |
| LEASING FEES                                    | AT 0.8 PCT               | 10640.      |
| CUMULATIVE SUBTOTAL                             |                          | 1381344.    |
| INTERIM INTEREST-CONSTRUCTION                   |                          |             |
| \$ 1381344. AT 10.0 PCT FOR 8 MONTHS COMPOUNDED |                          | 52820.      |
| TOTAL CONSTRUCTION COSTS                        |                          | 1434164.    |
| LAND COSTS                                      |                          |             |
| 255698. SQ FT AT \$ 1.30                        |                          | 332407.     |
| INTERIM INTEREST-LAND                           |                          |             |
| TOTAL LAND COST                                 |                          | 332407.     |
| TOTAL LAND AND CONSTRUCTION COST                |                          | 1766571.    |

## PRO FORMA CASH FLOW TABLE

## SHOPPING CENTER CASE STUDY

|                                       |      |          |
|---------------------------------------|------|----------|
| FIXED PARAMETERS                      | PAGE | 1 OF 12  |
| SITE : 255698. SQUARE FEET            | DATE | 3-11- 79 |
| BUILDING : 60242. SQUARE FEET         | BLDG | 1        |
| EFFICIENCY: 100.00 PCT( 60242. SQ FT) |      |          |
| LOAN RATIO: 75.00 PCT OF \$ 1766571.  |      |          |
| LOAN : \$ 1324929.                    |      |          |
| EQUITY : \$ 441643.                   |      |          |
| FINANCING : 27. YEARS 9.625 PCT       |      |          |
| OTR INCOME: \$ 0. ANNUALLY            | RUN  | 1        |
| EXPENSES : \$ 0.77 PER SQ FT          |      |          |

## ANNUAL CASH FLOWS

## VACANCY ALLOWANCE

|                                 | 3.00 PCT | 3.77 PCT | 4.00 PCT | 5.00 PCT | 6.00 PCT |
|---------------------------------|----------|----------|----------|----------|----------|
| RENTAL RATES<br>ANNUAL \$/SQ FT | -----    | -----    | -----    | -----    | -----    |
| \$ 3.25                         | 5641.    | 4134.    | 3683.    | 1726.    | -232.    |
| \$ 3.50                         | 20250.   | 18626.   | 18142.   | 16033.   | 13925.   |
| \$ 3.67                         | 30184.   | 28482.   | 27973.   | 25762.   | 23551.   |
| \$ 3.75                         | 34859.   | 33119.   | 32600.   | 30341.   | 28081.   |
| \$ 4.00                         | 49467.   | 47612.   | 47058.   | 44648.   | 42238.   |

## BREAKEVEN RENTAL RATES

## VACANCY ALLOWANCE

|                                 | 3.00 PCT | 3.77 PCT | 4.00 PCT | 5.00 PCT | 6.00 PCT |
|---------------------------------|----------|----------|----------|----------|----------|
| RENTAL RATES<br>ANNUAL \$/SQ FT | -----    | -----    | -----    | -----    | -----    |
|                                 | 3.15     | 3.18     | 3.19     | 3.22     | 3.25     |



## PRO FORMA CASH FLOW TABLE

## SHOPPING CENTER CASE STUDY

|                  |                           |      |          |
|------------------|---------------------------|------|----------|
| FIXED PARAMETERS |                           | PAGE | 2 OF 12  |
| SITE :           | 255698. SQUARE FEET       | DATE | 3-11- 79 |
| BUILDING :       | 60242. SQUARE FEET        | BLDG | 1        |
| EFFICIENCY:      | 100.00 PCT( 60242. SQ FT) |      |          |
| LOAN RATIO:      | 75.00 PCT OF \$ 1766571.  |      |          |
| LOAN :           | \$ 1324929.               |      |          |
| EQUITY :         | \$ 441643.                |      |          |
| FINANCING :      | 27. YEARS 9.625 PCT       |      |          |
| VACANCY :        | 3.77 PCT OF LEASEABLE     |      |          |
| OTR INCOME:      | \$ 0. ANNUALLY            | RUN  | 1        |

## ANNUAL CASH FLOWS

|                 | ANNUAL EXPENSE RATES PER SQ FT |         |         |         |         |
|-----------------|--------------------------------|---------|---------|---------|---------|
|                 | \$ 0.70                        | \$ 0.77 | \$ 0.80 | \$ 0.90 | \$ 1.00 |
|                 | -----                          | -----   | -----   | -----   | -----   |
| RENTAL RATES    |                                |         |         |         |         |
| ANNUAL \$/SQ FT |                                |         |         |         |         |
| \$ 3.25         | 8351.                          | 4134.   | 2326.   | -3698.  | -9722.  |
| \$ 3.50         | 22843.                         | 18626.  | 16819.  | 10795.  | 4771.   |
| \$ 3.67         | 32698.                         | 28482.  | 26674.  | 20650.  | 14626.  |
| \$ 3.75         | 37336.                         | 33119.  | 31312.  | 25288.  | 19264.  |
| \$ 4.00         | 51829.                         | 47612.  | 45805.  | 39780.  | 33756.  |

## BREAKEVEN RENTAL RATES

|                 | ANNUAL EXPENSE RATES PER SQ FT |         |         |         |         |
|-----------------|--------------------------------|---------|---------|---------|---------|
|                 | \$ 0.70                        | \$ 0.77 | \$ 0.80 | \$ 0.90 | \$ 1.00 |
|                 | -----                          | -----   | -----   | -----   | -----   |
| RENTAL RATES    |                                |         |         |         |         |
| ANNUAL \$/SQ FT |                                |         |         |         |         |
|                 | 3.11                           | 3.18    | 3.21    | 3.31    | 3.42    |

## PRO FORMA CASH FLOW TABLE

## SHOPPING CENTER CASE STUDY

|                  |                           |      |          |
|------------------|---------------------------|------|----------|
| FIXED PARAMETERS |                           | PAGE | 3 OF 12  |
| SITE :           | 255698. SQUARE FEET       | DATE | 3-11- 79 |
| BUILDING :       | 60242. SQUARE FEET        | BLDG | 1        |
| EFFICIENCY:      | 100.00 PCT( 60242. SQ FT) |      |          |
| LOAN RATIO:      | 75.00 PCT OF \$ 1766571.  |      |          |
| LOAN :           | \$ 1324929.               |      |          |
| EQUITY :         | \$ 441643.                |      |          |
| VACANCY :        | 3.77 PCT OF LEASEABLE     |      |          |
| QTR INCOME:      | \$ 0. ANNUALLY            | RUN  | 1        |
| EXPENSES :       | \$ 0.77 PER SQ FT         |      |          |

## ANNUAL CASH FLOWS

## FINANCING PARAMETERS

|           |           |           |           |           |
|-----------|-----------|-----------|-----------|-----------|
| 27. YEARS | 27. YEARS | 27. YEARS | 30. YEARS | 25. YEARS |
| 9.62 PCT  | 9.75 PCT  | 10.00 PCT | 10.25 PCT | 9.50 PCT  |

RENTAL RATES  
ANNUAL \$/SQ FT

|         |        |        |        |        |        |
|---------|--------|--------|--------|--------|--------|
|         | -----  | -----  | -----  | -----  | -----  |
| \$ 3.25 | 4134.  | 2716.  | -135.  | -453.  | 3109.  |
| \$ 3.50 | 18626. | 17208. | 14358. | 14039. | 17601. |
| \$ 3.67 | 28482. | 27063. | 24213. | 23894. | 27456. |
| \$ 3.75 | 33119. | 31701. | 28851. | 28532. | 32094. |
| \$ 4.00 | 47612. | 46194. | 43343. | 43025. | 46587. |

## BREAKEVEN RENTAL RATES

## FINANCING PARAMETERS

|           |           |           |           |           |
|-----------|-----------|-----------|-----------|-----------|
| 27. YEARS | 27. YEARS | 27. YEARS | 30. YEARS | 25. YEARS |
| 9.62 PCT  | 9.75 PCT  | 10.00 PCT | 10.25 PCT | 9.50 PCT  |

RENTAL RATES  
ANNUAL \$/SQ FT

|       |       |       |       |       |
|-------|-------|-------|-------|-------|
| ----- | ----- | ----- | ----- | ----- |
| 3.18  | 3.20  | 3.25  | 3.26  | 3.20  |

## PRO FORMA CASH FLOW TABLE

## SHOPPING CENTER CASE STUDY

|                  |                          |      |          |
|------------------|--------------------------|------|----------|
| FIXED PARAMETERS |                          | PAGE | 4 OF 12  |
| SITE :           | 255698. SQUARE FEET      | DATE | 3-11- 79 |
| BUILDING :       | 60242. SQUARE FEET       | BLDG | 1        |
| LOAN RATIO:      | 75.00 PCT OF \$ 1766571. |      |          |
| LOAN :           | \$ 1324929.              |      |          |
| EQUITY :         | \$ 441643.               |      |          |
| FINANCING :      | 27. YEARS 9.625 PCT      |      |          |
| VACANCY :        | 3.77 PCT OF LEASEABLE    |      |          |
| OTR INCOME:      | \$ 0. ANNUALLY           | RUN  | 1        |
| EXPENSES :       | \$ 0.77 PER SQ FT        |      |          |

## ANNUAL CASH FLOWS

## BUILDING EFFICIENCY (PCT OF GROSS)

99.60 PCT 100.00 PCT 102.92 PCT 106.24 PCT 109.56 PCT  
LOAN TO COST RATIO

70.00 PCT 72.00 PCT 75.00 PCT 78.00 PCT 80.00 PCT  
-----

RENTAL RATES  
ANNUAL \$/SQ FT

|         |        |        |        |        |        |
|---------|--------|--------|--------|--------|--------|
| \$ 3.25 | 17708. | 12993. | 3563.  | 4134.  | 8278.  |
| \$ 3.50 | 33586. | 28390. | 17998. | 18626. | 23194. |
| \$ 3.67 | 44383. | 38860. | 27813. | 28482. | 33336. |
| \$ 3.75 | 49464. | 43787. | 32432. | 33119. | 38109. |
| \$ 4.00 | 65342. | 59184. | 46867. | 47612. | 53025. |

## BREAKEVEN RENTAL RATES

## BUILDING EFFICIENCY (PCT OF GROSS)

99.60 PCT 100.00 PCT 102.92 PCT 106.24 PCT 109.56 PCT  
LOAN TO COST RATIO

70.00 PCT 72.00 PCT 75.00 PCT 78.00 PCT 80.00 PCT  
-----

RENTAL RATES  
ANNUAL \$/SQ FT

2.97 3.04 3.19 3.18 3.11

## PRO FORMA CASH FLOW TABLE

## SHOPPING CENTER CASE STUDY

|                                       |      |          |
|---------------------------------------|------|----------|
| FIXED PARAMETERS                      | PAGE | 5 OF 12  |
| SITE : 255698. SQUARE FEET            | DATE | 3-11- 79 |
| BUILDING : 60242. SQUARE FEET         | BLDG | 1        |
| EFFICIENCY: 100.00 PCT( 60242. SQ FT) |      |          |
| FINANCING : 27. YEARS 9.625 PCT       |      |          |
| VACANCY : 3.77 PCT OF LEASEABLE       |      |          |
| QTR INCOME: \$ 0. ANNUALLY            | RUN  | 1        |
| EXPENSES : \$ 0.77 PER SQ FT          |      |          |

## ANNUAL CASH FLOWS

## LOAN TO COST RATIO

|                 | 70.00 PCT | 72.00 PCT | 75.00 PCT | 78.00 PCT | 80.00 PCT |
|-----------------|-----------|-----------|-----------|-----------|-----------|
| RENTAL RATES    |           |           |           |           |           |
| ANNUAL \$/SQ FT |           |           |           |           |           |
| \$ 3.25         | 13326.    | 9649.     | 4134.     | -1382.    | -5059.    |
| \$ 3.50         | 27819.    | 24142.    | 18626.    | 13111.    | 9434.     |
| \$ 3.67         | 37674.    | 33997.    | 28482.    | 22966.    | 19289.    |
| \$ 3.75         | 42312.    | 38635.    | 33119.    | 27604.    | 23927.    |
| \$ 4.00         | 56804.    | 53127.    | 47612.    | 42096.    | 38420.    |

## BREAKEVEN RENTAL RATES

## LOAN TO COST RATIO

|                 | 70.00 PCT | 72.00 PCT | 75.00 PCT | 78.00 PCT | 80.00 PCT |
|-----------------|-----------|-----------|-----------|-----------|-----------|
| RENTAL RATES    |           |           |           |           |           |
| ANNUAL \$/SQ FT |           |           |           |           |           |
|                 | 3.02      | 3.08      | 3.18      | 3.27      | 3.34      |

## PRO FORMA CASH FLOW TABLE

## SHOPPING CENTER CASE STUDY

## FIXED PARAMETERS

PAGE 6 OF 12

|             |                           |      |          |
|-------------|---------------------------|------|----------|
| SITE :      | 255698. SQUARE FEET       | DATE | 3-11- 79 |
| BUILDING :  | 60242. SQUARE FEET        | BLDG | 1        |
| EFFICIENCY: | 100.00 PCT( 60242. SQ FT) |      |          |
| LOAN RATIO: | 75.00 PCT OF \$ 1766571.  |      |          |
| LOAN :      | \$ 1324929.               |      |          |
| EQUITY :    | \$ 441643.                |      |          |
| REVENUE :   | \$ 3.67 PER SQ FT         |      |          |
| QTR INCOME: | \$ 0. ANNUALLY            | RUN  | 1        |
| EXPENSES :  | \$ 0.77 PER SQ FT         |      |          |

## ANNUAL CASH FLOWS

## FINANCING PARAMETERS

|           |           |           |           |           |
|-----------|-----------|-----------|-----------|-----------|
| 27. YEARS | 27. YEARS | 27. YEARS | 30. YEARS | 25. YEARS |
| 9.62 PCT  | 9.75 PCT  | 10.00 PCT | 10.25 PCT | 9.50 PCT  |

## VACANCY RATES

|          |        |        |        |        |        |
|----------|--------|--------|--------|--------|--------|
|          | -----  | -----  | -----  | -----  | -----  |
| 3.00 PCT | 30184. | 28766. | 25915. | 25597. | 29159. |
| 3.77 PCT | 28482. | 27063. | 24213. | 23894. | 27456. |
| 4.00 PCT | 27973. | 26555. | 23704. | 23386. | 26948. |
| 5.00 PCT | 25762. | 24344. | 21494. | 21175. | 24737. |
| 6.00 PCT | 23551. | 22133. | 19283. | 18964. | 22526. |

## BREAKEVEN RENTAL RATES

## FINANCING PARAMETERS

|           |           |           |           |           |
|-----------|-----------|-----------|-----------|-----------|
| 27. YEARS | 27. YEARS | 27. YEARS | 30. YEARS | 25. YEARS |
| 9.62 PCT  | 9.75 PCT  | 10.00 PCT | 10.25 PCT | 9.50 PCT  |

## VACANCY RATES

|          |       |       |       |       |       |
|----------|-------|-------|-------|-------|-------|
|          | ----- | ----- | ----- | ----- | ----- |
| 3.00 PCT | 3.15  | 3.18  | 3.23  | 3.23  | 3.17  |
| 3.77 PCT | 3.18  | 3.20  | 3.25  | 3.26  | 3.20  |
| 4.00 PCT | 3.19  | 3.21  | 3.26  | 3.27  | 3.20  |
| 5.00 PCT | 3.22  | 3.24  | 3.29  | 3.30  | 3.24  |
| 6.00 PCT | 3.25  | 3.28  | 3.33  | 3.34  | 3.27  |

## EXHIBIT 5 (Continued)

## PRO FORMA CASH FLOW TABLE

## SHOPPING CENTER CASE STUDY

|                                       |               |
|---------------------------------------|---------------|
| FIXED PARAMETERS                      | PAGE 7 OF 12  |
| SITE : 255698. SQUARE FEET            | DATE 3-11- 79 |
| BUILDING : 60242. SQUARE FEET         | BLDG 1        |
| EFFICIENCY: 100.00 PCT( 60242. SQ FT) |               |
| LOAN RATIO: 75.00 PCT OF \$ 1766571.  |               |
| LOAN : \$ 1324929.                    |               |
| EQUITY : \$ 441643.                   |               |
| REVENUE : \$ 3.67 PER SQ FT           |               |
| VACANCY : 3.77 PCT OF LEASEABLE       |               |
| QTR INCOME: \$ 0. ANNUALLY            | RUN 1         |

## ANNUAL CASH FLOWS

## FINANCING PARAMETERS

|           |           |           |           |           |
|-----------|-----------|-----------|-----------|-----------|
| 27. YEARS | 27. YEARS | 27. YEARS | 30. YEARS | 25. YEARS |
| 9.62 PCT  | 9.75 PCT  | 10.00 PCT | 10.25 PCT | 9.50 PCT  |

EXPENSE RATES  
ANNUAL \$/SQ FT

|         |        |        |        |        |        |
|---------|--------|--------|--------|--------|--------|
| \$ 0.70 | 32698. | 31280. | 28430. | 28111. | 31673. |
| \$ 0.77 | 28482. | 27063. | 24213. | 23894. | 27456. |
| \$ 0.80 | 26674. | 25256. | 22406. | 22087. | 25649. |
| \$ 0.90 | 20650. | 19232. | 16381. | 16063. | 19625. |
| \$ 1.00 | 14626. | 13208. | 10357. | 10039. | 13601. |

## BREAKEVEN RENTAL RATES

## FINANCING PARAMETERS

|           |           |           |           |           |
|-----------|-----------|-----------|-----------|-----------|
| 27. YEARS | 27. YEARS | 27. YEARS | 30. YEARS | 25. YEARS |
| 9.62 PCT  | 9.75 PCT  | 10.00 PCT | 10.25 PCT | 9.50 PCT  |

EXPENSE RATES  
ANNUAL \$/SQ FT

|         |      |      |      |      |      |
|---------|------|------|------|------|------|
| \$ 0.70 | 3.11 | 3.13 | 3.18 | 3.19 | 3.12 |
| \$ 0.77 | 3.18 | 3.20 | 3.25 | 3.26 | 3.20 |
| \$ 0.80 | 3.21 | 3.23 | 3.28 | 3.29 | 3.23 |
| \$ 0.90 | 3.31 | 3.34 | 3.39 | 3.39 | 3.33 |
| \$ 1.00 | 3.42 | 3.44 | 3.49 | 3.50 | 3.44 |

## REG FORM CASH FLOW TABLE

## SHOPPING CENTER CASE STUDY

|                                      |               |
|--------------------------------------|---------------|
| FIXED PARAMETERS                     | PAGE 8 OF 12  |
| SITE : 255698. SQUARE FEET           | DATE 3-11- 79 |
| BUILDING : 60242. SQUARE FEET        | BLDG 1        |
| LOAN RATIO: 75.00 PCT OF \$ 1766571. |               |
| LOAN : \$ 1324929.                   |               |
| EQUITY : \$ 441643.                  |               |
| FINANCING : 27. YEARS 9.625 PCT      |               |
| REVENUE : \$ 3.67 PER SQ FT          |               |
| VACANCY : 3.77 PCT OF LEASEABLE      |               |
| OTR INCOME: \$ 0. ANNUALLY           | RUN 1         |

## ANNUAL CASH FLOWS

## BUILDING EFFICIENCY (PCT OF GROSS)

99.60 PCT 100.00 PCT 102.92 PCT 106.24 PCT 109.56 PCT  
LOAN TO COST RATIO

70.00 PCT 72.00 PCT 75.00 PCT 78.00 PCT 80.00 PCT

EXPENSE RATES  
ANNUAL \$/SQ FT

|         |        |        |        |        |        |
|---------|--------|--------|--------|--------|--------|
| \$ 0.70 | 49003. | 43340. | 32013. | 32698. | 37676. |
| \$ 0.77 | 44383. | 38860. | 27813. | 28482. | 33336. |
| \$ 0.80 | 42403. | 36940. | 26013. | 26674. | 31476. |
| \$ 0.90 | 35803. | 30540. | 20013. | 20650. | 25276. |
| \$ 1.00 | 29203. | 24140. | 14013. | 14626. | 19076. |

## BREAKEVEN RENTAL RATES

## BUILDING EFFICIENCY (PCT OF GROSS)

99.60 PCT 100.00 PCT 102.92 PCT 106.24 PCT 109.56 PCT  
LOAN TO COST RATIO

70.00 PCT 72.00 PCT 75.00 PCT 78.00 PCT 80.00 PCT

EXPENSE RATES  
ANNUAL \$/SQ FT

|         |      |      |      |      |      |
|---------|------|------|------|------|------|
| \$ 0.70 | 2.90 | 2.97 | 3.12 | 3.11 | 3.04 |
| \$ 0.77 | 2.97 | 3.04 | 3.19 | 3.18 | 3.11 |
| \$ 0.80 | 3.00 | 3.07 | 3.22 | 3.21 | 3.14 |
| \$ 0.90 | 3.11 | 3.17 | 3.32 | 3.31 | 3.25 |
| \$ 1.00 | 3.21 | 3.28 | 3.43 | 3.42 | 3.35 |

EXHIBIT 5 (Continued)  
PRO FORMA CASH FLOW TABLE

SHOPPING CENTER CASE STUDY

FIXED PARAMETERS

PAGE 9 OF 12

|             |                           |      |          |
|-------------|---------------------------|------|----------|
| SITE :      | 255698. SQUARE FEET       | DATE | 3-11- 79 |
| BUILDING :  | 60242. SQUARE FEET        | BLDG | 1        |
| EFFICIENCY: | 100.00 PCT( 60242. SQ FT) |      |          |
| FINANCING : | 27. YEARS 9.625 PCT       |      |          |
| REVENUE :   | \$ 3.67 PER SQ FT         |      |          |
| VACANCY :   | 3.77 PCT OF LEASEABLE     |      |          |
| OTR INCOME: | \$ 0. ANNUALLY            | RUN  | 1        |

ANNUAL CASH FLOWS

LOAN TO COST RATIO

70.00 PCT 72.00 PCT 75.00 PCT 78.00 PCT 80.00 PCT

EXPENSE RATES  
ANNUAL \$/SQ FT

|         |        |        |        |        |        |
|---------|--------|--------|--------|--------|--------|
| \$ 0.70 | 41891. | 38214. | 32698. | 27183. | 23506. |
| \$ 0.77 | 37674. | 33997. | 28482. | 22966. | 19289. |
| \$ 0.80 | 35867. | 32190. | 26674. | 21159. | 17482. |
| \$ 0.90 | 29842. | 26165. | 20650. | 15135. | 11458. |
| \$ 1.00 | 23818. | 20141. | 14626. | 9110.  | 5434.  |

BREAKEVEN RENTAL RATES

LOAN TO COST RATIO

70.00 PCT 72.00 PCT 75.00 PCT 78.00 PCT 80.00 PCT

EXPENSE RATES  
ANNUAL \$/SQ FT

|         |      |      |      |      |      |
|---------|------|------|------|------|------|
| \$ 0.70 | 2.95 | 3.01 | 3.11 | 3.20 | 3.26 |
| \$ 0.77 | 3.02 | 3.08 | 3.18 | 3.27 | 3.34 |
| \$ 0.80 | 3.05 | 3.11 | 3.21 | 3.31 | 3.37 |
| \$ 0.90 | 3.16 | 3.22 | 3.31 | 3.41 | 3.47 |
| \$ 1.00 | 3.26 | 3.32 | 3.42 | 3.51 | 3.58 |



## EXHIBIT 5 (Continued)

## PRO FORMA CASH FLOW TABLE

## SHOPPING CENTER CASE STUDY

|                                       |               |
|---------------------------------------|---------------|
| FIXED PARAMETERS                      | PAGE 10 OF 12 |
| SITE : 255698. SQUARE FEET            | DATE 3-11- 79 |
| BUILDING : 60242. SQUARE FEET         | BLDG 1        |
| EFFICIENCY: 100.00 PCT( 60242. SQ FT) |               |
| REVENUE : \$ 3.67 PER SQ FT           |               |
| VACANCY : 3.77 PCT OF LEASEABLE       |               |
| OTR INCOME: \$ 0. ANNUALLY            | RUN 1         |
| EXPENSES : \$ 0.77 PER SQ FT          |               |

## ANNUAL CASH FLOWS

## LOAN TO COST RATIO

|                | 70.00 PCT | 72.00 PCT | 75.00 PCT | 78.00 PCT | 80.00 PCT |
|----------------|-----------|-----------|-----------|-----------|-----------|
| FINANCING      |           |           |           |           |           |
| 27.YR 9.62PCT  | 37674.    | 33997.    | 28482.    | 22966.    | 19289.    |
| 27.YR 9.75PCT  | 36350.    | 32636.    | 27063.    | 21491.    | 17777.    |
| 27.YR 10.00PCT | 33690.    | 29899.    | 24213.    | 18527.    | 14736.    |
| 30.YR 10.25PCT | 33393.    | 29593.    | 23894.    | 18195.    | 14396.    |
| 25.YR 9.50PCT  | 36717.    | 33013.    | 27456.    | 21900.    | 18196.    |

## BREAKEVEN RENTAL RATES

## LOAN TO COST RATIO

|                 | 70.00 PCT | 72.00 PCT | 75.00 PCT | 78.00 PCT | 80.00 PCT |
|-----------------|-----------|-----------|-----------|-----------|-----------|
| FINANCING       |           |           |           |           |           |
| 27.YR 9.62 PCT  | 3.02      | 3.08      | 3.18      | 3.27      | 3.34      |
| 27.YR 9.75 PCT  | 3.04      | 3.11      | 3.20      | 3.30      | 3.36      |
| 27.YR 10.00 PCT | 3.09      | 3.15      | 3.25      | 3.35      | 3.42      |
| 30.YR 10.25 PCT | 3.09      | 3.16      | 3.26      | 3.36      | 3.42      |
| 25.YR 9.50 PCT  | 3.04      | 3.10      | 3.20      | 3.29      | 3.36      |

EXHIBIT 5 (Continued)  
SENSITIVITY TABLE

33

SHOPPING CENTER CASE STUDY

|                                      |               |
|--------------------------------------|---------------|
| FIXED PARAMETERS                     | PAGE 11 OF 12 |
| SITE : 255698. SQUARE FEET           | DATE 3-11- 79 |
| BUILDING : 60242. SQUARE FEET        | BLDG 1        |
| EFFICIENCY: 100.00 PCT OF GROSS      |               |
| LOAN RATIO: 75.00 PCT OF \$ 1766571. |               |
| EQUITY : \$ 441643.                  |               |
| FINANCING : 27. YEARS 9.625 PCT      |               |
| REVENUE : \$ 3.67 PER SQ FT          |               |
| VACANCY : 3.77 PCT OF LEASEABLE      |               |
| PARK/OTHER: \$ 0. ANNUALLY           | RUN 1         |
| EXPENSES : \$ 0.77 PER SQ FT         |               |
| CONSTRUCTION AND LAND COST 1766571.  |               |
| CONSTRUCTION INTERIM RATE 10.000 PCT |               |
| CONSTRUCTION PERIOD 8 MONTHS         |               |
| LAND INTERIM RATE IS 0. PCT          |               |

EFFECT OF SELECTED CHANGES IN PARAMETERS

| PARAMETER CHANGE | INCREASE IN CASH FLOW | EFFECT ON CONSTRUCTION |
|------------------|-----------------------|------------------------|
|------------------|-----------------------|------------------------|

|  |           |             |
|--|-----------|-------------|
| DECREASE CONSTRUCTION COST \$ 100,000    | \$ 11050. | \$ -106179. |
| DECREASE CONSTRUCTION \$ 1.00 PER SQ FT  | 6657.     | -63964.     |
| INCREASE CONSTRUCTION PERIOD 1 MONTH     | -1198.    | 11511.      |
| DECREASE CONST AND LAND INTERIM 1 PCT    | 590.      | -5673.      |
| DECREASE TOTAL LAND COST BY \$ 332407.   | 34594.    |             |
| INCREASE BUILDING EFFICIENCY 1 PCT       | 1664.     |             |
| INCREASE RENTAL RATE \$ .10 PER SQ FT    | 5797.     |             |
| DECREASE VACANCY RATE 1PCT               | 2211.     |             |
| DECREASE OPERATING RATE \$ .10 PER SQ FT | 6024.     |             |
| DECREASE PERMANENT RATE .25PCT           | 2821.     |             |
| DECREASE PERMANENT LOAN TERM BY 1 YEAR   | -1136.    |             |
| DECREASE PERMANENT LOAN TERM BY 5 YEARS  | -7252.    |             |
| DECREASE THE LOAN RATIO BY 5 PERCENT     | 9192.     |             |

EQUIVALENT EFFECT TO YIELD  
A \$ 5000. INCREASE IN ANNUAL CASH FLOW

|   |                |
|---|----------------|
| DECREASE CONSTRUCTION COSTS BY \$               | 45249.         |
| DECREASE CONSTRUCTION COST BY \$ 0.75 PER SQ FT |                |
| DECREASE LAND COST (NO INTERIM) BY \$           | 48045.         |
| DECREASE CONSTRUCTION PERIOD BY                 | 4.2 MONTHS     |
| DECREASE INTERIM INTEREST BY                    | 8.47 PCT       |
| INCREASE BUILDING EFFICIENCY BY                 | 3.01 PCT       |
| INCREASE RENT RATE BY \$                        | 0.09 PER SQ FT |
| DECREASE VACANCY BY                             | 2.26 PCT       |
| DECREASE EXPENSE RATE BY \$                     | 0.08 PER SQ FT |
| DECREASE PERMANENT RATE BY                      | 0.44 PCT       |
| INCREASE PERMANENT LOAN TERM BY                 | 3.4 YEARS      |
| DECREASE LOAN RATIO BY                          | 2.7 PERCENT    |

**EXHIBIT 6**

**V A L T E S T**

**A DEMONSTRATION PACKET**

**PREPARED BY  
LANDMARK RESEARCH, INC.  
MADISON, WISCONSIN**

**PREPARED FOR  
THE REAL ESTATE ANALYSTS NORTHSTAR USERS GROUP**

**SEPTEMBER 24 AND 25, 1982  
COSTA MESA, CALIFORNIA**

V A L T E S T

## DEMONSTRATION 1

## INPUT ASSUMPTIONS

\*\*\*\*\*

1. ENTER PROJECT NAME ? J
2. ENTER PROJECTION PERIOD ? 5
3. DO YOU WANT TO ENTER EFFECTIVE GROSS REVENUE INSTEAD OF NOI? N  
TO REPEAT PREVIOUS YEAR'S NOI/EGR FOR BAL OF PROJECTION ENTER 0  
N.O.I. YEAR 1? 5000  
N.O.I. YEAR 2? 5000  
N.O.I. YEAR 3? 6000  
N.O.I. YEAR 4? 6000  
N.O.I. YEAR 5? 7000
4. ACQUISITION COST: ? 50000
5. DO YOU WANT TO USE STANDARD FINANCING? Y OR N? Y  
MTG. RATIO OR AMOUNT, INT., TERM, NO PAY/YR ? .8. .12. 25. 12
6. ENTER RATIO OF IMP #1/TOTAL VALUE. LIFE OF IMP #1? .8. 15  
IS THERE A SECOND IMPROVEMENT? Y OR N? N
7. DEPRECIATION METHOD, IMPROVEMENT #1 ? 2  
ENTER D.B. %: ? 175  
IS PROPERTY SUBSIDIZED HOUSING ? Y OR N ? N  
IS PROPERTY RESIDENTIAL? Y OR N? Y
8. IS OWNER A TAXABLE CORPORATION? Y OR N ? Y  
CORPORATE FEDERAL ORDINARY TAX RATE COULD BE :  
17% - 46% (1978 LAW, EFFECTIVE 1979)  
16% - 46% (1981 LAW, EFFECTIVE 1982)  
15% - 46% (1981 LAW, EFFECTIVE 1983 & THEREAFTER)  
MAXIMUM CORPORATE CAPITAL GAIN ALTERNATIVE TAX RATE IS 28%

(PLUS STATE RATE)

ENTER:

- 1) EFFECTIVE ORDINARY RATE 2) EFFECTIVE ORDINARY RATE (YEAR OF SALE)  
? .46, .46
9. RESALE PRICE (NET OF SALE COSTS) ? 60000
10. IS THERE LENDER PARTICIPATION ? N
11. ENTER OWNER'S AFTER TAX REINVESTMENT RATE (%)? 9
12. ENTER OWNER'S AFTER TAX OPPORTUNITY COST OF EQUITY FUNDS (%)? 9

EXHIBIT 6 (Continued)  
DEMONSTRATION 1 (Cont.)

AFTER TAX CASH FLOW PROJECTION

J  
DATE 9/14/82

DATA SUMMARY

\*\*\*\*\*

|                   |           |                        |             |
|-------------------|-----------|------------------------|-------------|
| ACQUISITION COST: | \$50,000. | MTG. AMT.:             | \$40,000.   |
| NDI 1ST YR:       | \$5,000.  | MTG. INT.:             | 12%         |
| ORG. EQUITY:      | \$10,000. | MTG. TERM:             | 25. YRS     |
| CTD 1ST YEAR:     | \$-55.    | DEBT SERVICE 1ST YEAR: | \$5,055.    |
|                   |           | MTG. CONST.:           | .1263869    |
| IMP. #1 VALUE:    | \$40,000. | IMP. #1 LIFE:          | 15.         |
| INC. TX RATE:     | 46%       |                        |             |
| SALE YR RATE:     | 46%       | OWNER:                 | CORPORATION |

DEPRECIATION IMPROVEMENT #1 : 175% D.B.  
RESIDENTIAL PROPERTY

LENDER PARTICIPATION: CASH THROW-OFF: NONE      REVERSION: NONE

NO REPRESENTATION IS MADE THAT THE ASSUMPTIONS PROVIDED BY JEAN ARE PROPER OR THAT THE CURRENT TAX ESTIMATES USED IN THIS PROJECTION WILL BE ACCEPTABLE TO TAXING AUTHORITIES. NO ESTIMATE HAS BEEN MADE OF MINIMUM PREFERENCE TAX. CAPITAL LOSSES IN YEAR OF SALE ARE TREATED AS ORDINARY LOSSES (SECTION 1231 PROPERTY) AND ARE CREDITED AGAINST TAXES PAID AT THE ORDINARY RATE AT THE TIME OF SALE. FOR THE PURPOSE OF THE MODIFIED INTERNAL RATE OF RETURN (M.I.R.R.) CALCULATION, NEGATIVE CASH IN ANY ONE PERIOD IS COVERED BY A CONTRIBUTION FROM EQUITY IN THAT PERIOD

| YEAR | NDI             | MTG INT &<br>LENDERS % | TAX<br>DEP      | TAXABLE<br>INCOME | INCOME<br>TAX   | AFTER TAX<br>CASH FLOW |
|------|-----------------|------------------------|-----------------|-------------------|-----------------|------------------------|
| 1.   | 5000.           | 4785.                  | 4667.           | -4453.            | -2049.          | 1994.                  |
| 2.   | 5000.           | 4751.                  | 4122.           | -3874.            | -1783.          | 1728.                  |
| 3.   | 6000.           | 4713.                  | 3641.           | -2355.            | -1084.          | 2029.                  |
| 4.   | 6000.           | 4669.                  | 3216.           | -1887.            | -869.           | 1814.                  |
| 5.   | 7000.           | 4620.                  | 2841.           | -462.             | -214.           | 2159.                  |
|      | <u>\$29000.</u> | <u>\$23539.</u>        | <u>\$18488.</u> | <u>\$-13031.</u>  | <u>\$-5999.</u> | <u>\$9722.</u>         |

## EXHIBIT 6 (Continued)

## DEMONSTRATION 1 (Cont.)

|                        |           |                       |         |
|------------------------|-----------|-----------------------|---------|
| RESALE PRICE:          | \$60,000. | 1ST YR B4 TAX EQ DIV: | -.5548% |
| LESS MORTGAGE BALANCE: | \$38,261. | AVG DEBT COVER RATIO: | 1.1473  |
| PROCEEDS BEFORE TAXES: | \$21,739. |                       |         |
| LESS LENDER'S %:       | \$0.      |                       |         |
| NET SALES PROCEEDS     |           |                       |         |
| BEFORE TAXES:          | \$21,739. |                       |         |

=====

|                      |           |
|----------------------|-----------|
| RESALE PRICE:        | \$60,000. |
| LESS LENDER'S %:     | \$0.      |
| NET RESALE PRICE:    | \$60,000. |
| LESS BASIS:          | \$31,512. |
| TOTAL GAIN:          | \$28,488. |
| EXCESS DEPRECIATION: | \$5,155.  |
| CAPITAL GAIN:        | \$23,333. |
| ORDINARY GAIN:       | \$5,155.  |

=====

|                       |           |
|-----------------------|-----------|
| TAX ON ORDINARY GAIN: | \$2,371.  |
| TAX ON CAPITAL GAIN:  | \$6,533.  |
| PLUS MORTGAGE BAL:    | \$38,261. |
| TOTAL DEDUCTIONS FROM |           |
| NET RESALE PRICE:     | \$47,166. |

=====

|                    |           |
|--------------------|-----------|
| NET SALES PROCEEDS |           |
| AFTER TAX:         | \$12,834. |

=====

IF PURCHASED AS ABOVE, HELD 5 YEARS & SOLD FOR \$60,000.  
 THE MODIFIED I.R.R. BEFORE TAXES IS 20.6487% AND AFTER TAXES IS 19.5605%  
 ASSUMING AN AFTER TAX REINVESTMENT RATE OF 9%, AND OPPORTUNITY COST OF 9%

## DEMONSTRATION 1 (Cont.)

## MORTGAGE ANALYSIS

J

\*\*\*\*\*

| YEAR | NOI      | MORT<br>INT. | MORT<br>AMORT | DEBT<br>SERV | DCR   | MTG.<br>BAL. |
|------|----------|--------------|---------------|--------------|-------|--------------|
| 1.   | 5000.    | 4785.        | 270.          | 5055.        | .989  | 39730.       |
| 2.   | 5000.    | 4751.        | 304.          | 5055.        | .989  | 39426.       |
| 3.   | 6000.    | 4713.        | 343.          | 5055.        | 1.187 | 39083.       |
| 4.   | 6000.    | 4669.        | 386.          | 5055.        | 1.187 | 38697.       |
| 5.   | 7000.    | 4620.        | 435.          | 5055.        | 1.385 | 38261.       |
| AVG  | \$5,800. |              |               |              | 1.147 |              |

## DISTRIBUTION OF CASH THROW-OFF

J

| YEAR | CASH THROW-OFF<br>TOTAL | CASH THROW-OFF<br>TO EQUITY | CASH BONUS<br>TO LENDER |
|------|-------------------------|-----------------------------|-------------------------|
| 1.   | -55.                    | -55.                        | 0.                      |
| 2.   | -55.                    | -55.                        | 0.                      |
| 3.   | 945.                    | 945.                        | 0.                      |
| 4.   | 945.                    | 945.                        | 0.                      |
| 5.   | 1945.                   | 1945.                       | 0.                      |
|      | -----<br>3723.          | -----<br>3723.              | -----<br>0.             |

|                                     |           |
|-------------------------------------|-----------|
| RESALE PRICE:                       | \$60,000. |
| LESS MORTGAGE BALANCE:              | \$38,261. |
| PROCEEDS BEFORE TAXES:              | \$21,739. |
| LESS LENDER'S %:                    | \$0.      |
| NET SALES PROCEEDS<br>BEFORE TAXES: | \$21,739. |

=====

CASH THROW-OFF = 0% REVERSION = 0%

## DEMONSTRATION 1 (Cont.)

## DEPRECIATION SCHEDULE

J

IMPROVEMENT # 1

175% D.B.

RESIDENTIAL

\*\*\*\*\*

| YEAR | TAX DEP. | S.L. DEP. | EXCESS DEP | BALANCE |
|------|----------|-----------|------------|---------|
| 1.   | 4666.7   | 2666.7    | 2000.0     | 35333.3 |
| 2.   | 4122.2   | 2666.7    | 1455.6     | 31211.1 |
| 3.   | 3641.3   | 2666.7    | 974.6      | 27569.8 |
| 4.   | 3216.5   | 2666.7    | 549.8      | 24353.3 |
| 5.   | 2841.2   | 2666.7    | 174.6      | 21512.1 |

|       | =====   | =====   | =====  |
|-------|---------|---------|--------|
| TOTAL | 18487.9 | 13333.3 | 5154.6 |

## EQUITY ANALYSIS

J

\*\*\*\*\*

## BEFORE TAX EQUITY DIVIDEND

| YR | NOI      | YR END<br>EQUITY | AMOUNT | CASH RETURN<br>ORG EQ | CUR EQ |
|----|----------|------------------|--------|-----------------------|--------|
| 1. | \$5,000. | \$10,325.        | \$-55. | -.0055                | -.0054 |
| 2. | 5,000.   | 10,685.          | -55.   | -.0055                | -.0052 |
| 3. | 6,000.   | 11,028.          | 945.   | .0945                 | .0856  |
| 4. | 6,000.   | 11,414.          | 945.   | .0945                 | .0827  |
| 5. | 7,000.   | 11,850.          | 1,945. | .1945                 | .1641  |

ORIGINAL EQUITY: \$ 10000



V A L T E S T

## DEMONSTRATION 2

## INFUT ASSUMPTIONS

\*\*\*\*\*

1. ENTER PROJECT NAME ? CARDINAL-2
2. ENTER PROJECTION PERIOD ? 5
3. DO YOU WANT TO ENTER EFFECTIVE GROSS REVENUE INSTEAD OF NOI? N  
TO REPEAT PREVIOUS YEAR'S NOI/EGR FOR BAL OF PROJECTION ENTER 0  
N.O.I. YEAR 1? 81745  
N.O.I. YEAR 2? 81920  
N.O.I. YEAR 3? 98910  
N.O.I. YEAR 4? 108800  
N.O.I. YEAR 5? 119680
4. ACQUISITION COST: ? 1007000
5. DO YOU WANT TO USE STANDARD FINANCING? Y OR N?Y  
MTG. RATIO OR AMOUNT, INT., TERM, NO PAY/YR ? 647000. .15236, 30, 12
6. ENTER RATIO OF IMP #1/TOTAL VALUE, LIFE OF IMP #1? .149, 15  
IS THERE A SECOND IMPROVEMENT? Y OR N? Y  
ENTER RATIO OF IMP #2/TOTAL VALUE, LIFE OF IMP #2? .781, 15  
ENTER REHABILITATION TAX CREDIT FOR IMP #2: 196625  
IS STRUCTURE A CERTIFIED HISTORICAL LANDMARK? Y OR N?Y
7. DEPRECIATION METHOD, IMPROVEMENT #1 ? 1  
DEPRECIATION METHOD, IMPROVEMENT #2 ? 1  
IS PROPERTY SUBSIDIZED HOUSING ? Y OR N ?N  
IS PROPERTY RESIDENTIAL? Y OR N? Y
8. IS OWNER A TAXABLE CORPORATION? Y OR N ?N  
THE MAXIMUM FEDERAL INDIVIDUAL ORDINARY RATE COULD BE:  
70% (PRE-1981 LAW)  
50% (1981 LAW, EFFECTIVE 1982)  
  
(PLUS STATE RATE)

## ENTER:

- 1) EFFECTIVE ORDINARY RATE 2) EFFECTIVE ORDINARY RATE (YEAR OF SALE)  
? .5, .5
9. RESALE PRICE (NET OF SALE COSTS) ? 1258750
10. IS THERE LENDER PARTICIPATION ?N
11. ENTER OWNER'S AFTER TAX REINVESTMENT RATE (%)? 11
12. ENTER OWNER'S AFTER TAX OPPORTUNITY COST OF EQUITY FUNDS (%)? 11

## EXHIBIT 6 (Continued)

## DEMONSTRATION 2 (Cont.)

AFTER TAX CASH FLOW PROJECTION  
 CARDINAL-2  
 DATE 9/14/82

## DATA SUMMARY

\*\*\*\*\*

ACQUISTN COST: \$1,007,000. MTG. AMT.: \$647,000.  
 NOI 1ST YR: \$81,745. MTG. INT.: 15.236%  
 ORG. EQUITY: \$360,000. MTG. TERM: 30. YRS  
 CTD 1ST YEAR: \$-17,893. DEBT SERVICE 1ST YEAR: \$97,638.  
 MTG. CONST.: .15400037  
 IMP. #1 VALUE: \$150,043. IMP. #1 LIFE: 15.  
 IMP. #2 VALUE: \$786,467. IMP. #2 LIFE: 15.  
 INC. TX RATE: 50%  
 SALE YR RATE: 50% OWNER: INDIVIDUAL

DEPRECIATION IMPROVEMENT #1 : STRAIGHT LINE  
 DEPRECIATION IMPROVEMENT #2 : STRAIGHT LINE  
 RESIDENTIAL PROPERTY  
 CERTIFIED HISTORICAL STRUCTURE  
 LENDER PARTICIPATION: CASH THROW-OFF: NONE REVERSION: NONE

NO REPRESENTATION IS MADE THAT THE ASSUMPTIONS PROVIDED BY JEAN  
 ARE PROPER OR THAT THE CURRENT TAX ESTIMATES USED IN THIS  
 PROJECTION WILL BE ACCEPTABLE TO TAXING AUTHORITIES. NO ESTIMATE  
 HAS BEEN MADE OF MINIMUM PREFERENCE TAX. CAPITAL LOSSES IN YEAR OF  
 SALE ARE TREATED AS ORDINARY LOSSES (SECTION 1231 PROPERTY) AND  
 ARE CREDITED AGAINST TAXES PAID AT THE  
 ORDINARY RATE AT THE TIME OF SALE.  
 FOR THE PURPOSE OF THE MODIFIED INTERNAL RATE OF RETURN (M.I.R.R.)  
 CALCULATION, NEGATIVE CASH IN ANY ONE PERIOD IS COVERED  
 BY A CONTRIBUTION FROM EQUITY IN THAT PERIOD

| YEAR | NOI       | MTG INT &<br>LENDERS % | TAX<br>DEP | TAXABLE<br>INCOME | INCOME<br>TAX | AFTER TAX<br>CASH FLOW |
|------|-----------|------------------------|------------|-------------------|---------------|------------------------|
| 1.   | 81745.    | 98500.                 | 62434.     | -79190.           | -236221.      | 218328.                |
| 2.   | 81920.    | 98313.                 | 62434.     | -78828.           | -39415.       | 21697.                 |
| 3.   | 98910.    | 98097.                 | 62434.     | -61622.           | -30812.       | 30084.                 |
| 4.   | 108800.   | 97845.                 | 62434.     | -51480.           | -25741.       | 34903.                 |
| 5.   | 119680.   | 97552.                 | 62434.     | -40307.           | -20154.       | 40196.                 |
|      | \$491055. | \$490307.              | \$312170.  | \$-311427.        | \$-352343.    | \$345207.              |

NOTE: 1ST YEAR'S TAX REDUCED BY \$196,625. FOR TAX CREDIT (IMP #2)

## DEMONSTRATION 2 (Cont.)

|                        |              |                       |          |
|------------------------|--------------|-----------------------|----------|
| RESALE PRICE:          | \$1,258,750. | 1ST YR B4 TAX EQ DIV: | -4.9703% |
| LESS MORTGAGE BALANCE: | \$639,115.   | AVG DEBT COVER RATIO: | .9857    |
| PROCEEDS BEFORE TAXES: | \$619,635.   |                       |          |
| LESS LENDER'S Z:       | \$0.         |                       |          |
| NET SALES PROCEEDS     |              |                       |          |
| BEFORE TAXES:          | \$619,635.   |                       |          |
|                        | =====        |                       |          |

|                      |              |
|----------------------|--------------|
| RESALE PRICE:        | \$1,258,750. |
| LESS LENDER'S Z:     | \$0.         |
| NET RESALE PRICE:    | \$1,258,750. |
| LESS BASIS:          | \$694,830.   |
| TOTAL GAIN:          | \$563,920.   |
| EXCESS DEPRECIATION: | \$0.         |
| CAPITAL GAIN:        | \$563,920.   |
| ORDINARY GAIN:       | \$0.         |
|                      | =====        |

|                       |            |
|-----------------------|------------|
| TAX ON ORDINARY GAIN: | \$0.       |
| TAX ON CAPITAL GAIN:  | \$112,784. |
| PLUS MORTGAGE BAL:    | \$639,115. |
| TOTAL DEDUCTIONS FROM |            |
| NET RESALE PRICE:     | \$751,899. |
|                       | =====      |

|                    |            |
|--------------------|------------|
| NET SALES PROCEEDS |            |
| AFTER TAX:         | \$506,851. |
|                    | =====      |

IF PURCHASED AS ABOVE, HELD 5 YEARS & SOLD FOR \$1,258,750.  
 THE MODIFIED I.R.R. BEFORE TAXES IS 10.5005% AND AFTER TAXES IS 22.2744%  
 ASSUMING AN AFTER TAX REINVESTMENT RATE OF 11%, AND OPPORTUNITY COST OF 11%

EXHIBIT 6 (Continued)

DEMONSTRATION 2 (Cont.)

43

DISTRIBUTION OF CASH THROW-OFF  
CARDINAL-2

| YEAR | CASH THROW-OFF<br>TOTAL | CASH THROW-OFF<br>TO EQUITY | CASH BONUS<br>TO LENDER |
|------|-------------------------|-----------------------------|-------------------------|
| 1.   | -17893.                 | -17893.                     | 0.                      |
| 2.   | -17718.                 | -17718.                     | 0.                      |
| 3.   | -728.                   | -728.                       | 0.                      |
| 4.   | 9162.                   | 9162.                       | 0.                      |
| 5.   | 20042.                  | 20042.                      | 0.                      |
|      | -----                   | -----                       | -----                   |
|      | -7136.                  | -7136.                      | 0.                      |

RESALE PRICE: \$1,258,750.  
 LESS MORTGAGE BALANCE: \$639,115.  
 PROCEEDS BEFORE TAXES: \$619,635.  
 LESS LENDER'S %: \$0.  
 NET SALES PROCEEDS  
 BEFORE TAXES: \$619,635.  
 =====

CASH THROW-OFF = 0% REVERSION = 0%

MORTGAGE ANALYSIS  
CARDINAL-2

\*\*\*\*\*

| YEAR | NOI       | MORT<br>INT. | MORT<br>AMORT | DEBT<br>SERV | DCF   | MTG.<br>BAL. |
|------|-----------|--------------|---------------|--------------|-------|--------------|
| 1.   | 81745.    | 98500.       | 1139.         | 99638.       | .820  | 645861.      |
| 2.   | 81920.    | 98313.       | 1325.         | 99638.       | .822  | 644537.      |
| 3.   | 98910.    | 98097.       | 1541.         | 99638.       | .993  | 642995.      |
| 4.   | 108800.   | 97845.       | 1793.         | 99638.       | 1.092 | 641202.      |
| 5.   | 119660.   | 97552.       | 2086.         | 99638.       | 1.201 | 639115.      |
| AUG  | \$96,211. |              |               |              | .965  |              |

EQUITY ANALYSIS  
CARDINAL-2

\*\*\*\*\*

BEFORE TAX EQUITY DIVIDEND

| YR | NOI       | YR END<br>EQUITY | AMOUNT     | CASH RETURN<br>ORG EQ | CUM EQ |
|----|-----------|------------------|------------|-----------------------|--------|
| 1. | \$81,745. | \$379,032.       | \$-17,893. | -.0492                | -.0472 |
| 2. | 81,920.   | 398,075.         | -17,718.   | -.0492                | -.0445 |
| 3. | 98,910.   | 400,345.         | -728.      | -.0020                | -.0018 |
| 4. | 108,800.  | 402,138.         | 9,162.     | .0254                 | .0026  |
| 5. | 119,660.  | 404,224.         | 20,042.    | .0557                 | .0496  |

ORIGINAL EQUITY: \$ 360000

## EXHIBIT 6 (Continued)

## DEMONSTRATION 2 (Cont.)

DEPRECIATION SCHEDULE  
 CARDINAL-2  
 IMPROVEMENT # 1  
 STRAIGHT LINE  
 RESIDENTIAL

\*\*\*\*\*

| YEAR      | TAX DEP. | S.L. DEP. | EXCESS DEP | BALANCE  |
|-----------|----------|-----------|------------|----------|
| 1.        | 10002.9  | 10002.9   | .0         | 140040.1 |
| 2.        | 10002.9  | 10002.9   | .0         | 130037.3 |
| 3.        | 10002.9  | 10002.9   | .0         | 120034.4 |
| 4.        | 10002.9  | 10002.9   | .0         | 110031.5 |
| 5.        | 10002.9  | 10002.9   | .0         | 100028.7 |
| <hr/>     |          |           |            |          |
| SUB-TOTAL | 50014.3  | 50014.3   | .0         |          |

DEPRECIATION SCHEDULE  
 CARDINAL-2  
 IMPROVEMENT # 2  
 STRAIGHT LINE  
 RESIDENTIAL

\*\*\*\*\*

| YEAR      | TAX DEP. | S.L. DEP. | EXCESS DEP | BALANCE  |
|-----------|----------|-----------|------------|----------|
| 1.        | 52431.1  | 52431.1   | .0         | 734035.9 |
| 2.        | 52431.1  | 52431.1   | .0         | 681604.7 |
| 3.        | 52431.1  | 52431.1   | .0         | 629173.6 |
| 4.        | 52431.1  | 52431.1   | .0         | 576742.5 |
| 5.        | 52431.1  | 52431.1   | .0         | 524311.3 |
| <hr/>     |          |           |            |          |
| SUB-TOTAL | 262155.7 | 262155.7  | .0         |          |
| <hr/>     |          |           |            |          |
| TOTAL     | 312170.0 | 312170.0  | .0         |          |

V A L T E S T - DEMONSTRATION 3

45

## INPUT ASSUMPTIONS

\*\*\*\*\*

1. ENTER PROJECT NAME ? SELL AT LOSS TEST
2. ENTER PROJECTION PERIOD ? 5
3. DO YOU WANT TO ENTER EFFECTIVE GROSS REVENUE INSTEAD OF NOI? Y  
TO REPEAT PREVIOUS YEAR'S NOI/EGR FOR BAL OF PROJECTION ENTER 0

EFFECTIVE GROSS REVENUE YEAR 1? 13800  
 EFFECTIVE GROSS REVENUE YEAR 2? 14210  
 EFFECTIVE GROSS REVENUE YEAR 3? 1000  
 EFFECTIVE GROSS REVENUE YEAR 4? 15080  
 EFFECTIVE GROSS REVENUE YEAR 5? 15530

VAR OF EXPENSE (X) YEAR 1? 6  
 VAR OF EXPENSE (X) YEAR 2? 5  
 VAR OF EXPENSE (X) YEAR 3? 0

FIXED OP EXPENSE YEAR 1? 3700  
 FIXED OP EXPENSE YEAR 2? 3920  
 FIXED OP EXPENSE YEAR 3? 4160  
 FIXED OP EXPENSE YEAR 4? 4410  
 FIXED OP EXPENSE YEAR 5? 4670

4. ACQUISITION COST: ? 66000 .
5. DO YOU WANT TO USE STANDARD FINANCING? Y OR N?Y  
MTG. RATIO OR AMOUNT, INT., TERM, NO PAY/YR ? 49500, .18, 25, 12
6. ENTER RATIO OF IMP #1/TOTAL VALUE, LIFE OF IMP #1? .25, 15  
IS THERE A SECOND IMPROVEMENT? Y OR N? Y  
ENTER RATIO OF IMP #2/TOTAL VALUE, LIFE OF IMP #2? .55, 15  
ENTER REHABILITATION TAX CREDIT FOR IMP #2: 9075  
IS STRUCTURE A CERTIFIED HISTORICAL LANDMARK? Y OR N?Y \*
7. DEPRECIATION METHOD, IMPROVEMENT #1 ? 2  
ENTER D.B. Z: ? 175\*  
DEPRECIATION METHOD, IMPROVEMENT #2 ? 2  
ENTER D.B. Z: ? 175\*  
IS PROPERTY SUBSIDIZED HOUSING ? Y OR N ?N  
IS PROPERTY RESIDENTIAL? Y OR N? N
8. IS OWNER A TAXABLE CORPORATION? Y OR N ?Y  
CORPORATE FEDERAL ORDINARY TAX RATE COULD BE :  
 17% - 46% (1978 LAW, EFFECTIVE 1979)  
 16% - 46% (1981 LAW, EFFECTIVE 1982)  
 15% - 46% (1981 LAW, EFFECTIVE 1983 & THEREAFTER)  
 MAXIMUM CORPORATE CAPITAL GAIN ALTERNATIVE TAX RATE IS 28%

\*For Illustrative  
Purposes Only

(PLUS STATE RATE)

ENTER:

- 1) EFFECTIVE ORDINARY RATE 2) EFFECTIVE ORDINARY RATE (YEAR OF SALE)  
? .4, .4
9. RESALE PRICE (NET OF SALE COSTS) ? 60000
10. IS THERE LENDER PARTICIPATION ?Y  
ENTER CASH THRU-OFF (X), PROCEEDS BEFORE TAXES (X): 5, 5
11. ENTER OWNER'S AFTER TAX REINVESTMENT RATE (X)? 9
12. ENTER OWNER'S AFTER TAX OPPORTUNITY COST OF EQUITY FUNDS (X)? 9

## DEMONSTRATION 3 (Cont.)

AFTER TAX CASH FLOW PROJECTION  
 SELL AT LOSS TEST  
 DATE 9/14/82

## DATA SUMMARY

\*\*\*\*\*

ACQUISITION COST: \$66,000. MTG. AMT.: \$49,500.  
 NOI 1ST YR: \$9,272. MTG. INT.: 18%  
 ORG. EQUITY: \$16,500. MTG. TERM: 25. YRS  
 CTD 1ST YEAR: \$258. DEBT SERVICE 1ST YEAR: \$9,014.  
 MTG. CONST.: .1820916  
 IMP. #1 VALUE: \$16,500. IMP. #1 LIFE: 15.  
 IMP. #2 VALUE: \$36,300. IMP. #2 LIFE: 15.  
 INC. TX RATE: 40%  
 SALE YR RATE: 40% OWNER: CORPORATION

DEPRECIATION IMPROVEMENT #1 : 175% D.B.  
 DEPRECIATION IMPROVEMENT #2 : 175% D.B.  
 NON-RESIDENTIAL PROPERTY  
 CERTIFIED HISTORICAL STRUCTURE  
 LENDER PARTICIPATION: CASH THROW-OFF: 5% REVERSION: 5%

NO REPRESENTATION IS MADE THAT THE ASSUMPTIONS PROVIDED BY JEAN ARE PROPER OR THAT THE CURRENT TAX ESTIMATES USED IN THIS PROJECTION WILL BE ACCEPTABLE TO TAXING AUTHORITIES. NO ESTIMATE HAS BEEN MADE OF MINIMUM PREFERENCE TAX. CAPITAL LOSSES IN YEAR OF SALE ARE TREATED AS ORDINARY LOSSES (SECTION 1231 PROPERTY) AND ARE CREDITED AGAINST TAXES PAID AT THE ORDINARY RATE AT THE TIME OF SALE.  
 FOR THE PURPOSE OF THE MODIFIED INTERNAL RATE OF RETURN (M.I.R.R.) CALCULATION, NEGATIVE CASH IN ANY ONE PERIOD IS COVERED BY A CONTRIBUTION FROM EQUITY IN THAT PERIOD

| YEAR | NOI      | MTG INT &<br>LENDERS % | TAX<br>DEP | TAXABLE<br>INCOME | INCOME<br>TAX | AFTER TAX<br>CASH FLOW |
|------|----------|------------------------|------------|-------------------|---------------|------------------------|
| 1.   | 9272.    | 8914.                  | 6160.      | -5803.            | -11397.       | 11643.                 |
| 2.   | 9580.    | 8907.                  | 5441.      | -4770.            | -1909.        | 2447.                  |
| 3.   | -3210.   | 8853.                  | 4507.      | -16870.           | -6749.        | -5475.                 |
| 4.   | 9916.    | 8866.                  | 4246.      | -3197.            | -1280.        | 2137.                  |
| 5.   | 10084.   | 8837.                  | 3750.      | -2505.            | -1003.        | 2019.                  |
|      | \$35641. | \$44377.               | \$24404.   | \$-33145.         | \$-22338.     | \$12771.               |

NOTE: 1ST YEAR S TAX REDUCED BY \$9,075. FOR TAX CREDIT (IMP #2)

## DEMONSTRATION 3 (Cont.)

RESALE PRICE: \$60,000.  
 LESS MORTGAGE BALANCE: \$48,670.  
 PROCEEDS BEFORE TAXES: \$11,330.  
 LESS LENDER'S %: \$567.  
 NET SALES PROCEEDS  
 BEFORE TAXES: \$10,764.

=====

1ST YR 84 TAX EQ DIV: 1.4881%  
 AVG DEBT COVER RATIO: .7908  
 AVG DEFAULT RATIO: 1.1581

RESALE PRICE: \$60,000.  
 LESS LENDER'S %: \$567.  
 NET RESALE PRICE: \$59,433.  
 LESS BASIS: \$41,596.  
 TOTAL GAIN: \$17,838.  
 TAX DEPRECIATION: \$24,404.  
 CAPITAL GAIN: \$0.  
 ORDINARY GAIN: \$17,838.

=====

TAX ON ORDINARY GAIN: \$7,135.  
 TAX ON CAPITAL GAIN: \$0.  
 PLUS MORTGAGE BAL: \$48,670.  
 TOTAL DEDUCTIONS FROM  
 NET RESALE PRICE: \$55,805.

=====

NET SALES PROCEEDS  
 AFTER TAX: \$3,629.

=====

IF PURCHASED AS ABOVE, HELD 5 YEARS & SOLD FOR \$60,000.  
 THE MODIFIED I.R.R. BEFORE TAXES IS -12.4777% AND AFTER TAXES IS 5.4951%  
 ASSUMING AN AFTER TAX REINVESTMENT RATE OF 9%, AND OPPORTUNITY COST OF 4%



## EXHIBIT 6. (Continued)

## DEMONSTRATION 3 (Cont.)

DISTRIBUTION OF CASH THROW-OFF  
SELL AT LOSS TEST

| YEAR | CASH THROW-OFF<br>TOTAL | CASH THROW-OFF<br>TO EQUITY | CASH BONUS<br>TO LENDER |
|------|-------------------------|-----------------------------|-------------------------|
| 1.   | 258.                    | 246.                        | 13.                     |
| 2.   | 566.                    | 538.                        | 28.                     |
| 3.   | -12224.                 | -12224.                     | 0.                      |
| 4.   | 902.                    | 857.                        | 45.                     |
| 5.   | 1070.                   | 1016.                       | 53.                     |
|      | -----                   | -----                       | -----                   |
|      | -9427.                  | -9567.                      | 140.                    |

RESALE PRICE: \$60,000.  
 LESS MORTGAGE BALANCE: \$48,670.  
 PROCEEDS BEFORE TAXES: \$11,330.  
 LESS LENDER'S %: \$567.  
 NET SALES PROCEEDS  
 BEFORE TAXES: \$10,764.  
 =====

CASH THROW-OFF = 5% REVERSION = 5%

 EQUITY ANALYSIS  
 SELL AT LOSS TEST  
 \*\*\*\*\*

| BEFORE TAX EQUITY DIVIDEND |          |                  |          |        |        |
|----------------------------|----------|------------------|----------|--------|--------|
| YR                         | NDI      | YR END<br>EQUITY | AMOUNT   | ORG EQ | CUR EQ |
| 1.                         | \$9,272. | \$16,613.        | \$246.   | .0149  | .0145  |
| 2.                         | 9,580.   | 16,747.          | 538.     | .0326  | .0321  |
| 3.                         | -3,210.  | 29,131.          | -12,224. | -.7406 | -.4196 |
| 4.                         | 9,916.   | 29,324.          | 857.     | .0520  | .0292  |
| 5.                         | 10,084.  | 29,554.          | 1,016.   | .0616  | .0344  |

ORIGINAL EQUITY: \$ 16500

## EXHIBIT 6 (Continued)

## DEMONSTRATION 3 (Cont.)

MORTGAGE ANALYSIS  
SELL AT LOSS TEST

\*\*\*\*\*

| YEAR | NOI      | MORT<br>INT. | MORT<br>AMORT | DEBT<br>SERV | DCR   | MTG.<br>BAL. | DEFAULT<br>RATIO |
|------|----------|--------------|---------------|--------------|-------|--------------|------------------|
| 1.   | 9272.    | 8901.        | 113.          | 9014.        | 1.029 | 49387.       | .981             |
| 2.   | 9580.    | 8679.        | 135.          | 9014.        | 1.063 | 49253.       | .960             |
| 3.   | -3210.   | 8853.        | 161.          | 9014.        | -.356 | 49092.       | 13.224           |
| 4.   | 9916.    | 8821.        | 192.          | 9014.        | 1.100 | 48900.       | .940             |
| 5.   | 10084.   | 8784.        | 230.          | 9014.        | 1.119 | 48670.       | .931             |
| AVG  | \$7,126. |              |               |              | .791  |              | 1.158            |

REVENUE AND EXPENSE REPORT  
SELL AT LOSS TEST  
DATE 9/14/82

\*\*\*\*\*

| YEAR | EFF GROSS REV | % RATE | % VAR OP | \$ FIXED OP | NOI       |
|------|---------------|--------|----------|-------------|-----------|
| 1.   | \$13,800.     | 6.2    | \$528.   | \$3,700.    | \$9,272.  |
| 2.   | \$14,210.     | 5.2    | \$711.   | \$3,920.    | \$9,580.  |
| 3.   | \$1,000.      | 5.2    | \$50.    | \$4,160.    | \$-3,210. |
| 4.   | \$15,080.     | 5.2    | \$754.   | \$4,410.    | \$9,916.  |
| 5.   | \$15,530.     | 5.2    | \$777.   | \$4,670.    | \$10,084. |
|      | -----         |        | -----    | -----       | -----     |
|      | \$59,620.     |        | \$3,119. | \$20,860.   | \$35,641. |

## EXHIBIT 6 (Continued)

## DEMONSTRATION 3 (Cont.)

## DEPRECIATION SCHEDULE

SELL AT LOSS TEST

IMPROVEMENT # 1

175% D.B.

NON-RESIDENTIAL

\*\*\*\*\*

| YEAR      | TAX DEP. | S.L. DEP. | TAX DEP | BALANCE |
|-----------|----------|-----------|---------|---------|
| 1.        | 1925.0   | 1100.0    | 1925.0  | 14575.0 |
| 2.        | 1700.4   | 1100.0    | 1700.4  | 12874.6 |
| 3.        | 1502.0   | 1100.0    | 1502.0  | 11372.5 |
| 4.        | 1326.8   | 1100.0    | 1326.8  | 10045.8 |
| 5.        | 1172.0   | 1100.0    | 1172.0  | 8873.7  |
|           | -----    | -----     | -----   |         |
| SUB-TOTAL | 7626.3   | 5500.0    | 7626.3  |         |

## DEPRECIATION SCHEDULE

SELL AT LOSS TEST

IMPROVEMENT # 2

175% D.B.

NON-RESIDENTIAL

\*\*\*\*\*

| YEAR      | TAX DEP. | S.L. DEP. | TAX DEP | BALANCE |
|-----------|----------|-----------|---------|---------|
| 1.        | 4235.0   | 2420.0    | 4235.0  | 32665.0 |
| 2.        | 3740.9   | 2420.0    | 3740.9  | 28924.1 |
| 3.        | 3304.5   | 2420.0    | 3304.5  | 25619.6 |
| 4.        | 2919.0   | 2420.0    | 2919.0  | 22700.7 |
| 5.        | 2578.4   | 2420.0    | 2578.4  | 19522.2 |
|           | -----    | -----     | -----   |         |
| SUB-TOTAL | 16777.8  | 12100.0   | 16777.8 |         |
|           | =====    | =====     | =====   |         |
| TOTAL     | 24404.0  | 17600.0   | 24404.0 |         |

## REAL ESTATE FEASIBILITY

Presented By

Professor James A. Graaskamp, Ph.D., CRE, SREA  
Wisconsin School of Business

SIXTH HOUR

### REAL ESTATE MARKETING REDEFINED

#### I. BASIC CONCEPTS AND MODELS

- A. In a price economy cash solvency begins with cash revenue which in turn requires a consumer willing to spend in his own self-interest. Real estate project cash flows, growth in investment value, and all related premises of leverage, arbitrage, etc., presume some level of monopoly to avoid competition and exploit spatial inertia.
- B. Free enterprise is the art of creating your own monopoly at appropriate points in time.
  - 1. For products, monopoly requires control of raw material, design, services, and marketing channels.
  - 2. For services, monopoly requires behavioral conditioning of consumer.
  - 3. Real estate is both product and service.
  - 4. Timing is concerned with a supply cycle and behavioral and demographic evolution.
  - 5. Complexities require reduction of marketing perspective to very selected segments and time frames (market gaps and windows) which can be modeled.
- C. Segmentation in both market research and merchandising to achieve monopoly reflect the following concepts:
  - 1. Market studies are of the aggregate, uncontrollable variables and forces in longer time series within which the real estate enterprise must find opportunities for customers.

2. Merchandising studies are primary research of controllable variables in abbreviated time series with which the real estate enterprise can best operate within the sea of uncontrollable variables to capture opportunities.
3. Market research is a process of disaggregation from secondary data to refined segments which scale a subset of the population who may represent a merchandising opportunity. Merchandising research is concerned with how to capture some part of that opportunity with a buy/sell transaction.
4. Positioning is the strategic selection and tactical implementation of controllable variables to achieve enterprise goals within uncontrollable market trends. Positioning starts with a "P" because the ultimate research product is concerned with:
  - a. Premise for monopoly at the margin
  - b. Profile of prospect and supply segments within population (absorption rate)
  - c. Profile of political power segments within permit process
  - d. Psychology of the transactional decision to spend or vote
  - e. Product and service standards
  - f. Product and service differentiation
  - g. Product and service pricing
  - h. Penetration into prospect profiles (capture rate)
  - i. Pace and phasing of production
  - j. Promotional and motivational channels
5. Positioning at the strategic level is the sum total of decisions made to exploit aggregate opportunities and to avoid aggregate adverse factors or potentials indicated by data on effective demand and categories of supply. The subject areas of analysis are listed in number 4 but the abstraction level of data is not malleable by the decision maker. His enterprise can be maneuvered within these larger force fields.

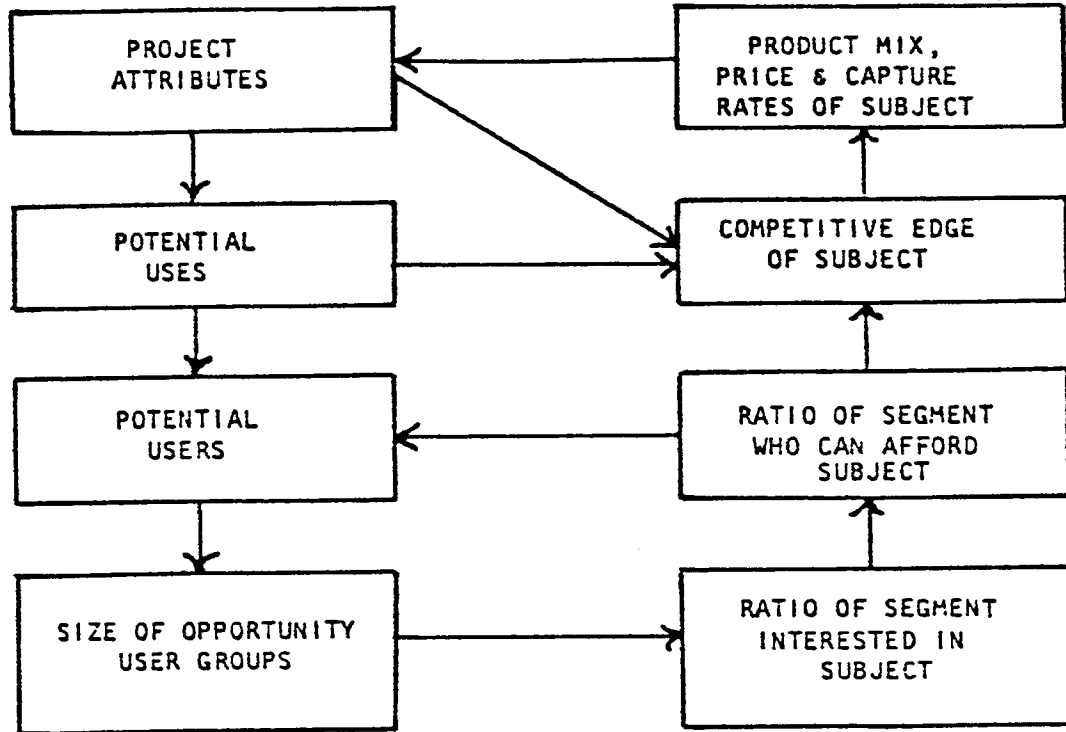
6. Positioning at the tactical level is concerned with all the detail of controllable variables within the subject areas listed in number 4, but the decision maker can specify the exact form these elements will play in his enterprise. In short, positioning is the objective of decisions made and the questions addressed in market and merchandising research.
  7. Thus the concept of segmentation also operates on two levels, the disaggregation of aggregate data, and the differentiation of product mix and promotion codes of merchandising.
  8. Because the research objectives listed in number 4 require integration of market data and merchandising data within models which share certain premises and hypotheses, it follows that the seminar must also recognize and maintain these links to the final questions or decisions to be resolved in a land use decision.
- D. Collective users operate politically to protect their perception of a real estate decision impact on their cash revenues, expenses, and future net worth. For purposes of favorably influencing the voting transaction (which can occur explicitly or implicitly) it is necessary to understand the political options available to various segments of collective consumers with a presumed vested interest in an enterprise decision.
1. Contiguous property owners
  2. Organized neighborhood - tenant associations
  3. Constituencies sharing common interests, such as age, school children, religion, professions, etc.
  4. Community power structure and media bias.
  5. Formal political district boards and councils
  6. Public agencies regulating community infrastructure
  7. Public agencies regulating financial institutions
- E. Most feasibility cases require the analyst to create his own models with which to structure the data available and the data which must be researched.

1. Remember, models organize the analyst, the report, and the client.
  - a. Models explain what you are going to do.
  - b. Models make relationships and key assumptions explicit.
  - c. Models permit clients to understand logic of conclusions and to test their own set of assumptions.
2. A market research model should be careful to recognize:
  - a. What are the questions?
  - b. What data is available - which is relevant?
  - c. What theory is available to focus data on the questions?
  - d. How will the results be communicated?
  - e. What are the abilities of the analyst?
  - f. What is the cost/benefit ratio between the model method and the question?
3. Market data models use aggregate data, secondary information, the easy to acquire data from census tracts, traffic counts, building permits, and so on. It is useful to scale the size of the market potential of the opportunity area, but by itself aggregate market data is relatively unimportant to the success of most projects.
  - a. Absorption rates apply to aggregate market data to determine the total size or amount of market activity in terms of how many lots were sold, how many apartments in a rental rage were newly rented, or how many square feet of leased office space were occupied.
4. Merchandising data models are generally primary information generated by the analyst about specific competitive projects and specific user groups which will permit an estimate of what percentage of the opportunity group can be captured for a specific project.

- a. Capture rates are the product of merchandise research and are the ratio of the total opportunity potential which might be secured for a project or must be secured to achieve financial goals. The capture rate will reflect a careful judgment of product mix, amenities, pricing, and timing.
5. A flow chart of the market research process is provided in Exhibit 1.
- F. Alternative purposes of primary market research
  1. To establish ratios for disaggregation of secondary data to focus on specific subsets or segments of the market (to scale market opportunity).
  2. To profile consumer demographics, motivations, and dissatisfactions in comparable projects.
  3. To profile fears of segments of collective users within a political coalition.
  4. To survey professionals who serve ultimate consumers to identify trends in terms of office layouts, technical support systems required, financing, or motivations for future use conversions.
  5. To generate a definition of the competitive standard for comparable projects.
  6. To discover the competitive edge in terms of site/product/service/advertising to insulate project from direct price comparison shopping and competition.
- G. Recognition of real estate as a subcomponent within a larger physical and behavioral system.
  1. To contribute to the efficiency of the activity housed.
  2. To contribute to the security of the establishment housed.
  3. To reduce anxiety and stress of occupants housed.



EXHIBIT 1  
SEGMENTATION LOGIC TREE



4. To enhance the public and self-image of the occupant.
- H. Focusing on monopolistic merchandising targets.
1. Correctly recognizing the space-time product.
  2. Correctly identifying who signs the check.
  3. Correctly discovering what motivates the signature.
  4. Providing acceptable justification for signing the check.
  5. Phasing the project to fit the pace of the target group.
- I. Combination of all elements relating to a site, in search of a use can then be integrated with financial analysis in a logic to screen alternative uses as suggested in Exhibit 2.
- J. Consider Exhibit 3 as a simple market model to define the size of an opportunity area in a selected county for elderly persons requiring residential care units.
1. Note that primary survey research is needed to create ratios with which to disaggregate secondary market data (i.e., census statistics).
  2. Notice use of graphics to communicate complex process and data, ala Hayes.

# SITE IN SEARCH OF A USE

## Static Attributes

Physical  
Legal  
Linkage  
Environmental

Building Envelope  
& Orientation of  
Technical Alternatives

## Market Attributes

General Market  
Patterns

Micro Markets

Neighborhood  
Expectations

Future Markets

Possible Alternative  
Use Scenarios

\* Consumer profiles, price  
range, and product description

\* Alternative revenue justified  
capital budgets and source  
structure

## Solvency Tests

Justified Private Capital  
- Required Capital  
Investment  
+ Public Capital Subsidy  
= Net Private Capital  
Exposure

Acceptable Alternative Uses

\* Preliminary environmental,  
political, and fiscal  
constraints

## Infrastructure Tests

Environmental Tolerance

Public Service Capacity

Fiscal Impact

Public Priorities and  
Subsidy

Financially Solvent  
Most Fitting Use

\* After-tax cash flows,  
financial ratios, and  
qualitative screens

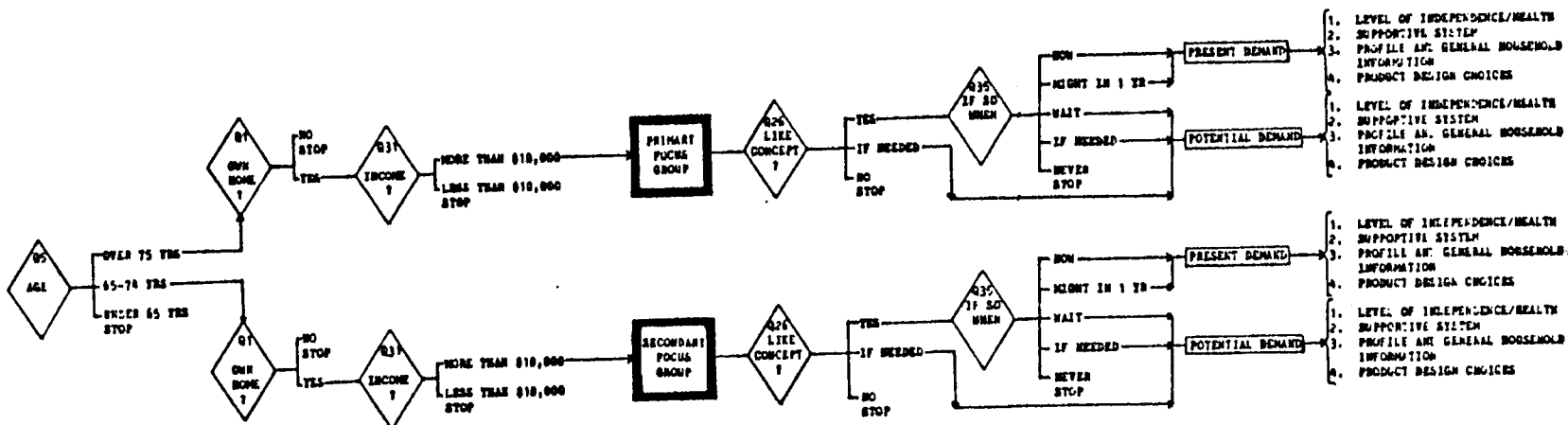
## Investment Tests

Investor Limitations  
& Objectives

Acceptable Risk Sensitivity  
Parameters

Most Probable Use of Site  
In Search of Use

FLOW CHART OF LOGICAL STEPS TO  
ESTIMATE PRESENT AND POTENTIAL EFFECTIVE DEMAND



SCREENS USED TO SUBSET MOST PROBABLE USERS  
OF PROPOSED RETIREMENT CENTER

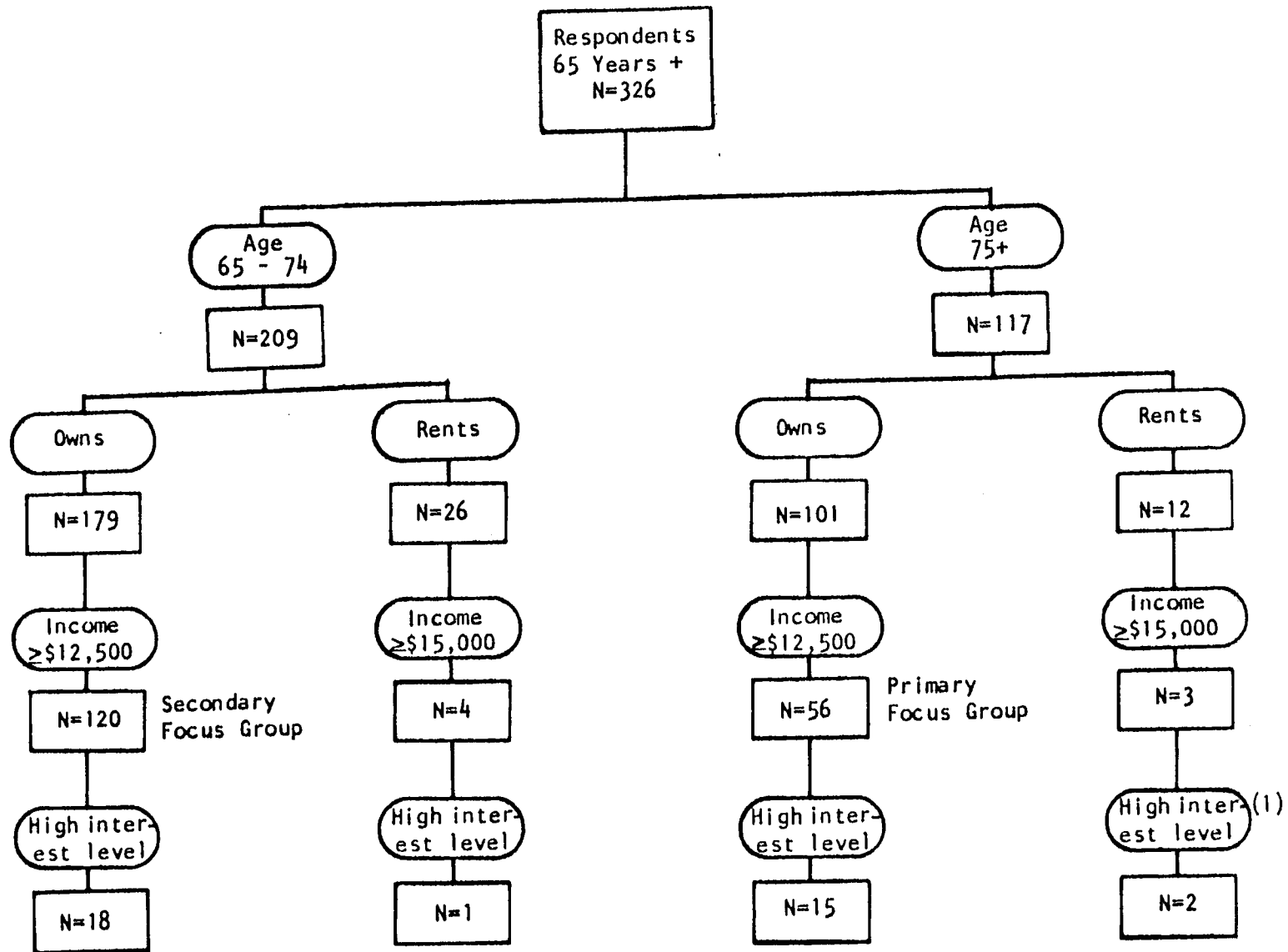


EXHIBIT 3 (Continued)

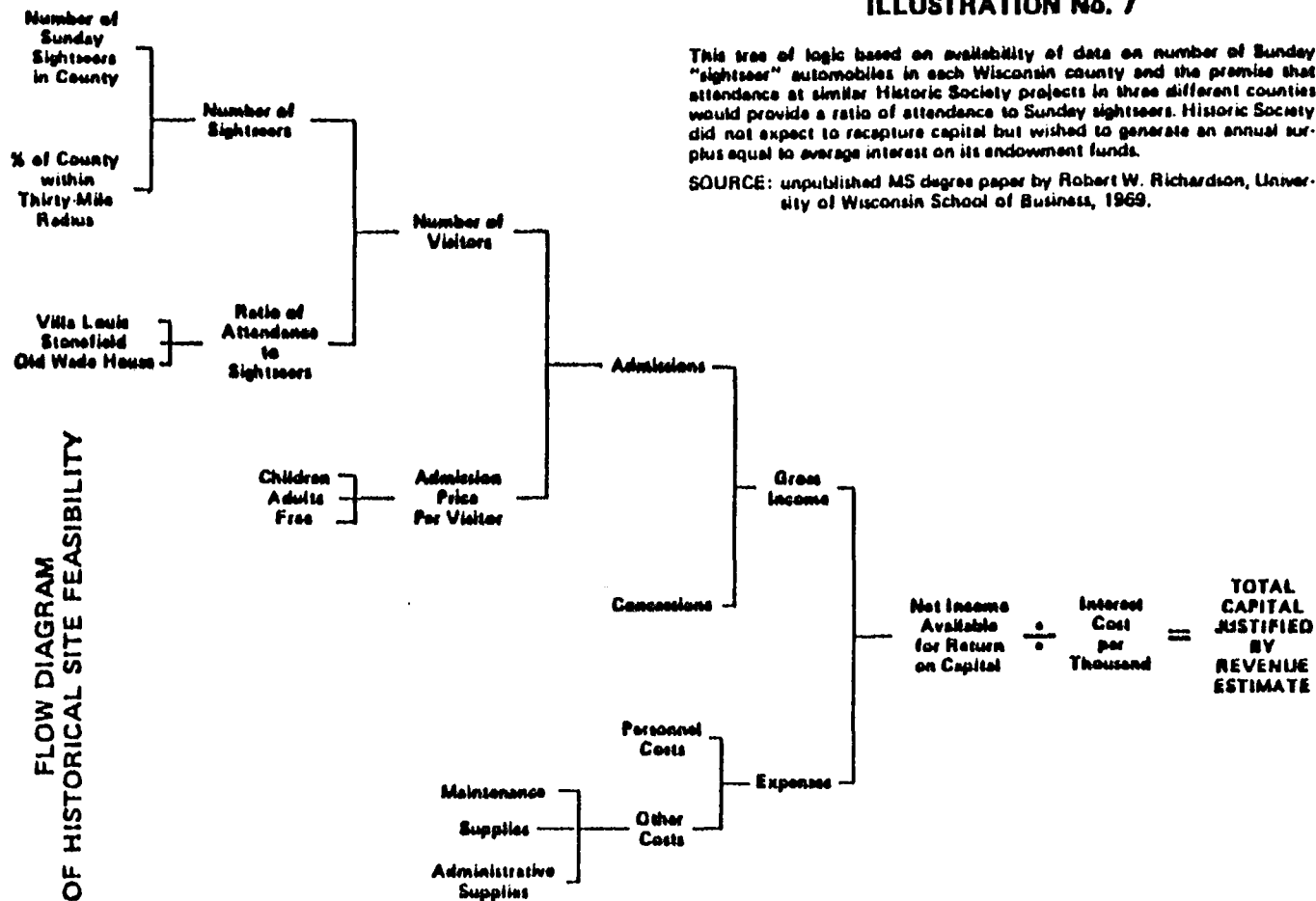
- (1) High degree of interest in project is defined as those who answered Question #47 with a 1, 2, or 3 response. These respondents are interpreted as having serious interest now or interest in a year or so. See questionnaire in Appendix for exact wording of the question.

II. Market data provides a measure of potential scale of a market opportunity; the most important aspect of market analysis is forecasting the degree of market penetration or capture rate of specific development.

A. To reduce aggregate market data to a merchandising hypothesis, the first clue to segmentation may be found in correctly understanding the essence of buyer motivation or of the activity to be housed.

1. Retailing is a break point for goods (a warehouse grocery), or a service industry, or a theater using lighting, staging, and mood to reinforce a role played by the buyer.
2. A restaurant may be to provide a quick food break (high turnover, pedestrian flow, conditioned ordering), or to provide recreational entertainment and consumption of an evening, or to provide a staging for business, social, or publicity roles.
3. A motel for transients, for resorts, or for terminal traffic uses all of its facilities and location to sell a "room-night" of occupancy because that is an 80% gross margin. Anything done after that is justified by its contribution to "room-night" sales or its reduction of average cost to capture a customer per "room-night."
4. The revenue unit may be related to the method of measuring profit of the project in question such as per acre, per camper pad, per event, per front foot of shoreline, per stool or table, etc., not to mention sq. ft., per frame at a bowling alley or per tennis court hours, or per hour of ice time.
5. Sometimes the prospect is identified by who really signs the check for a particular type of real estate.
  - a. The salesman or the management paying his travel costs
  - b. The doctor or the clinic
  - c. The district manager or the corporate real estate manager
  - d. The ticket buyer or the promoter
  - e. The bowling league, team business manager, travel agency tour guide

6. The market segment may be defined initially by the source for a prospective user list - people who share a common address, hobby, professional specialty or some other identifier.
  - a. A reverse directory or criss-cross telephone book
  - b. Building directories of comparables
  - c. Mailing lists of specialty publications
  - d. License number spotting
  - e. Guest registers
  - f. Charge account mailing addresses
  
- B. The objective of these approaches, revenue unit, the decision maker, the prospect list source, is to segment the user market to a specific and relatively small group of potential customers who can be surveyed to generate original and relevant information about their space needs and motivations. Unlike most consumer markets, the number of prospects is always low; think small!
  1. Real estate is a series of micro-markets. A 24-unit building with one, two, three bedroom units has at least three sub-markets.
  2. A 24-unit building is a \$500,000 enterprise with a \$75,000 gross sales potential from only 24 customers!
  
- C. Consider alternatives for segmentation of macro market models in Exhibit 4 using a branch diagram and definitions of detached family housing unit consumers in Exhibit 5.
  
- D. The ratio sought by the survey follow a precise reduction pattern:
  1. How many will consider moving?
  2. Of those, how many would consider staying in town?
  3. Of those, how many would consider an apartment?
  4. Of those remaining, who would consider an apartment in town, how many would consider a specific location?
  5. Notice the reduction process defines a subset of the elderly market - a micro-market.



Source: James A. Graaskamp. A Guide to Feasibility Analysis, (Society of Real Estate Appraisers, 1972), p.40.



## POTENTIAL MARKET SEGMENTS

- I. Singles — Unmarried, active, mobile, many interests, entertain informally, few financial burdens, recreation oriented. Buy basic furniture, basic kitchen equipment, cars, stereos, and vacations.
- II. Young Marrieds, #1 — Young couple, working wife, entertain informally, amateur gardeners, planning on family. Better off financially than they will be in the "family formation" future. Buy durables — cars, kitchen equipment, furniture, and vacations. Rate housing as a need for more living space.
- III. Young Marrieds, #2 — Discretionary income available, deferring family, active, entertain informally and often, some formal entertaining, independent, dual-person working household, do-it-yourself buffs, sports car. Rate housing as an investment.
- IV. Compact Family/Move Down — Discretionary income available, interested in no maintenance, informal living, some formal entertainment. Away from home often, occasional visits from family or guests, focus on both active and passive recreation.
- V. Divorcees/With Children — Family oriented activity, limited entertainment, informal lifestyle, limited maintenance.
- VI. Full Nest, #1 — Home purchasing at its peak, even though liquid assets are low. Dissatisfied with financial position, and amount of money saved. Conscious of monthly payments, family activities. Unemployed female with numerous interests, mostly child oriented. Lifestyle is casual and informal. Interested in new products, buy washers, dryers, T.V.'s, baby food, dolls, wagons, etc.
- VII. Full Nest, #2 -- Family move-up market, as financial position gets better, some wives work. Interested in larger sized packages. The most price/size sensitive group.
- VIII. Established Family -- Making monthly payment comfortably, some discretionary income as more wives work, approaching peak of economic and social lifestyle curve, some formal entertaining, older children and teenagers, many interests.
- IX. Luxury Families -- Have arrived, tremendous discretionary income, very formal house, don't entertain often, but when they do, it's formal, dine out often, no maintenance, privacy mandatory.

- X. Empty Nester - Home ownership at its peak, more satisfied with financial position. Small or no debt. Family is often away from home, occasional visits from family. Mobile in attitude, but permanent in residence, near grandchildren, many hobbies, one child in college, one or two children married, self-sufficient couple.
- XI. Active Retired — Still working two or three days per week, active either socially or politically in community or church affairs, self-sufficient, many hours away from home, do not entertain often, but when they do, it's semi-formal. Winter/summer residences. Likely to sell home before retirement.
- XII. Retired — Drastic cut in income, dependent, limited activities outside community. Winter/summer residences.

- E. Each of these ratios suggests a specific calculation or perhaps a short table of statistics. The specific title on the table of data and its sub-columns should be written before the questions are drafted and the collection of data begun. Notice the research begins with careful definition of the questions to be answered. All answers become relevant and all unnecessary questions are avoided. These types of questions depend on knowing the precise character of secondary data available to which the ratios must be applied in the systematic model devised for the problem.
1. Confine vocabulary to basic 1000 words; avoid lingo.
  2. Structure questions to permit check-off, or branching to set up subsets. (See Exhibit 6.)
  3. Always test the questionnaire on half a dozen prospects or friends to reveal misunderstandings before using on the market.
  4. Questions may take different formats. (See Exhibit 6.)
- F. The second type of question is generally attempting to measure either anxieties or preferences. Both are dangerous survey areas for amateurs as well as professionals and it is often cheaper to subcontract these particular functions to consumer research specialists. Nevertheless, a little common sense can generate considerable useful information on the competitive edge.
1. Probe for dissatisfaction with existing space or life style.
  2. Probe for anxieties about uncontrollable trends and events.
  3. Probe for desired social structure ties, real or imagined.

# Simple Survey Formats for Classification of Subsets & Measurement of Preference

I'd like to ask you a few questions about the place you lived just before you moved into this apartment.

5. About how many years did you live in your former home?

- ☐ less than 1 year      ☐ 10 to 15 years  
☐ 1 year - L.T. 2 years      ☐ more than 15 years, \_\_\_\_\_  
☐ 2 to L.T. 5 years  
☐ 5 to L.T. 10 years

6. Did you live in a house or in an apartment building just before your move here?

☐ house      ☐ apartment      ☐ other, \_\_\_\_\_  
 About how many apartments, including yours were there in the building?  
☐ L.T. 4      ☐ 17 to 24  
☐ 4 to 8      ☐ 24 to 32  
☐ 9 to 16      ☐ more than 32  
 About how much rent did you pay per month, including utilities but not telephone? \$ \_\_\_\_\_  
☐ L.T. \$50      ☐ \$100 to L.T. \$125  
☐ \$50 to L.T. \$75      ☐ \$125 to \$150  
☐ \$75 to L.T. \$100      ☐ more than \$150  
 Did you own or rent the house?  
☐ own      ☐ rent  
 Did you rent a room, a flat or floor, or entire house?  
☐ room      ☐ flat/floor      ☐ entire  
 About how much rent did you pay per month, including utilities but not telephone? \$ \_\_\_\_\_  
☐ L.T. \$50      ☐ \$100 to L.T. \$125  
☐ \$50 to L.T. \$75      ☐ \$125 to \$150  
☐ \$75 to L.T. \$100      ☐ more than \$150  
 Now I'd like to ask you some general questions about your decision to move to this apartment.

7. How did you first find out about them?

- ☐ family      ☐ newspaper  
☐ friends      ☐ radio  
☐ church      ☐ television  
☐ Housing Authority      ☐ other, \_\_\_\_\_

26. How important are the following items to you?

|  | Very<br>Important | Somewhat<br>Important | Indifferent | Somewhat<br>Unimportant | Not<br>Important |
|--|-------------------|-----------------------|-------------|-------------------------|------------------|
| Private Balconies<br>or patios   | ( )               | ( )                   | ( )         | ( )                     | ( )              |
| Laundry facilities<br>in each building   | ( )               | ( )                   | ( )         | ( )                     | ( )              |
| Washer/dryer connection<br>in your apartment   | ( )               | ( )                   | ( )         | ( )                     | ( )              |
| Extra storage space  | ( )               | ( )                   | ( )         | ( )                     | ( )              |
| More than 1 bath   | ( )               | ( )                   | ( )         | ( )                     | ( )              |
| Carpeted stairways &<br>hallways in common<br>areas of apt. bldg.<br>(Areas shared by all residents) | ( )               | ( )                   | ( )         | ( )                     | ( )              |
| Master T.V. Antenna<br>System  | ( )               | ( )                   | ( )         | ( )                     | ( )              |
| Children's day care<br>center and/or<br>nursery school nearby  | ( )               | ( )                   | ( )         | ( )                     | ( )              |

14. What type of building features would you prefer in the layout of the condominium unit? (choose only one of each of the following sets of alternatives)

- ( ) Two bedrooms with larger living area or/
- ( ) Three bedrooms
- \_\_\_\_\_
- ( ) Three bedrooms, or/
- ( ) Four bedrooms, or/
- ( ) Large master bedroom and two 4-bed bunk rooms
- \_\_\_\_\_
- ( ) Two-story living room with inside balcony, or/
- ( ) Living room with beamed cathedral ceiling
- \_\_\_\_\_
- ( ) Full dining room, or
- ( ) Dining "L" plus family-sized kitchen
- \_\_\_\_\_
- ( ) Sundeck balcony for living room or/
- ( ) Outdoor patio at ground level
- \_\_\_\_\_
- ( ) Walk-in closets in each room or/
- ( ) Large work room plus laundry room in each unit & standard closets
- \_\_\_\_\_
- ( ) One car garage attached to unit or/
- ( ) Two car garage in group parking complex, or/
- ( ) Carport and lower price
- \_\_\_\_\_
- ( ) Central air conditioning or/
- ( ) Woodburning masonry fireplace or/
- ( ) Gas-log fireplace and window air conditioning unit
- \_\_\_\_\_
- ( ) Contemporary natural decor with wood and rock materials, or/
- ( ) Maintenance-free modern masonry and aluminum exteriors, or/
- ( ) Well styled colonial detailing
- \_\_\_\_\_
- ( ) Extensive outside landscaping, or/
- ( ) More floor space in each room

- G. The real estate analyst can choose between systematic telephone interviews, direct mail questionnaires, and personal interviews in depth.
1. The telephone interview may be less expensive per question and fastest but is limited in the type and amount of questions which can be asked. Rifled to a project known to the analyst, it tells much about the user profile for a good comparable without having to ask about the product which the analyst can inspect for himself.
  2. A telephone survey is also useful to disaggregate census data or to estimate market penetration of a competitor (such as a retail store) into an area.
  3. Direct mail questionnaires may cost from 5 cents to \$3 or more for each successful question; they take at least a week to prepare and test and perhaps three weeks before cutoff of additional responses. The type of question is broader and can be graphic such as alternative site maps and simple floor plans; response depends on careful construction of the mailing list, a very time consuming process. Consider the following types of questions:
    4. The double barreled question occurs when two or more questions are combined in one so that the answer is always ambiguous as to the significance of each item but often occurs in the effort to shorten an interview or a question.
      - . Would you be at all uneasy if people of a different religion or race were to move in next to your home?
      - . As you see it, what are some of the good points and the bad points of the present Governor of this state?
    5. Sensitive questions on family income should be asked at the end of the interview while the opening questions should be of more general interest. When a question about income is asked, the response should permit some degree of obliqueness by the respondent.
      - . The respondent can select a range of income or perhaps enter the answer with a letter A, 1, B, etc. in place of a dollar amount.

- . If socio-economic questions are generally short and direct, they are a welcome contrast to the time consuming and thought provoking questions which preceded them.
- 6. Consider the following market model in Exhibit 7 and the apartment market questionnaire in Exhibit 8.
- H. A survey of existing properties and alternatives available to a selected market segment defines only the competitive standard - namely the minimum product and price necessary to be in the market.
  - 1. Comparison shopping further identifies where there may be gaps in the supply of alternatives, a market opportunity gap, or where the oversupply is so significant as to portend the last competitive alternative before bankruptcy - namely price cutting.
  - 2. Comparison shopping should not only identify the physical characteristics of the product and price but the nature of the promotion effort as well.
  - 3. Promotion comparison should consider pedestrian and vehicle approaches, model location, furnishings, and sales people.
  - 4. Review of the promotion campaign should reveal whom the competitors believe to be their prospect.
- I. A survey of users, is designed to reveal or to identify the competitive differential attributes which would provide that monopoly element required of every successful project.
  - 1. A second product of consumer survey is the ability to develop locally relevant ratios which permit disaggregation of market data into market segments and the conversion of potential numbers of people into potential dollar sales over time.
  - 2. Survey questions to create ratios require previous construction of a market model hypothesis.
  - 3. Survey questions can discover latent political issues or provide a calm base for citizen input from those who rightfully dislike public hearings.
  - 4. Survey questions and execution should not be done by planners or appraisers.

LOGIC FOR ESTIMATION OF EFFECTIVE DEMAND  
FOR PROPOSED RETIREMENT CENTER

## STEP 1:

Number of households in sample  
with interested, qualified respondent(s)  
----- = Sample ratio  
Number of households in sample

## STEP 2:

|   |   |              |   |   |
|---|---|--------------|---|---|
| Number of households<br>in population<br>segmented by age | * | Sample ratio | = | Number of households<br>in population segmented<br>by age, income/assets,<br>and degree of interest |
|---|---|--------------|---|---|

## STEP 3:

|   |   |              |   |   |
|---|---|--------------|---|---|
| Number of households in<br>population segmented by age<br>income/assets and degree<br>of interest | * | Capture rate | = | Estimate of number<br>of units proposed<br>project can capture<br>from identifiable<br>groups |
|---|---|--------------|---|---|

## STEP 4:

Developer must assume total unit demand will be the sum of  
units estimated in STEP 3 plus some units unanticipated from  
other communities and market segments.



# **FEASIBILITY RESEARCH GROUP**

CONSUMER MARKET RESEARCH FOR DECISION MAKERS

JOHN A. RASMUSSEN  
Research Coordinator

MARCH, 1981  
MILWAUKEE, WISCONSIN  
APARTMENT AND CONDOMINIUM SURVEY

DEAR RESIDENT:

YOU CAN HELP PLAN NEW CONDOMINIUM APARTMENTS. WHILE YOU MAY NOT HAVE EVEN THOUGHT ABOUT A NEW HOME, YOUR INPUT IS NEEDED TO IDENTIFY THE HOUSING NEEDS AND PREFERENCES OF MILWAUKEE RESIDENTS.

THIS SURVEY IS BEING CONDUCTED BY FEASIBILITY RESEARCH GROUP, LTD., AN INDEPENDENT MARKET RESEARCH FIRM.

PLEASE FILL OUT THE ENCLOSED QUESTIONNAIRE AND RETURN IT IN THE POSTAGE-PAID ENVELOPE. THIS WILL ASSIST LOCAL HOUSING DEVELOPERS PLAN NEW HOUSING IN RESPONSE TO RESIDENT NEEDS AND PREFERENCES.

YOUR REPLY TO THE SURVEY IS CONFIDENTIAL. THE CODE NUMBER IS USED ONLY TO HELP US REMIND PEOPLE WHO HAVE NOT RETURNED THE SURVEY. NOT EVERY HOUSEHOLD IS SURVEYED SO EACH RESPONSE IS IMPORTANT.

PLEASE RETURN YOUR SURVEY IN THE POSTAGE PAID ENVELOPE AS SOON AS POSSIBLE.

VERY TRULY YOURS,



JOHN A. RASMUSSEN  
RESEARCH COORDINATOR

## **YOUR OPINION COUNTS**

EXHIBIT 8

### INFORMATION ABOUT PRESENT RESIDENCE

1. Which of the following best describes your current residence?
 

|   |  |
|---|--|
| .1 <input type="checkbox"/> Single family residence   | .4 <input type="checkbox"/> Apartment (without elevator) |
| .2 <input type="checkbox"/> Condominium               | .5 <input type="checkbox"/> Duplex                       |
| .3 <input type="checkbox"/> Apartment (with elevator) | .6 <input type="checkbox"/> Other, please specify _____  |
2. In Which area of Greater Milwaukee do you currently live?
 

|                                       |   |
|---------------------------------------|---|
| .1 <input type="checkbox"/> Downtown  | .4 <input type="checkbox"/> Whitefish Bay               |
| .2 <input type="checkbox"/> Eastside  | .5 <input type="checkbox"/> Fox Point                   |
| .3 <input type="checkbox"/> Shorewood | .6 <input type="checkbox"/> Other, please specify _____ |
3. How long have you lived in your current residence?
 

|  |   |
|--|---|
| .1 <input type="checkbox"/> Less than 1 year | .4 <input type="checkbox"/> 5—10 years    |
| .2 <input type="checkbox"/> 1—3 years        | .5 <input type="checkbox"/> over 10 years |
| .3 <input type="checkbox"/> 3—5 years        |   |
4. Do you rent/own your current residence?
 

|                                  |                                 |   |
|----------------------------------|---------------------------------|---|
| .1 <input type="checkbox"/> Rent | .2 <input type="checkbox"/> Own | .3 <input type="checkbox"/> Neither rent nor own. |
|----------------------------------|---------------------------------|---|
5. Please indicate the number of rooms in your current residence.
 

|   |
|---|
| .1 Living Room <input type="checkbox"/> Yes <input type="checkbox"/> No   |
| .2 Combination living/sleeping <input type="checkbox"/> Yes <input type="checkbox"/> No (Studio)  |
| .3 Den/Study <input type="checkbox"/> Yes <input type="checkbox"/> No   |
| .4 Formal Dining Room <input type="checkbox"/> Yes <input type="checkbox"/> No  |
| .5 Dining area in Living Room <input type="checkbox"/> Yes <input type="checkbox"/> No  |
| .6 Breakfast area in Kitchen <input type="checkbox"/> Yes <input type="checkbox"/> No   |
| .7 Baths <input type="checkbox"/> 1 <input type="checkbox"/> 1½ <input type="checkbox"/> 2 <input type="checkbox"/> 2½ <input type="checkbox"/> 3 <input type="checkbox"/> other _____  |
| .8 Bedrooms <input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> other _____ |
| .9 Laundry <input type="checkbox"/> Basement <input type="checkbox"/> Same floor as unit <input type="checkbox"/> In your unit  |
| .10 Balcony <input type="checkbox"/> Yes <input type="checkbox"/> No  |
6. How many parking spaces do you current have?
 

|   |  |
|---|--|
| .1 <input type="checkbox"/> 1 inside garage | .4 <input type="checkbox"/> 2 outside lot  |
| .2 <input type="checkbox"/> 2 inside garage | .5 <input type="checkbox"/> street parking |
| .3 <input type="checkbox"/> 1 outside lot   | .6 <input type="checkbox"/> Do not own car |

- .7. Do you rent/own your parking space?
 

|                                  |                                 |   |
|----------------------------------|---------------------------------|---|
| .1 <input type="checkbox"/> Rent | .2 <input type="checkbox"/> Own | .3 <input type="checkbox"/> Neither rent nor own. |
|----------------------------------|---------------------------------|---|
8. If you own your residence what is its current value
 

|  |
|--|
| .1 <input type="checkbox"/> Under \$50,000     |
| .2 <input type="checkbox"/> \$50,000—\$75,000  |
| .3 <input type="checkbox"/> \$75,001—\$100,000 |
| .4 <input type="checkbox"/> Over \$100,000     |
| .5 <input type="checkbox"/> Don't know         |
| .6 <input type="checkbox"/> Not applicable     |

### INFORMATION ABOUT PREVIOUS RESIDENCE

- Which best describes your previous residence?
- |   |  |
|---|--|
| .1 <input type="checkbox"/> Single family             | .4 <input type="checkbox"/> Apartment (without elevator) |
| .2 <input type="checkbox"/> Condominium               | .5 <input type="checkbox"/> Duplex                       |
| .3 <input type="checkbox"/> Apartment (with elevator) | .6 <input type="checkbox"/> Other, please specify _____  |
10. Please indicate the city and zip code of your previous residence?
 

|               |                   |
|---------------|-------------------|
| .1 City _____ | .2 Zip Code _____ |
|---------------|-------------------|
  11. Did you rent or own your previous residence?
 

|                                  |                                 |   |
|----------------------------------|---------------------------------|---|
| .1 <input type="checkbox"/> Rent | .2 <input type="checkbox"/> Own | .3 <input type="checkbox"/> Neither rent nor own. |
|----------------------------------|---------------------------------|---|

### INFORMATION ABOUT FUTURE RESIDENCE

12. How long do you expect to live in your current residence before you make a move?
 

|  |
|--|
| .1 <input type="checkbox"/> Less than 1 year |
| .2 <input type="checkbox"/> 1—3 years        |
| .3 <input type="checkbox"/> 3—5 years        |
| .4 <input type="checkbox"/> 5—10 years       |
| .5 <input type="checkbox"/> Over 10 years    |
| .6 <input type="checkbox"/> Don't know       |
13. What do you foresee will be the major reason for leaving your current residence?
 

|   |  |
|---|--|
| .1 <input type="checkbox"/> Job Transfer      | .7 <input type="checkbox"/> Transportation Costs         |
| .2 <input type="checkbox"/> Divorce/Marriage  | .8 <input type="checkbox"/> Increase in family size      |
| .3 <input type="checkbox"/> Purchase benefits | .9 <input type="checkbox"/> Decrease in family size      |
| .4 <input type="checkbox"/> Larger home       | .10 <input type="checkbox"/> Will never leave            |
| .5 <input type="checkbox"/> Smaller home      | .11 <input type="checkbox"/> Other, please specify _____ |
| .6 <input type="checkbox"/> Location          |  |

EXHIBIT 8 (Continued)

14. Please rank the following of housing in order of preference for you next residence. (1 most preferred, 3 least preferred)

- .1 ☐ Single Family  
 .2 ☐ Condominium  
 .3 ☐ Rented Apartment

15. Please indicate the number of rooms you would prefer in your next residence.

- .1 Living Room ☐ Yes ☐ No  
 .2 Combination living/sleeping ☐ Yes ☐ No (Studio)  
 .3 Den/Study ☐ Yes ☐ No  
 .4 Formal Dining Room ☐ Yes ☐ No  
 .5 Dining area in Living Room ☐ Yes ☐ No  
 .6 Breakfast area in Kitchen ☐ Yes ☐ No  
 .7 Baths ☐ 1 ☐ 1½ ☐ 2 ☐ 2½ ☐ 3 ☐ other \_\_\_\_\_  
 .8 Bedrooms ☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ other \_\_\_\_\_  
 .9 Laundry ☐ Basement ☐ Same floor as unit ☐ in your unit  
 .10 Balcony ☐ Yes ☐ No

#### PROPOSED HOUSING

16. Several developers are currently selling or planning to build new condominium homes on the east side and near the downtown area of Milwaukee. Please indicate whether you have heard about or visited the sales offices of the following condominium homes.

|   | Heard<br>About           | Visited<br>Sales office  |
|---|--------------------------|--------------------------|
| 1 The Atrium (State and Van Buren<br>Adjacent to Juneau<br>Village Shops) | <input type="checkbox"/> | <input type="checkbox"/> |
| 2 Cathedral Place (Kilbourn and<br>Van Buren)                             | <input type="checkbox"/> | <input type="checkbox"/> |
| 3 Diamond Towers (Prospect opposite<br>Prospect Towers)                   | <input type="checkbox"/> | <input type="checkbox"/> |
| 4 Lafayette Place (Prospect at<br>Lafayette)                              | <input type="checkbox"/> | <input type="checkbox"/> |
| 5 L'Hermitage (Juneau at Jefferson)                                       | <input type="checkbox"/> | <input type="checkbox"/> |
| 6 Other, please specify (Name and<br>Location)                            |                          |                          |
| Name _____  |                          |                          |
| Location _____  | <input type="checkbox"/> | <input type="checkbox"/> |

17. Please indicate your preference for each of the follow condominium concepts.

|   | Most<br>Prefer           | Somewhat<br>Prefer       | Neutral<br>Opinion       | Somewhat<br>Dislike      | Most<br>Dislike          | No<br>Opinion            |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| .1 The Atrium<br>— 14 story building<br>— 172 condominium homes<br>— 10 to 14 homes per floor<br>— open center atrium 14 stories high | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| .2 Cathedral Place<br>— 28 story building<br>— 324 condominium homes<br>— 8 to 16 homes per floor                                     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| .3 Diamond Towers on Prospect<br>— 21 story building<br>— 112 condominium homes<br>— 4 to 6 homes per floor                           | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| .4 Lafayette Place<br>— 15 story building<br>— 82 condominium homes<br>— 4 to 6 homes per floor                                       | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| .5 L'Hermitage<br>— Two-3 story buildings<br>— 48 total condominium homes<br>— 8 homes per floor                                      | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

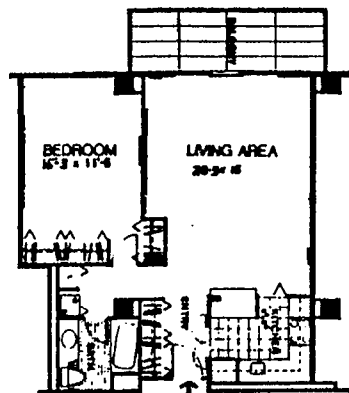
18. For your future housing, which location appeals to you most?  
 Please refer to location map on back page.

|   | Most<br>Prefer           | Somewhat<br>Prefer       | Neutral<br>Opinion       | Somewhat<br>Dislike      | Most<br>Dislike          | No<br>Opinion            |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| .1 Site 1—The Atrium<br>(N. Van Buren,<br>E. State St.)               | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| .2 Site 2—Cathedral Place<br>(N. Van Buren, E. State<br>and Kilbourn) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| .3 Site 3—Diamond Towers<br>Prospect Ave.)                            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| .4 Site 4—Lafayette (Prospect)<br>and Lafayette)                      | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| .5 Site 5—L'Hermitage (Juneau,<br>Jefferson, Jackson<br>area)         | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| .6 —None of the above, I<br>prefer _____                              | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

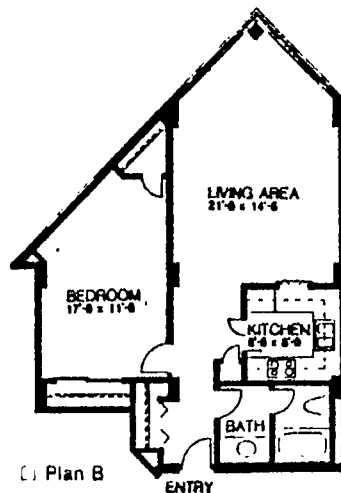
# FUTURE HOUSING FLOOR PLAN PREFERENCE

19. The floor plans shown below represent plans for two proposed Milwaukee apartment condominium homes. Please review the plans and answer the two questions at the bottom of this page.

PLAN A — One Bedroom  
One Bath  
Inside Unit  
775 sq. ft.



PLAN B — One Bedroom  
One Bath  
Corner Unit  
775 sq. ft.



- .1 Which plan do you prefer? ☐ Plan A ☐ Plan B

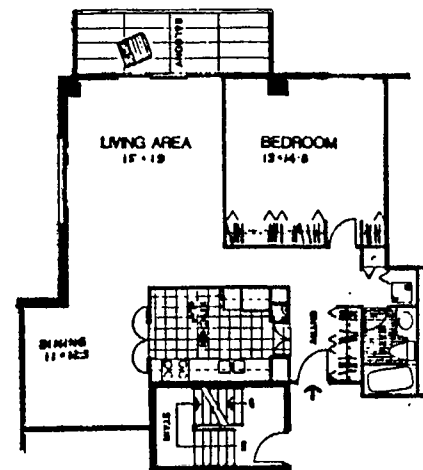
Comments \_\_\_\_\_

- .2 Which plan would you expect to sell for the highest price?

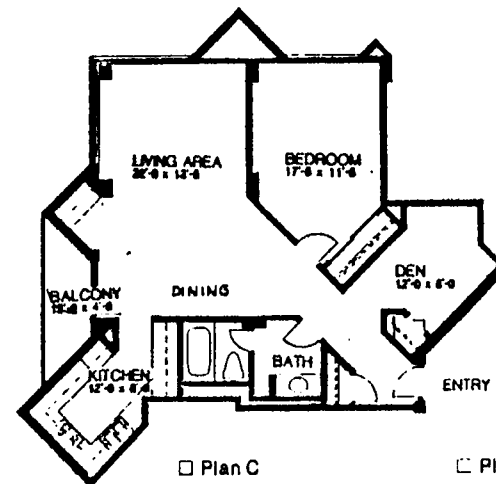
☐ Plan A ☐ Plan B

20. The following two floor plans represent larger size one bedroom plans. Please review the plans and answer the questions at the bottom of this page.

PLAN C — One bedroom  
One Bath  
Corner Unit  
Dining Room  
950 sq. ft.



PLAN D — One Bedroom  
One Bath  
Corner Unit  
Den  
935 sq. ft.



- .1 Which plan do you prefer?

☐ Plan C

☐ Plan D

Comments \_\_\_\_\_

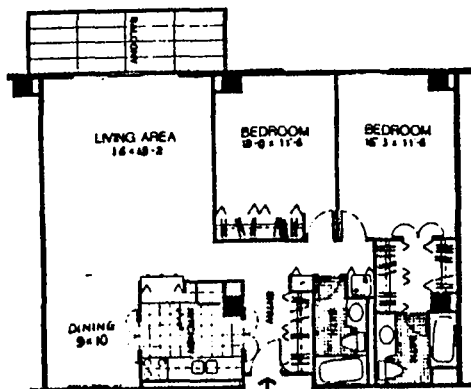
- .2 Which plan would you expect to sell for the highest price?

☐ Plan C

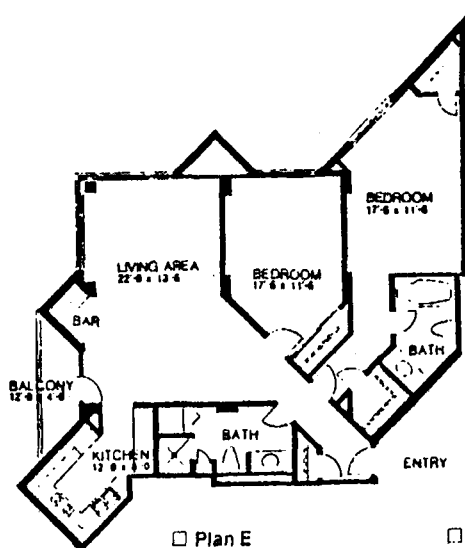
☐ Plan D

21. Please review the plans and answer the questions at the bottom of this page.

PLAN E — Two bedrooms  
Two Baths  
Inside Unit  
1160 sq. ft.



PLAN F — Two Bedrooms  
Two Baths  
Corner Unit  
1195 sq. ft.



.1 Which plan do you prefer?

Comments \_\_\_\_\_

.2 Which plan would you expect to sell for the highest price?

☐ Plan E

☐ Plan F

22. What type of parking do you prefer for your future residence?

- .1 ☐ Inside (basement) garage parking
- .2 ☐ Outside lot parking
- .3 ☐ Street parking
- .4 ☐ Do not need parking

23. Do you prefer to rent or own your parking space?

- .1 ☐ Prefer to own parking space
- .2 ☐ Prefer to rent
- .3 ☐ Neither

24. How many parking spaces do you or your household require?

.1 \_\_\_\_\_

### HOUSING AMENITIES

25. How important are the following considerations in selecting an apartment or condominium home?

|   | Very<br>Important        | Somewhat<br>Important    | Not<br>Important         |
|---|--------------------------|--------------------------|--------------------------|
| .1 Quality housing in neighborhood      | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| .2 Privacy from noise                   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| .3 View of Lake Michigan                | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| .4 View of Downtown Skyline             | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| .5 Quality of exterior construction     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| .6 Quality of interior finish           | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| .7 Health Club in Building              | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| .8 Indoor Pool                          | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| .9 Amount of storage space              | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| .10 Laundry area in apartment           | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| .11 Private Balcony                     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| .12 Safety sprinklers on all floors     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| .13 Door man (24 hours)                 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| .14 Security entrance with T.V. monitor | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| .15 Triple glazed windows               | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| .16 Semi-automatic car wash in garage   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| .17 Other, please specify _____         |                          |                          |                          |

EXHIBIT 8 (Continued)

### INFORMATION ABOUT FUTURE RESIDENCE

26. What is the maximum monthly rent/mortgage (including property taxes if mortgage) that you would pay for your preferred housing type?
- |   |   |   |
|---|---|---|
| .1 <input type="checkbox"/> Up to \$250/month | .4 <input type="checkbox"/> \$651—\$850   | .7 <input type="checkbox"/> \$1251—\$1450 |
| .2 <input type="checkbox"/> \$251—\$450       | .5 <input type="checkbox"/> \$851—\$1050  | .8 <input type="checkbox"/> Over \$1450   |
| .3 <input type="checkbox"/> \$451—\$650       | .6 <input type="checkbox"/> \$1051—\$1250 | .9 <input type="checkbox"/> Don't know    |
27. If the cost of construction for your ideal residence is more than you are willing to pay, what would you give up?
- |   |  |
|---|--|
| .1 <input type="checkbox"/> Quality of construction       | .5 <input type="checkbox"/> Central Air Conditioning |
| .2 <input type="checkbox"/> Room Size                     | .6 <input type="checkbox"/> Wet Bar                  |
| .3 <input type="checkbox"/> Amount of exterior open space | .7 <input type="checkbox"/> Dining Room              |
| .4 <input type="checkbox"/> Garage Space                  | .8 <input type="checkbox"/> Kitchen eating area      |
| .10 <input type="checkbox"/> Other, please specify _____  | .9 <input type="checkbox"/> View of Lake Michigan    |
28. Have you ever considered buying an condominium apartment?
- .1 ☐ Yes, I/we bought an existing condominium
- .2 ☐ Yes, I/we considered buying a new condominium home
- .3 ☐ Yes, I/we considered buying an existing apartment
- .4 ☐ No, I/we prefer to rent
- Comments \_\_\_\_\_

### BACKGROUND INFORMATION

29. Please answer the following about the Head of Household:
- .1 Age: ☐ Under 25    ☐ 25—29    ☐ 30—34    ☐ 35—44  
☐ 45—54    ☐ 55—64    ☐ Over 65
- .2 Sex: ☐ Female    ☐ Male
- .3 Schooling Completed: ☐ 8th grade or less    ☐ Some high school  
☐ High school diploma    ☐ Some college    ☐ College diploma    ☐ Advanced degree
- .4 Marital Status: ☐ Single, never married  
☐ Divorced, separated, or widowed    ☐ Married
30. Please indicate the zip code where you (and your spouse) presently work:
- |                          |                |                          |
|--------------------------|----------------|--------------------------|
| Your                     | Zip Code       | Spouse                   |
| _____                    | _____          | _____                    |
| <input type="checkbox"/> | Not Applicable | <input type="checkbox"/> |

31. Do you have children? ☐ Yes    ☐ No.    If yes, how many children now live in your residence?
- .1 ☐ One    ☐ Two    ☐ Three    ☐ Four    ☐ Five    ☐ None    ☐ Other \_\_\_\_\_
- .2 What are the ages of the children living in your residence?  
 \_\_\_\_\_

32. In which category does your total annual household income fall?
- |   |  |
|---|--|
| .1 <input type="checkbox"/> \$0—\$9,999       | .5 <input type="checkbox"/> \$40,000—49,999    |
| .2 <input type="checkbox"/> \$10,000—\$19,999 | .6 <input type="checkbox"/> \$50,000—59,999    |
| .3 <input type="checkbox"/> \$20,000—29,999   | .7 <input type="checkbox"/> \$60,000—69,999    |
| .4 <input type="checkbox"/> \$30,000—39,999   | .8 <input type="checkbox"/> \$70,000 or higher |

How many individuals contribute to this income?

- .1 ☐ One    .2 ☐ Two    .3 ☐ Three    .4 ☐ Other \_\_\_\_\_

COMMENTS: \_\_\_\_\_

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

### THANK YOU FOR YOUR HELP!

Please return your survey in the postage paid envelope, as soon as possible.

Feasibility Research Group  
 527 E. Liberty St. Suite 208  
 Ann Arbor, Michigan 48104

18. For your future housing, which location appears to you most?  
Please refer to location map below and answer question 18 on page 5.

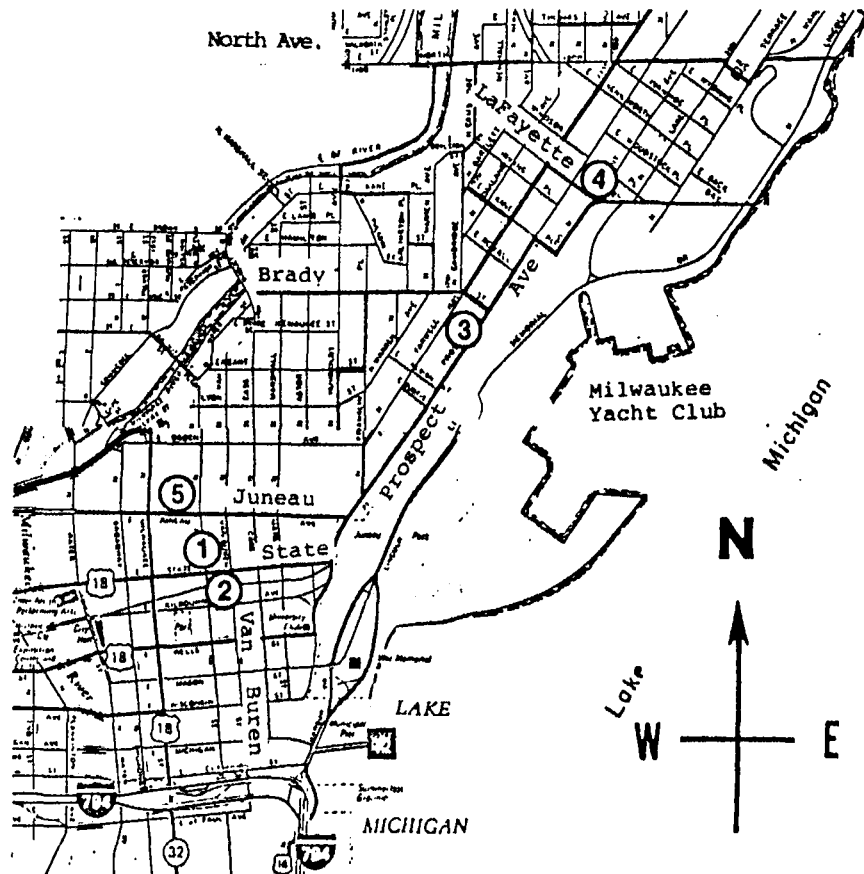


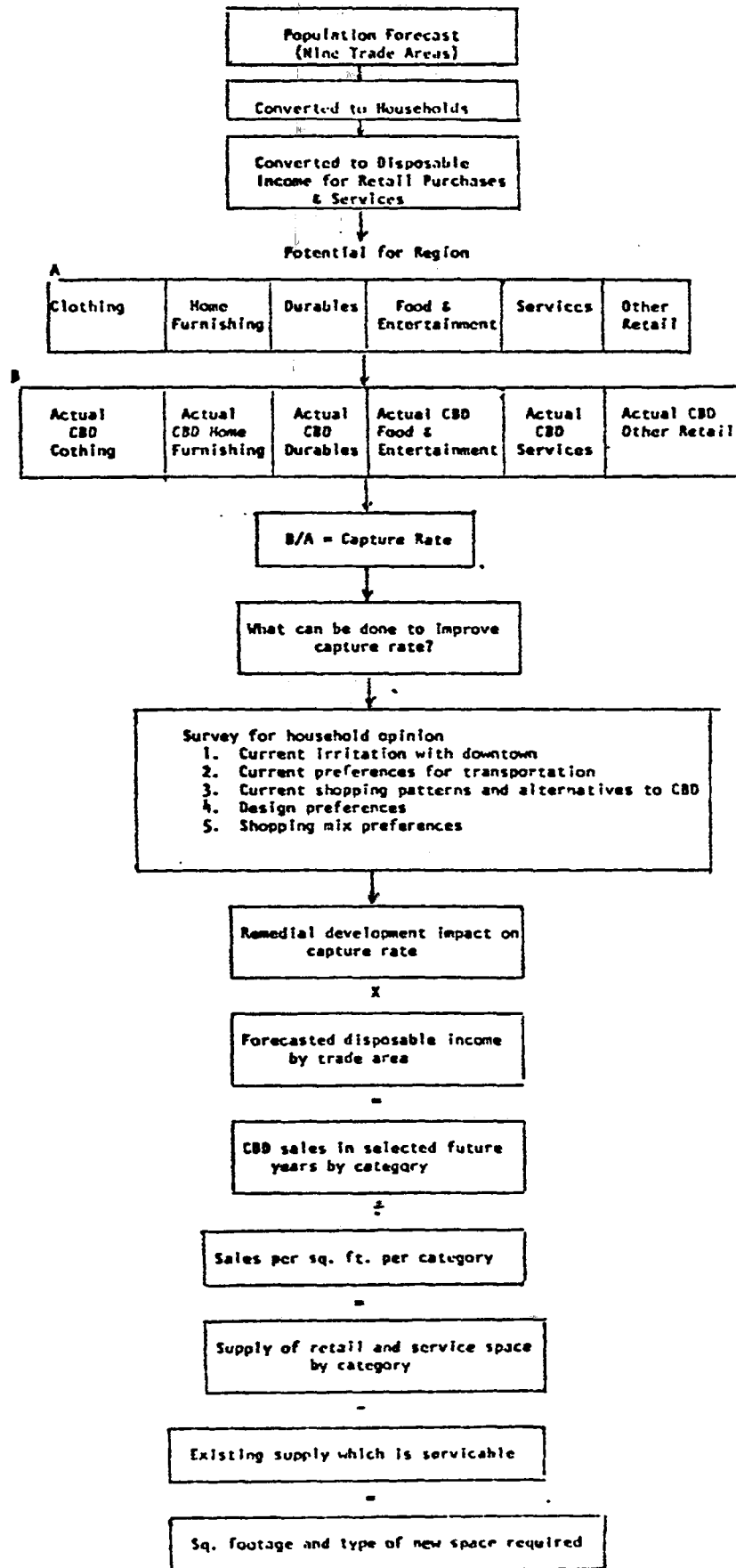
EXHIBIT 8 (Continued)

III. A good example of modeling market data through segmentation and survey for renovation in a small community is a project by Gruen Gruen + Associates for Santa Maria, California. The study was begun in 1972. Proposals were solicited in 1973 and the first phase of the project is operating as the Santa Maria Town Center with retail sales ahead of forecasts.

A. The Gruen's were able to convince the redevelopment agency to avoid any physical planning until a detailed analysis of the demand for alternative services that could attract people back to the downtown area was done. This EMAS study (economic market analysis study) flow chart is in Exhibit 9 and had the following outputs:

1. First, a full analysis of economic data and retail data was utilized to generate information about the type of tenancies that could realistically be expected to penetrate downtown markets.
2. With a lease on tenancies, the Gruen's worked with an architect to provide sketches of alternative architectural styles and concepts to show residence in survey to see what type of treatments might strike the most positive response.
3. The EMAS should then be able to indicate the kind of tenancies that could survive downtown, suggest their dollar sales potential, and indicate at a preliminary level a design scheme.
4. At the same time, back door financial studies are done from rents from capital budgets to discover what would be feasible for the private developer and what components may need to be subsidized by the public.
5. Appraisers use the EMAS and suggested tenant mix as the basis for their value estimate in the after condition.





## EXHIBIT 10

31

Excerpt With Permission From  
Economic & Market Analysis Study for Downtown Santa Maria

Prepared for City of Santa Maria Redevelopment Agency  
by Gruen Gruen + Associates

Thus, the relationship between survey derived indications of satisfaction and current expenditure patterns were sufficiently significant to warrant the use of survey responses to suggest the change in relative preferences that would be caused by an appropriately developed new shopping agglomeration in downtown Santa Maria. However, the rapid deterioration of this relationship with distance suggested that it be used very cautiously in Trade Areas 5 through 9. Therefore, in addition to considering the percentage of respondents who made no complaints, we also analyzed into the following three categories all the comments that were made in response to the interview question concerning the reasons for not shopping in downtown Santa Maria:

1. Complaints about physical deficiencies of the existing downtown that we have assumed the redevelopment will alleviate. (Remediable complaints)
2. Complaints concerning limited selection such as requests for a department store or more stores. (Remediable complaints)
3. Complaints about prices, the lack of a supermarket or other contemporary situations that we do not think the redevelopment programs will alter. (Irremediable complaints)

Table 10 presents the percentage of respondents making remediable complaints. These complaints were used in conjunction with the information about the relationship between the indications of satisfaction discussed above to adjust the present indicators of the proportion of expenditures on various items in downtown Santa Maria (the S variables originally presented in Table 4) to reflect the increase in consumer preferences for downtown Santa Maria that would result from the completion of a sales optimizing redevelopment program. We did not think the evidence warranted using these percentages of remediable complaints (%RC) directly by adding them to the previously revealed preference percentages (S<sub>1970</sub>) to get a new percentage (S<sub>1975</sub>, 1980, 1985). Instead, we adopted the following rules to get the new estimates of this preference variable:

|             | <u>Trade Areas 1 through 4</u> | <u>Trade Areas 5 through 9</u>        |
|-------------|--------------------------------|---------------------------------------|
| For         |                                |                                       |
| Clothing    | $\% RC \times .964 + S_{1970}$ | Use % RC instead of S <sub>1970</sub> |
| For Home    |                                |                                       |
| Furnishings | $\% RC \times .861 + S_{1970}$ | Use % RC instead of S <sub>1970</sub> |
| For Other   |                                |                                       |
| Retail      | $\% RC \times .017 + S_{1970}$ | 1% + S <sub>1970</sub>                |

Table 10

Percentage of Respondents Making Complaints  
About Remediable Features of the Present Downtown  
(Complaints About Physical Problems  
or Inadequate Selection of Stores and Goods)

| <u>Trade Area</u> | <u>%<br/>Remediable Complaints</u> |
|-------------------|------------------------------------|
| 1                 | 62.7                               |
| 2                 | 53.8                               |
| 3                 | 65.8                               |
| 4                 | 53.3                               |
| 5                 | 19.3                               |
| 6                 | 22.2                               |
| 7                 | 14.3                               |
| 8                 | 20.0                               |
| 9                 | 10.2                               |

Source: Gruen Gruen + Associates telephone survey

Computations following these rules permitted us to develop the estimates of maximum percentage effective preference or penetration presented below in Table 11. The insertion of these percentages in the sales estimate generating equations we have been using throughout permits us to make the forecasts of potential sales summarized in Table 12. The forecast sales potential of almost \$42 million in 1975 would have downtown Santa Maria capturing 26.4% of the region's sales. By 1985 potential sales climb to almost \$58 million in spite of the fact that our model has downtown Santa Maria's share of the region's sales dropping slightly to 25.4%.

Table 11

Estimated Maximum Effective Preference (S)  
or Percentage Penetration Possible  
After Appropriate Redevelopment

| <u>Trade Area</u> | <u>Clothing</u> | <u>Home Furnishings</u> | <u>Other Retail</u> |
|-------------------|-----------------|-------------------------|---------------------|
| 1                 | 76.2            | 74.5                    | 19.9                |
| 2                 | 74.3            | 69.1                    | 10.4                |
| 3                 | 76.3            | 72.2                    | 12.9                |
| 4                 | 56.9            | 53.0                    | 8.6                 |
| 5                 | 19.3            | 19.3                    | 2.1                 |
| 6                 | 22.2            | 22.2                    | 1.5                 |
| 7                 | 14.3            | 14.3                    | 1.6                 |
| 8                 | 20.0            | 20.0                    | 2.8                 |
| 9                 | 10.2            | 10.2                    | 1.5                 |

Source: Gruen Gruen + Associates

**Estimated Downtown Santa Maria Future Sales Potential  
(In Thousands of Dollars)**

| <b>Trade Area</b> | <b>\$ Available<br/>In Region<br/>1975</b> | <b>Potential \$<br/>Sales In NDP<br/>1975</b> | <b>\$ Available<br/>In Region<br/>1980</b> | <b>Potential \$<br/>Sales In NDP<br/>1980</b> | <b>\$ Available<br/>In Region<br/>1985</b> | <b>Potential \$<br/>Sales In NDP<br/>1985</b> | <b>% of<br/>Regional Sales<br/>to NDP</b> |
|-------------------|--|---|--|---|--|---|---|
| 1                 | 21,347                                     | 12,520  | 23,950                                     | 14,047  | 26,764                                     | 15,693  | 58.6                                      |
| 2                 | 9,159                                      | 4,940   | 10,665                                     | 5,753   | 12,369                                     | 6,673   | 53.9                                      |
| 3                 | 15,852                                     | 8,916   | 18,705                                     | 10,521  | 22,956                                     | 12,912  | 56.2                                      |
| 4                 | 6,759                                      | 2,806   | 7,949                                      | 3,300   | 9,473                                      | 3,933   | 41.5                                      |
| 5                 | 19,676                                     | 2,756   | 22,963                                     | 3,217   | 26,613                                     | 3,728   | 14.0                                      |
| 6                 | 18,030                                     | 2,854   | 20,878                                     | 3,305   | 24,042                                     | 3,806   | 15.8                                      |
| 7                 | 9,065                                      | 942   | 10,920                                     | 1,135   | 13,106                                     | 1,362   | 10.4                                      |
| 8.                | 25,355                                     | 3,729   | 31,043                                     | 4,566   | 38,198                                     | 5,618   | 14.7                                      |
| 9                 | 33,589                                     | 2,527   | 42,857                                     | 3,224   | 53,925                                     | 4,057   | 7.5                                       |
| <b>Total</b>      | <b>158,831</b>                             | <b>41,990</b>                                 | <b>189,931</b>                             | <b>49,068</b>                                 | <b>227,447</b>                             | <b>57,782</b>                                 |   |

Source: Gruen Gruen + Associates

## EXHIBIT 10 (Continued)

Table 30  
Proportion of Expenditures in Downtown

| <u>Trade Area</u> | <u>% Clothing</u> | <u>% Home Furnishings</u> | <u>% Other Retail</u> | <u>% Service</u> |
|-------------------|-------------------|---------------------------|-----------------------|------------------|
| 1                 | 15.9              | 20.5                      | 18.8                  | 33.3             |
| 2                 | 22.6              | 22.6                      | 9.5                   | 35.9             |
| 3                 | 13.1              | 15.5                      | 11.8                  | 23.0             |
| 4                 | 5.7               | 7.0                       | 7.7                   | 5.3              |
| 5                 | 5.4               | 4.5                       | 1.1                   | 4.0              |
| 6                 | 2.9               | 0.9                       | 0.5                   | 1.8              |
| 7                 | 2.5               | 1.5                       | 0.6                   | 0.6              |
| 8                 | 6.6               | 5.0                       | 1.3                   | 3.5              |
| 9                 | 2.0               | 0.6                       | 0.5                   | 0.6              |

Source: Gruen Gruen + Associates telephone survey

Table 31  
Banking, Repair, Beauty Parlor/Barber Shop  
and Similar Services Obtained Downtown  
By Consumers of Differing Incomes

| <u>Household Income</u> | <u>% Generally</u> | <u>% Occasionally</u> | <u>% Seldom</u> |
|-------------------------|--------------------|-----------------------|-----------------|
| Under \$7,000           | 43.7               | 22.9                  | 16.0            |
| \$7,000-10,000          | 43.3               | 20.0                  | 36.7            |
| \$10,000-15,000         | 60.7               | 12.5                  | 26.8            |
| Over \$15,000           | 61.5               | 21.2                  | 17.3            |

Source: Gruen Gruen + Associates downtown survey

6. Final stage was to write up a series of specifications or profiles on tenants, product design and components, and a cash flow analysis of the entire project from the viewpoint of the developer so he could see how much money there was to make. Then he would know that the city knew the financial aspects of the project. Developers were then asked to bid.
- B. In the case of Santa Maria, three developers bid and the city picked Ernest Hahn to build the project. There was no demolition or site acquisition before the start of the EMAS. The entire project was done within a four year period. For the first six months of complete operation, June 1976 through December 1976, sales were approximately 15.6 million and the project was only 70% leased. The Mall did 4.9 million, Sears - 6.9 million, and a local department store - 3.7 million.

#### IV. Generalized Format of Merchandising Report Summary

Cash flows ultimately depend on sales or rental revenues and further refinements of the frontdoor-backdoor approaches depend on establishing an explicit set of assumptions about the geographical market area, the user segment within that market area, and so on. All you buy in a real estate investment is a set of assumptions about the market. Therefore, the analyst should provide and identify a marketing assumption checklist for the reader:

##### A. Definition of geographic and demographic market

1. Primary trade area to be served
2. Profile of prospects by current location, status, income, etc. in primary carefully segmented area.
3. Secondary trade area to be served
4. Profile of prospects by current location, status, income, etc. in secondary carefully segmented area.

##### B. Definition of principal competitors

1. Existing supply
2. Prospective supply with timeline advantage
3. Competitive standard package of project features
4. Unique features of successful competitors
5. Probable cause of unsuccessful competitors
6. Merchandising appeals of competitors
7. Definition of market penetration and competitive gap

### C. Establishment of merchandising strategy logic

#### 1. Competition

- . Standard product
- . Price and quality
- . Competitive edge opportunity

#### 2. Positioning strategy

- . Sales themes
- . Name and byline
- . Site and unit features
- . Strong sales points

#### 3. Construction and architecture

- . Sales area
- . Models
- . Entrance and signs
- . Project amenities
- . Roads and paving
- . Site plan
- . Construction schedule

### D. Definition of prospect target for subject property

1. Recommendations on site location
2. Recommendations on site linkages and dynamics
3. Recommendations on building types and numbers
4. Recommendations on basic unit features
5. Recommendations on basic unit options
6. Recommendations on level of quality
7. Recommendations on basic price targets

### E. Structuring the feasibility report

Ultimately the budget established for analysis and the need to communicate the findings represent a severe constraint on the feasibility process. Priorities and critical assumptions necessary to achieve the desired outcome must be separated from the great mass of detail and presented tersely.

#### 1. Format of the report should rely on three elements:

- a. An executive summary which tersely identifies alternative courses of action and recommendations as to how client can make the choice.

- b. A basic reference document which includes all the detail analysis.
  - c. A collection of reports by contributing professionals incorporated by reference.
- 2. To be terse the executive summary should depend on:
  - a. Simple charts of choices of alternative outcomes
  - b. Simple flow charts
  - c. Specific criteria used to measure "likelihood of success"
- 3. Statement of limiting conditions should first begin with a definition of the word "feasible": (as per Institute of Appraisal Terminology Handbook), and then state that it was the purpose of the study to define the context of the situation and the parameters within which a solution might be found to fit the major constraints with a reasonable likelihood of success. It should carefully point out that the generalist has made a series of explicit assumptions which may, nevertheless, need confirmation by more detailed study best done by specialists. The statement of limiting conditions should further emphasize the constraints and objectives placed on the study by identifying who:
  - a. Defined the constraints
  - b. Defined success
  - c. Provided the data and assumptions
  - d. Permitted key assumptions to remain untested for economy or speed
  - e. Accepted assumptions of conditions of uncertainty
  - f. Assembled proforma financial statements and projections
  - g. Executed feasibility confirmation of key assumptions with aid of specialists
  - h. Placed limitations on use and confidentiality



# The Economic Structure of Real Estate Syndications and Its Impact on Real Estate Assets

By Terry V. Grissom

## Introduction to the Problem

As a result of the current economic environment, especially high to moderate interest rates and expectations of inflationary capital markets, the traditional methods of capital formulation for real estate projects have been curtailed for many investors and developers. Therefore, other sources and techniques of generating investment capital are being sought. The occurrence of negative leverage and the increased marketing of real estate as an investment contract suggests that more equity dollars might be placed in projects. The need to develop sources of equity dollars is being met by the use of equity syndication and/or equity participation. Much has been published on the legal and practical aspects of the creation and management of syndications. The major contributors to the literature in this area have been real estate finance textbooks and *The Real Estate Securities Journal*<sup>®</sup> of the REAL ESTATE SECURITIES AND SYNDICATION INSTITUTE<sup>®</sup> (RESSI<sup>®</sup>).<sup>1, 2, 3</sup>

Little has been published on the real estate economic ramifications of syndication and its potential impact of value estimation.<sup>4, 5, 6, 7</sup> The object of this article is to analyze the general economic structure of syndications in order to aid various decision makers in identifying the impact of syndication structures on the underlying real estate. In this manner syndication can be viewed as an alternative form of financing a project.

## Nature of the Syndication Enterprise

Conducting an economic analysis of syndication structures is difficult due to the diverse nature of their organization. Syndications can have various ownership structures (*i.e.*, corporations, limited partnerships, joint ventures). They can be

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## The Economic Structure of Real Estate Syndications

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structured from the perspective of public and/or private offerings. Furthermore, they can deal with specified properties, blind pools or an individual property. Syndications are subject to various levels of regulation based upon the nature and organization of the program, its size and its objectives. Despite these reasons for variety, the majority of syndications have a similar thrust. They are investments that promise or propose certain returns over time for an investment or outlay of current dollars. Also, the sponsors in most syndications have similar objectives: 1) to maximize their own wealth and 2) to offer a marketable program.<sup>8</sup>

The major concerns of regulators, investors, sponsors and analysts are: 1) the real properties or property to comprise the syndication portfolio and 2) the compensation and fee structures considered in the syndication operations, (*i.e.*, the cost of the combined financing, management, diversification, and expertise package). These attributes also determine the marketability and comparative desirability of one syndication and its property or properties to other investment alternatives.

Syndicators/sponsors, investors, and regulators where a merit system is in force, are basically concerned with investment value concepts. However, a market comparative analysis enables one to qualify or empirically support economic decisions under various states of risk and/or uncertainty. The significance of the relationship of the two concepts to the economic analysis of syndication was illustrated in the 1981 adoption of a new definition of investment values by a joint committee of RESSI<sup>®</sup> and the American Institute of Real Estate Appraisers (AIREA). The new definition states that:

Investment value is the present worth of the anticipated future benefits of an investment. When the characteristics of the investment meet the requirements of investors who typically make such an investment, the investment value estimated is actually market value.<sup>9</sup>

The Board of Governors of RESSI<sup>®</sup> adopted this definition but AIREA failed to concur. However, a few contemporary appraisal theorists support the spirit entailed in the RESSI<sup>®</sup> definition of investment value and its relationship to market value.<sup>10, 11, 12</sup>

The significance of identifying the appropriate value definition in the analysis of real estate problems is much like formulating the general hypothesis of scientific method; it allows the analyst to relate fitting techniques to the problem situations. As will be observed, in this article the definition enables the analysis to focus on the impact of economic structure as it affects comparative investment decisions.

## The Institutional Constraints of the Syndication Structure

In investigating the nature of the syndication enterprise it is found that funds invested in the syndications are allocated to two basic entities: 1) the syndication

structure and 2) the property or properties held or to be held by the syndication.

It is also observed that the returns to the syndication accrue through the operation and marketing of the real estate or investment vehicle. The skills and abilities of the sponsors and syndication employees can contribute to the returns received by the real estate. Since the compensation is the dollar measure of the real estate expertise, then the loading of these costs into the investment analysis enables an understanding of the risk and return trade-off of various syndication structurings. Furthermore, a comparative sensitivity analysis will enable the investor, sponsor, regulator and real estate advisor to identify the preferable investment vehicle and/or syndication structuring.

In order to conduct the economic analysis it is necessary to understand the institutional parameters and loadings that may be structured into any given syndication deal. Sharon Laufer of the Texas Securities Board breaks the compensation plans for sponsors and syndication employees into three major groups:

#### I. Front End Fees/Expenses

- a) Organizational and Offering Expenses
- b) Acquisition Fees and Expenses
- c) Miscellaneous
- d) Insurance Brokerage Fees

#### II. Operational Fees/Expenses

- a) Partnership/Promotion Interest (program management or investment management fees)
- b) Property management/leasing fees
- c) Expenses (reimbursements)

#### III. Back-End Fee/Expenses

- a) Partnership/Promotional Interest (participation interest in sales proceeds)
- b) Resale Commission.

Returns and/or fees to the various investors in a syndication can be classified as:<sup>13</sup>

1. **Guaranteed** – This fee or return is paid regardless of funds available from the property(ies). They often have to be funded from reserves or from additional investor contributions.
2. **Preferred returns** – The returns receive first priority after guaranteed fees. The first priority returns are only distributed if the cash is available. Deficiencies are made up over time.

3. **Residual returns** – They are returns that are left over after the guaranteed and preferred returns are paid. The residual returns (*i.e.*, from cash flows or sales proceeds) are usually prorated between the investors and sponsors such as a 90-10% split.
4. **Capital returns** – These are the gains or lump sum capital amounts received at sale or through refinancing. The capital returns are usually prorated on the basis of a contractual agreement such as 75% to the investors and 25% to the sponsor.

The timing of the various syndication fees and their quality or duration can have a significant effect on the value, returns, and risk position of a syndication investment. An example of alternative compensation methods using the classifications above occurs when the sponsors reduce the acquisition fee or sales commission on the front-end so that for each 1% of reduced commission up front, they receive 3% in equity participation in the back-end loadings.

#### Methods of Analysis

The compensation plans and the various investor returns can be considered in the context of the Capital Outlay Required Revenue Model (CRA) and the Market Revenue Justified Investment Value Model (MRI).<sup>14, 15</sup> The interesting aspects of these models for syndications as well as other investments is that they allow the identification of four concerns needed in real estate decisions. They are: 1) an identification of the allocation or distribution of funds to various sources, 2) the required return that must be received given a specific capital outlay, or 3) the justified investment possible given market revenue potential, and 4) the identification of sensitivity between the required return on cost and the justified investment based on market rents.

In order to understand the economics of a syndication, a specific case will be used. The following property and financial information is applied within the traditional framework of the CRA and MRI models. The models are then expanded to consider a syndication structured as a limited partnership.

#### Case Application of MRI and CRA

##### Example Project:

- 300,000 Square Foot office building (GROSS)
- 87% efficiency ratio
- Net leasable area = 261,000 S.F.
- Cost per Square Foot: \$50.00 (new)
- Loan to Value Ratio: 80%

- Mortgage terms: interest rate 14% compounded monthly, 30 year amortization period, three year roll over.
- Equity Dividend Rate 10%
- Operating Expenses
  - 1) Real estate taxes — 10% of gross income
  - 2) Operating Expenses (fixed and variable) — 18% of gross income
- Vacancy is 5%
- Market Rentals indicate a possible \$10.00-\$10.50 per square foot for comparable structures
- Breakeven point is 85% (a management decision based on the break-even points of previously managed properties).\*

#### Application 1: CRA, Traditional Financing

(Real Estate) Cost New = \$15,000,000

|  |   |
|--|---|
| $\begin{aligned} \text{Equity } 3,000,000 \times .10 &= \frac{1 - M(1 - .80) = .20}{(\text{Re}) \text{ Equity Dividend Rate}} \\ &\rightarrow 300,000 = (\text{CTO}) \text{ cash throw off} \end{aligned}$ | $\begin{aligned} \text{Debt } & \$12,000,000 \\ & \xrightarrow{L/V \text{ Ratio } (M) \times .80} \\ \text{Mortgage Constant } (R_M) &= X \ .142185 \\ \text{Annual Debt Service (ADS)} &= \$1,706,220 \end{aligned}$ |
|--|---|

300,000 + 1,706,220 = NOI = \$2,006,220

Expense loadings as Percentages:

|                      |              |
|----------------------|--------------|
| Real Estate Taxes    | = 10%        |
| + Operating Expenses | = 18%        |
| + Vacancy            | = 05%        |
| <b>Total Loading</b> | <b>= 33%</b> |

$$\frac{1 - \text{Exp.}}{1 - .33} = .67 \quad \text{PGI} = \frac{\text{NOI}}{1 - \text{Exp.}} = \frac{\$2,006,220}{.67} = \$2,994,358$$

$$\text{PGI/NLA} = \$2,994,358 / 261,000 \text{ S.F.} = \$11.473/\text{S.F.}$$

Say \$11.47/S.F.

\*The breakeven point is a management decision stated as a ratio dividing the expenses and outflows of the project by the potential gross income to be received (see Reference 14). A similar model, the financial feasibility model uses a debt coverage ratio method (DCR); however, the significance of management to syndication performance recommends the use of the BEP concept.

If the market for comparable properties illustrates a possible rental of \$11.47/S.F. or more, this is a viable project. If the market indicates a lower rental, the capital outlay can be exposed to a possible risk of loss as the result of market competition (principle of substitution). The comparison of the real estate market to the proposed real estate investment components of a given syndication enables a method for testing the assumptions of a syndication offer. The traditional MRI model can be used for the test.

#### Application 2: MRI, Traditional Financing

PGI = \$2,610,000 (261,000 S.F. @ \$10.00/S.F.)

|  |   |
|--|---|
| $\begin{aligned} \text{Cash Margin } \$391,500 & \xleftarrow{\frac{.85}{1 - .85}} \\ \text{Vacancy } 130,500 & \\ \text{CTO } \$261,000 & \\ \div .10 & \\ \hline & \$2,610,000 \end{aligned}$ | $\begin{aligned} \text{Cash Expenditures } & 2,218,500 \\ \text{less:} & \\ \text{RE taxes (Retx)} & - 261,000 \\ \text{Operating Exp.} & - 469,800 \\ \hline \text{Cash Available for Debt Service} & = 1,487,700 \\ \text{Divide by } R_M \ .142185 & \\ \hline & \$10,463,129 \end{aligned}$ |
|--|---|

$$\$2,610,000 \text{ (JEA) Justified Equity Amount} + \$10,463,129 \text{ (JMA) Justified Mortgage Amount} = \$13,073,129$$

Justified Investment Value (JIV) Say \$13,073,000

As Application 2 shows, given a lower market rental, the expected income returns are not able to carry the equity and debt loads indicated by the original budget plans. The justified investment value is \$1,927,000 less than the architectural cost. This would suggest a high degree of market risk associated with the real estate project as planned using traditional financing.

#### Expansion of the Models

Because the CRA and MRI are basically concerned with the allocation of funds between alternative sources they can be appropriately expanded to deal with the dual entity syndication structure.<sup>16</sup>

The models are expanded in Figures 1, 2, 3 and 4 to further illustrate the distribution of funds between the two entities. The distribution of funds then

allows the identification of the syndication structure on real estate assets. The numerical examples for the allocation of the syndication capital are extracted from actual syndication prospecti and are reinforced by discussions with representatives of the Texas Securities Board. The syndication capital allocations will be explained following Figure 2.

The marketing program of the syndication to be considered in Figure 2 will be composed of two equity investor groups and the general partner. The general partners will receive a 15% residual interest at the end although putting up no initial capital. The limited partner investor groups are comprised of one group that will receive a guaranteed dividend return of 6% and have a 44.4% ownership interest in the project. The second investor group will receive a 9% dividend return and have a 55.6% equity interest in the project. The guaranteed return shares earning 6% will be sold in \$4,000 units. Five hundred (500) units are to be sold. The 9% return units are to be sold in \$2,500 units (minimum initial cash purchase allowed by NASAA). One thousand (1,000) units will be sold. The expected maximum sell-out of shares will generate a gross proceeds to the example syndication of \$4,500,000.

#### Explanation of Expenses and Logic Used in the Figures

As stated earlier, the syndication vehicle is divided into two entities: the syndication and the real estate. The real estate side of the CRA Model is similar to the CRA model illustrated in Application 1 except for the need to segment and weight the various equity dividend rates ( $R_e$ ) witnessed in this syndication structure. The guaranteed return equity position has a 44.4% ownership interest and expects a 6% return. The second limited partnership position has a 55.6% interest and is seeking a 9% preferred ( $R_e$ ) return. The general partners will retain a 15% residual or subordinated interest after the investor's capital has been returned plus a 6% periodic accumulated return. The return of the limited partners' weighted rates is an effective 7.668% weighted equity dividend rate.

The other variance of the CRA Model in Figure 2 deals with the treatment of syndication operational expenses. These fees are included in this manner based on the interpretations of several syndication prospecti, discussions with the Securities Board and the literature.<sup>17, 18, 19</sup>

The syndication loadings during the operational stages are threefold. 1) The syndication/partnership interest deducted via the cash flow is the program or investment management fee. Investigation suggests they range from 5% to 6.25% as a fix rate and may go to 10% if a 4% to 6% cash distribution charge is included. It is usually taken as a residual position of operational income after debt (CTO). 2) The second operation fee taken is the property management/leasing fee. These fees are usually stated as a percentage of gross revenues (PGI). The observed percentages are 5% of PGI for residential and 6% for commercial. In some cases the rate can be staged in accord with the lease term. An example might be a rate of

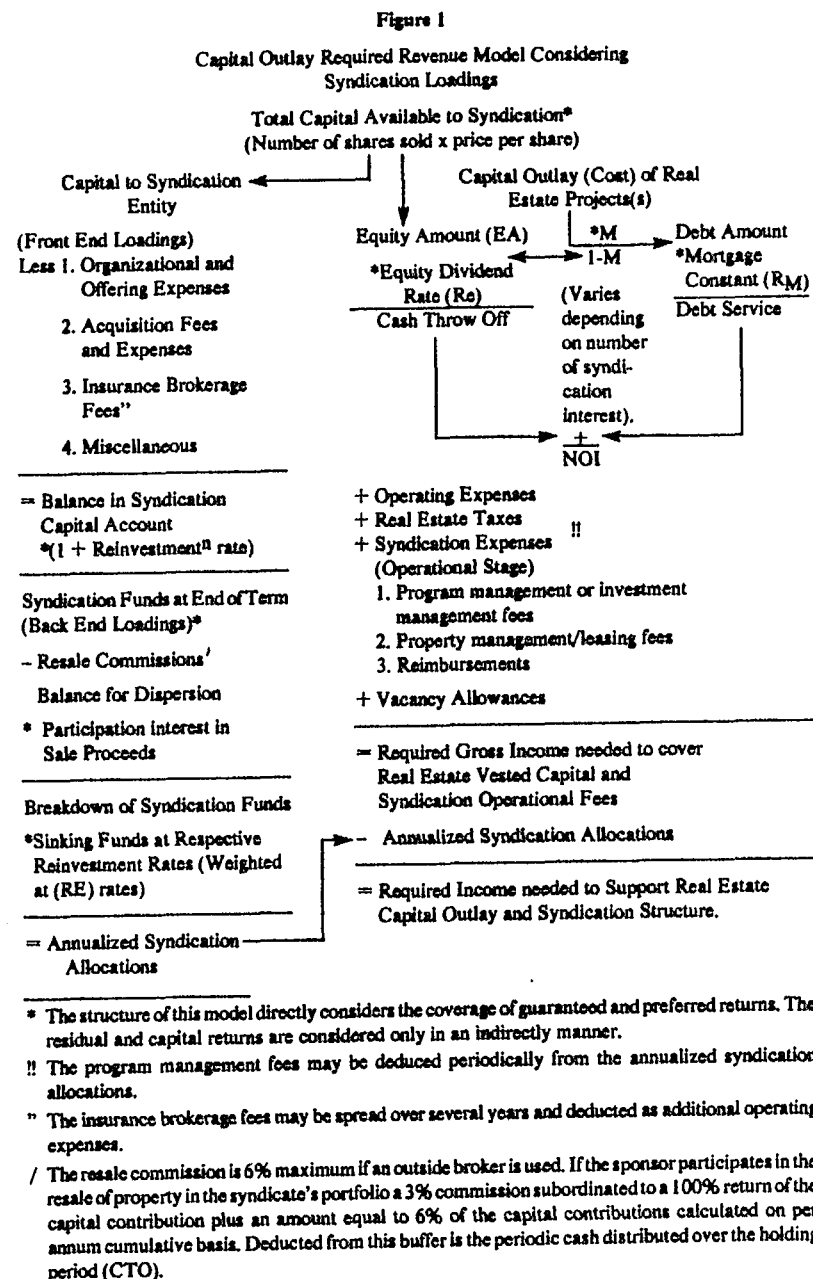
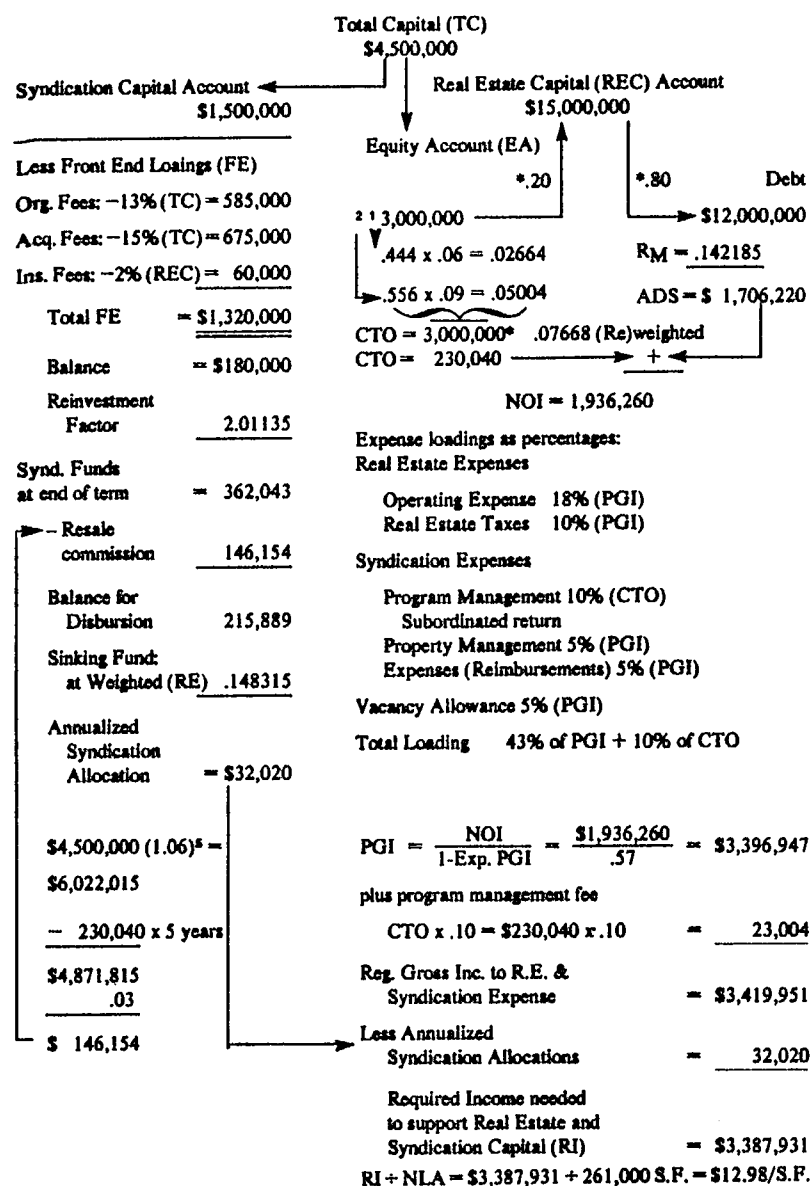


Figure 2

Numerical Example of Capital Outlay Required Revenue  
Model Considering Syndication Loadings



3% is charged if a 10 year lease net basis is signed and a 5% rate for a 5 year lease. 3) The expenses for reimbursements of capital from the syndication entity to the real estate is usually projected on the basis of 5% of PGI.

The left hand side of Figures 1 and 2 consider the syndication capital allocations. The policy of NASAA and numerous prospecti suggest that at least 80% of the capital funds raised must be invested in real estate. This can be reduced to 67% if a maximum of 80% debt is incurred for the purchase of property.\* Based on these capital proceed allocations, 33% of the example's total capital is directed to the syndication account.

The front-end loading via their nature are deducted from the syndication account first. The first loading deduction is for organizational and offering fees. This deduction includes both organization and offering expenses that can range from 2.4 to 5% and selling (syndication shares) or underwriting expenses, which are usually around 8%. The total amount used in Figure 2 is 13%. The organization fees, etc. are normally taken as a percentage of gross proceeds. The second set of front-end loadings are the acquisition fees and expenses. They are the fees paid to the syndication employees (general partner) for acquiring the property to be included in the program. Note that these two loadings allow for a sales commission on a sale of the security shares. The acquisition fee is usually 14% to 15% of the gross proceeds. The final front loadings typical of syndication are the insurance brokerage fee and allowance for miscellaneous expenses. The miscellaneous expenses can vary per specific case; however, the insurance fees are typically 2% of the real estate capital outlay. The insurance brokerage fee can be taken as an operational expense in some cases.

The deduction of the front-end loadings from the syndication account enables an estimation of any residual balance.\*\* This balance is often placed in liquid investment alternatives such as savings accounts, money market funds, certificates of deposit, etc. The syndication group usually considers their marginal opportunity cost and perceived liquidity needs to choose the investment vehicle.<sup>20</sup> This is also the treatment of syndication shares that are received and will not be disbursed for some time. In our example the excess funds are invested in a liquid investment returning 15% over a 5 year holding period. This is the investment horizon specified in the prospectus and consistent with its prediction or forecast. The projection of the syndication fund over the holding period in this manner enables an approximation of the account available for distribution at the back-end.

\*It is in this section of the prospecti that close scrutiny is recommended. Many offerings load syndication fees in a manner such that they often appear as real estate dollars.

\*\*Some prospecti investigated show the acquisition fees as being amortized over the holding period. Further observation and experience has suggested that they are truly deducted on the front end.

On back-end loading is the resale commission. The NASAA-allowed resale commission is 6% (varying with region). If the sponsor participated in the resale, NASAA limits the commission to 3% subordinated to a 100% return of the capital contributions, plus a loading of 6% of capital contributions per annum. If an outside broker is used, the commission is based upon the value of the real estate at the end of the holding period. In this example since the sponsor is handling the resale, the fee is paid from the syndication account. The deduction of the resale commission enables an approximation of the syndication account available for disbursement to the various partnership interests. In this example the disbursement will be in accord with the 44.4-55.6% limited partner interest established at the initiation of the enterprise for a return of the capital contributed. The general partners will then participate in the appreciation. The sponsor's interest will be at 15% subordinated in the same manner as the resale commission.

Since the CRA Model is attempting to determine the income per unit of real estate required to recoup the total capital outlay, the balance of the syndication account is converted to an annualized income amount by use of a sinking fund method. The sinking fund is at the reinvestment rate of 15% because that is the potential rate of return representing the opportunities for investment lost by tying capital up in the syndication account. This annualized income allowance is then deducted from the required rent needed to carry the real estate investment and the operational syndication loadings. This negative adjustment is made because a lower rent is required than indicated by the typical CRA constraints due to the cash buffer afforded by the syndication account. (The author is aware that an accrual accounting procedure has been included in a solvency model.)

The results of the capital outlay required rent analysis indicates that a higher rent than charged in Application 1 should be charged to carry the syndication loadings. The difficulty in this is that the market may not compensate a parcel of real property for the additional loading charges required by a syndication for the skills, knowledge, and expertise of its employees. The point of initiation to understand the project's ability to carry the real estate and the various syndication loadings might be better observed by use of the Market Revenue Justified Investment Value Model (MRI). The MRI Model with syndication loadings is depicted in Figure 3 with a numerical example illustrated in Figure 4.

Figures 3 and 4 illustrate the impact of considering market constraints and the syndication operational expenses on the capital that is justified as an investment in the real estate. The MRI model in Figure 4 also considers the potential of syndication reserves (or in this case a drain, -\$177.00) on the cash flow to the property. The influence of the MRI model as applied to the example case is that \$3,541,396 or \$541,396 more equity can be placed in the subject property(ies). The MRI application also suggests that a shift in the syndication structure should be altered given the market environment. The market origin supports a 54.5% guaranteed interest position to the overall project rather than a 44.4% position.

This preferred interest component is altered from 55.6% to 45.5% in relation to the overall project. Such a shift results from the lower rate required to the guaranteed position. However increased marketing efforts will be required because of the need to raise \$2,452,500 in capital rather than \$2,000,000 in the guaranteed interest market. At \$4,000 per share this will require the sale of 113 more units. However, the preferred position need only generate \$2,047,500 in capital. This is a decrease in required sales of approximately 181 units.

The trade-off at this point may be increased marketing cost and business risk for a decrease in the financial risk. The financial risk can be reduced since the guaranteed return will be paid for a lower cost of capital. However, even at a lower cost of capital, which infers more equity (JEA) should be placed in the project, less total capital is recommended as a justified investment in the real estate (JIVRE).

Despite that less capital is justified as investment in the real estate, a concern is that more funds must be raised to cover all the needs of the syndication. This is referred to as the Required Syndication Investment Value (RSIV). The RSIV is \$5,314,219. RSIV is calculated as follows:

The majority of front-end and back-end syndication fees are loaded via division into the justified equity investment in the real estate (JEA). This loading is done in order to establish the amount of funds that must be raised to support the investment in the real estate and further support the stated requirements of the syndication entity. This allocation is important since the real property is the direct productive agent of the investment vehicle. Also, any reduction in these syndication loadings may assure a viable project supported by a competitive offering in the market. The RSIV is determined by the plans of the sponsor. The sponsor's awareness of real estate markets, financing, and investment markets may lower the RSIV.

Given the institutional structure of syndication, the analyst must consider the need for an increase in required returns or a decrease in the justified investment as they both relate to a specified amount of venture capital. An understanding of the institutional structure leads to a different conclusion than the findings discussed earlier in Application 1.

In Application 1 using the CRA, an equity investment of \$3,000,000 required a return of \$11.47/S.F. (Gross Rent) to reward both the entity and debt portions of the investment as well as cover all the operation expenses. Under the syndication structure depicted in Figure 2, \$4,500,000 of total capital was to be raised. Three million (67%) of the total capital is to be allocated to the real estate assets of the venture. The extended CRA model then suggests that the required rent under this syndication is \$12.98/S.F.

Neither of these options compares favorably with the market rental of \$10.00/S.F. The MRI model suggested a justified investment value of \$13,073,000 with equity of \$2,610,000 if traditional financing is used. If the syndication structure is considered the MRI model supports an investment of \$12,100,000 in the real estate using \$3,541,000 as an equity contribution. However, to initiate the

Figure 3

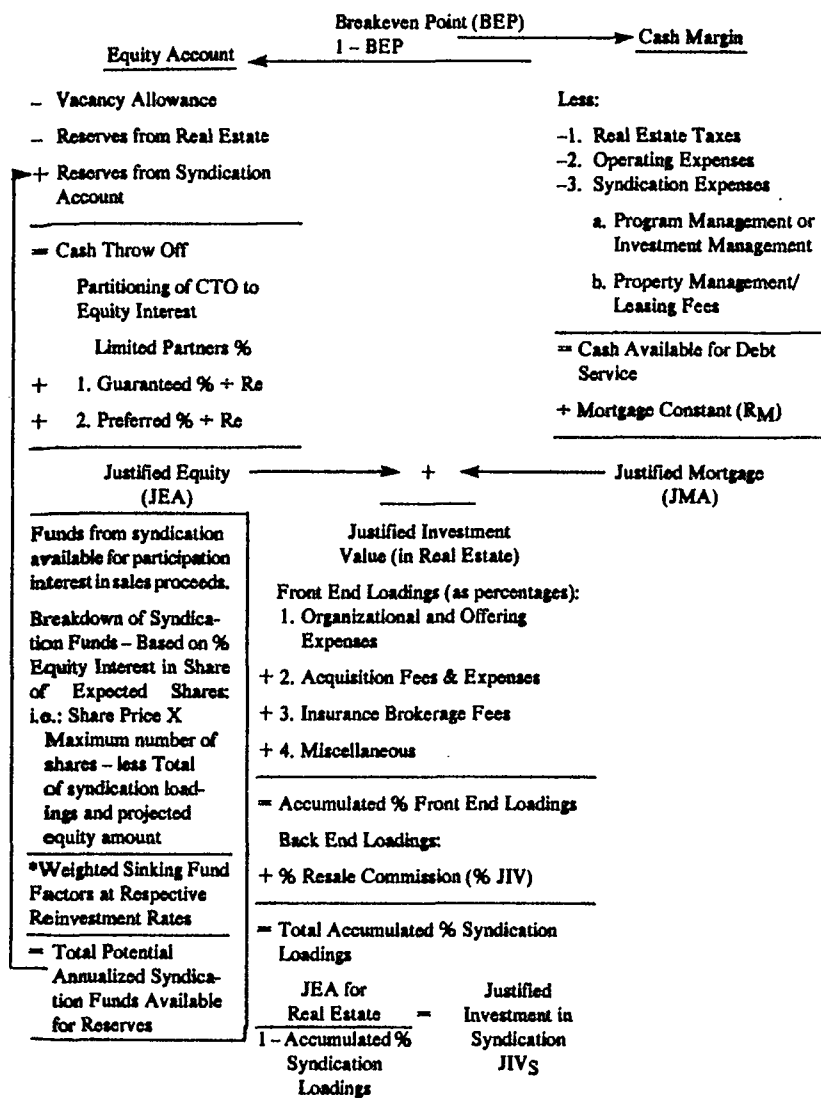
Market Revenue Justified Investment Value Model  
Considering Syndication LoadingsPotential Gross Income Based on Market Rental  
Rate Times NLA

Figure 4

Numerical Example of Market Revenue Justified  
Investment Value Model Considering  
Syndication Loadings

Market Rents X NLA = PGI

\$10.00 x 261,000 S.F. = \$2,610,000

|  |   |  |
|--|---|--|
| <p><b>Equity Account</b></p> <p>\$391,500</p> <p>130,500</p> <p>+ (-177)</p> <p>= 260,823</p> <p>*1) .444      2) .556</p> <p>\$115,805      145,018</p> <p>+ .06      + .09</p> <p>\$1,930,090      \$1,611,306</p> <p>+      +</p> <p>\$3,541,396</p> <p>Say \$3,541,000</p> | <p><b>PGI = \$2,610,000</b></p> <p>*.85</p> <p>*1-.85</p> <p>Less:</p> <p>Vac (5% PGI) = 130,500</p> <p>Potential Reserves From Syndication = 130,500</p> <p>CTO = 130,500</p> <p>(10% PGI) RE tx = 261,000</p> <p>(18% PGI) Op. Exp. = 469,800</p> <p>(5% PGI) Prop. Mgt. = 130,500</p> <p>(5% PGI) Reimburse = 130,500</p> <p>(5% CTO) Inv. Mgt. = 13,047</p> <p>Exclusive of Reserves</p> <p>ADS = \$1,213,653</p> <p><math>R_M</math> = .142185</p> <p>Justified Mortgage (JMA) = \$8,535,731</p> <p>Justified Equity (JEA) = \$3,541,396</p> | <p><b>Cash Margin</b></p> <p>\$2,218,500</p> |
|--|---|--|

JIVRE = \$12,077,127 = Justified Investment Value in Real Estate ≈ \$12,100,000

A. Front End Loadings as Percentages:

|                              |                    |
|------------------------------|--------------------|
| 1. Organization Fees         | 13% (TC)           |
| 2. Acquisition Fees          | 15% (TC)           |
| 3. Insurance Fees 2% x 67% = | 1.34% REC ≈ 67% TC |
| Total % FE                   | 29.34%             |

B. + Back End-Resale Commission

|                       |               |
|-----------------------|---------------|
| 6% x 67%              | 4.02 (REC)    |
| <b>Total Loadings</b> | <b>33.36%</b> |

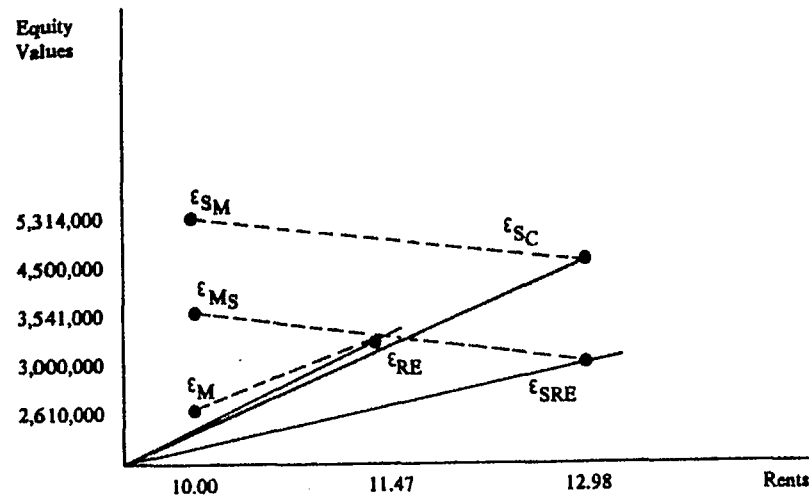
|   |  |
|---|--|
| <p><b>Participation Interests</b></p> <p>\$ 4,000 x 500 = 2,000,000</p> <p>\$ 2,500 x 1,000 = 2,500,000</p> <p>Total Shares Value = \$4,500,000</p> <p>Less:</p> <p>33.36% (FE + BE) = 1,501,200</p> <p>Estimated RE Equity = 3,000,000</p> <p>Total Syndication Funds Available for Reserves = \$1,200</p> <p>S.F.F. = .148315</p> <p>- \$177.00</p> | <p><b>Required Syndication Investment Value (RSIV)</b></p> <p>(JEA) = \$3,541,396</p> <p>1-.3336 = .6664</p> <p>RSIV = \$5,314,219</p> <p>JEA = \$3,541,000</p> <p>less: \$1,772,604</p> <p>Syndication Loadings = \$1,772,604</p> |
|---|--|

planned syndication structure, \$5,314,000 total capital must be raised to generate the \$3,541,000 equity suggested for the hard assets.

The significance of the variances between these various capital structures is illustrated in Figure 5.

Figure 5 illustrates the concept of income or rental elasticity. The elasticity is used to make a comparison between the traditional financing and the syndication structure as each relates to the real estate rental market. Elasticity can be considered as a method of measuring sensitivity. The sensitivity depicted in Figure 5 is the relative or proportional change in equity values given a percentage change in rent.

Figure 5  
Value to Rental Elasticities<sup>21</sup>



\*The dotted lines of elasticity are geometrically linear for convenience (see Appendix for details).

The percentage change in equity value given a percentage change in rental income is significant in that it allows the qualification of the economic structure of a syndication or financing in respect to market revenue risk. Since elasticity is a relative concept (elasticity is not to be confused with slope), a unit must be identified as the basis for the comparison or ratio analysis. The basis used for the traditional financing comparison is the architectural cost and required rent figures of the CRA model used in Application 1. The cost is used as the base because real estate decisions are often originated with an architectural plan. The concern then

is whether this plan be supported by the market demand. The equity contribution based upon the architectural cost is \$3,000,000. The required rent is 11.47/S.F. The market indicates a \$10.00 per square foot rental and a justified equity investment of \$2,610,000 (via the MRI model). The base is represented by  $\epsilon_{RE}$ .  $\epsilon_{RE}$  represents unitary elasticity (*i.e.*,  $\epsilon_{RE} = 1$ ). Unitary elasticity implies that for every percentage change in rent there is a proportional change in equity value.  $\epsilon_M$  to  $\epsilon_{RS}$  represents arc elasticity between the MRI value using traditional financing and the cost. The  $\epsilon_M$  as point elasticity equals 1.014. The arc elasticity is .984.<sup>22</sup> What this implies is that as the rentals change by 2% there will be a corresponding change of 1.014% or .984% in equity value respectively. This increasing in positive elasticity suggests that the real estate deal under traditional or bank financing is subject to an increasing degree of market rental risk. The ability to make a decision between the two methods is improved when we compare the traditional elasticity measure to the rental elasticity under the syndication structure. The syndication elasticity is represented by line  $\epsilon_{MS}$  —  $\epsilon_{SRE}$  in Figure 5. The syndication structure has a point elasticity of  $-.7855$  and an arc elasticity of  $-1.5678$ . This elasticity represents the difference between the justified investment in the real estate versus the planned equity investment in real estate proposed by the syndication structure. It also compares the market and required rents.

The aid to decision making comes in illustrating that not only is the allowed equity investment greater under the syndication structure but also the sensitivity of the equity is less subject to market rental fluctuation  $\epsilon_{MS} < \epsilon_M$  ( $-.7855 < 1.014$ ) or  $\epsilon_{MS} - \epsilon_{SRE} < \epsilon_M - \epsilon_{RE}$  ( $-1.5678 < -.984$ ). The market rental sensitivity of the real estate under the syndication financing is less than the market rental risk of the real estate under the traditional financing structure.

Furthermore, it is observed that the rental elasticity of the syndication  $\epsilon_{SM}$  —  $\epsilon_{SC}$  is less than but close to unity (1).  $\epsilon_{SM}$  as a point equals  $-.7879$ . Its arc elasticity equals  $-1.56346$ . The overall syndication's sensitivity is similar or parallels to some degree the riskiness of the real estate in the syndication.

The syndication structure in relation to the market (Figures 1, 2, 3 and 4) suggest that more equity dollars can be invested in the real estate but less total dollars can be placed in hard assets. However, in this case the financial structure of the syndication may be beneficial because the equity position of the limited partners is less sensitive to market rental fluctuations.

## Conclusions

Awareness of the economic structure of syndications can aid the investor, regulator, and other decision maker in identifying several considerations needed for investment value decisions. One consideration is that the proposed method allows the identification of the manner in which dollars invested in the syndication



are allocated. The allocation can be between the real estate or the syndication enterprise. The allocation of funds can also be further stratified within these two entities.

Second, the MRI-CRA model enables a limited testing of investment financial structure against market performance for similar properties or competitive syndications. The use of cross-elasticities as well as income elasticities is an area of research that may further aid analysis in this area.

Third, these models enable the decision maker to identify possible measures of finance and market risk. In identifying the types of risk, one can choose to offset one type of risk with the other. The choice will depend on the investor's financial exposure and/or economic preferences.

Finally, many real estate analysts such as appraisers often limit their concern to the real estate assets in the syndication's portfolio. Real estate academicians cannot afford this luxury. This article suggests that as alternative financing can alter real estate values, so too can the structure of syndications. The development of skills to recognize the compensation of the various factors of production involved in real estate enterprises other than the real estate assets (land and capital) alone will enhance the ability of the analyst or decision maker to meet the growing demand for more comprehensive business valuations.

The future expectations of demand for comprehensive valuation services are illustrating a need for business schools to teach a more integrated or generalist approach towards the various functional areas in their curriculum. The synergistic economic structures of real estate investments and syndications are business activities that will require decisions needing value estimates. The growing tendency to view real estate as an investment contract suggests that future real estate markets may be based on the unit of value per share. Therefore, the structure of the enterprise, the management and their impact on the real estate assets in terms of value estimation will become increasingly more difficult to separate. The study of real estate syndications and securities is an appropriate area to begin. The structure of syndication (security offers) entailing a financing, management, and diversification scenario package have a definite impact on real estate values (in terms of the principles of substitution and anticipation). This impact is such that traditional appraisal assumptions such as eminent domain definitions of market value, average management and general asset markets for a property type do not represent economic reality. Inductive analysis and a reconsideration of the economic assumptions are the foundations.

## APPENDIX

Elasticity ( $\epsilon$ ) is concerned with the percentage change in one variable in response to a percentage change in another. The changes are stated as a ratio:

$$\epsilon_I = \frac{\Delta V}{V} / \frac{\Delta I}{I}$$

where:  $V$  = value or cost  
 $I$  = Income or rent  
 $\Delta$  = connotes a change.

The ratio of concern is the percentage change in value as it relates to a percentage change in income (or rent). The elasticity considered in Figure 5 is much like income elasticity. Therefore, the elasticity over a range will approach 1 (unity).

The variables considered in Figure 5 used the cost and required rent of the traditional CRA model as unitary elasticity with basic consideration given to traditional real estate financing. The cost and required rent of the syndication CRA model were used as unitary elasticity in showing the impact of market rental risk and real estate value sensitivity under the syndication model. The CRA model for the overall syndication was also used to show the market rental risk of the syndication enterprise.

The elasticity measures can be identified as a point or as an arc. Note the process approaches 1 (unity) as long as the elasticity is positive. If negative, then the percentage response increases the distance from one.

Real Estate Asset Sensitivity to market rental change under different economic structures.

| Elasticity Measures |                                  |         |        |
|---------------------|----------------------------------|---------|--------|
|                     |                                  | Arc     | Point  |
| Traditional         | $\epsilon_M - \epsilon_{RE}$     | .984    | 1.014  |
| Syndication         | $\epsilon_{MS} - \epsilon_{SRE}$ | -1.5678 | -.7855 |

Syndication Sensitivity to market rental change under different syndication structures.

|                                 | Arc      | Point  |
|---------------------------------|----------|--------|
| $\epsilon_{SM} - \epsilon_{SC}$ | -1.56346 | -.7879 |

The syndication elasticity is increasing to 1 (going towards the base). This is because the syndication elasticity is less than unity. The syndication structure's elasticity parallels the responsiveness of the real estate assets within the syndication. This complies with the logic of the elasticity measure since the syndica-

tions operation is buffered from direct real estate market changes by the various syndication loadings and the advantageous cost of capital to the syndication.

An alternative form of analysis would be to investigate the cross-elasticity of the various syndication structures (the CRA structure versus the MRI structure) and alternative financing vehicles. This methodology is the subject of further research.

## REFERENCES

1. William B. Breuggeman and Leo Stone, *Real Estate Finance* (Richard D. Irwin, Inc.: Homewood, IL), 1980.
2. Frederick Case and John Clapp, *Real Estate Financing* (John Wiley & Sons: New York), 1978, pp. 215-243.
3. Sherman J. Maisel and Stephen E. Roulac, *Real Estate Investment and Finance* (McGraw-Hill: New York), 1976, pp. 454-466.
4. Robert H. Zerbst, "Sponsor Compensation and Investor Return," *The Real Estate Securities Journal*®, Vol. 3, No. 2, Spring 1982, pp. 40-57.
5. Edward J. Farragher, "Investment Decision-Making Practices of Equity Investors in Real Estate," *The Real Estate Appraiser and Analyst*, Vol. 48, No. 2, Summer 1982, pp. 36-41. Discussions with Dr. Farragher indicated that approximately 48% of the respondents to his survey were RESSI® members. A condensed article concerning the RESSI® respondents was published earlier in the RESSI® Journal. Dr. Farragher stated the syndicator responses were similar to the overall equity investor methods except they indicated a lesser degree of sophistication.
6. Peter Zachary, "The Appraisal Implications of a Convertible Mortgage," *The Appraisal Journal*, Vol. L, No. 2, April 1982, pp. 182-186.
7. Donald Kaplan, director, *Alternative Mortgage Instruments Research Study*, Vols. I, II, III (Federal Home Loan Bank Board: Washington, D.C.), 1977.
8. Zerbst, pp. 40-57.
9. Kenneth J. Gain, SRS, "What Every Syndicator Should Know About Appraisers," *The Real Estate Securities Journal*®, Vol. 2, No. 4, Fall 1981, p. 24.
10. Richard U. Ratcliff, *Valuation for Real Estate Decisions* (Democrat Press: Santa Cruz, Calif.), 1972, pp. 1-14.
11. James A. Graaskamp, *The Appraisal of 25 N. Pinckney* (Landmark Research, Inc.: Madison, Wisconsin), 1977.
12. Halbert Smith and Ronald Racster, "Should the Traditional Appraisal Process be Restructured," *The Real Estate Appraiser*, Nov.-Dec. 1970, pp. 6-11.
13. Zerbst, pp. 40-57.
14. Terry V. Grissom, "Income Property Analysis for Small Real Estate Investors," *The Real Estate Market Analysis*, Jan., 1982, pp. 21-26.
15. James A. Graaskamp, *Real Estate Feasibility Analysis Seminar* (Society of Real Estate Appraisers: Chicago), 1979.
16. David Kra, *Real Estate Syndication: An Economic Analysis*, unpublished professional report for the completion of the MBA degree, 1981. Mr. Kra originally suggested the application of the MRI analysis to syndications. In his paper Kra suggested deducting the syndication fees from the cash margin component of the Back Door Model (MRI). This procedure is adequate for

the project or investment management fees and the management fees. An extension was necessary to appropriately consider the front end and back end loadings.

17. Zerbst, pp. 40-57.
18. Examples of the various prospecti investigated are the McNeil Real Estate Fund XII Ltd., The Carlyle Real Estate Limited Partnership XII and the JMB Groups.
19. Numerous discussions were held with Mr. William Kuntz, director of the Texas Securities Board and Ms. Sharon Fradenburg, real estate and syndication analyst.
20. Examples of the various prospecti investigated are the McNeil Real Estate Fund XII Ltd., The Carlyle Real Estate Limited Partnership XII and the JMB Groups.
21. Jack Hirschleifer, *Price Theory and Applications*, 2nd edition (Prentice-Hall: Englewood Cliffs, N.J.), 1980, pp. 127-144.
22. *Ibid.*

## Book Review

### REAL ESTATE SYNDICATION

*Reviewed by Mark Lee Levine, SRS*

This one-volume text is entitled *Real Estate Syndication*. Written by Stephen P. Jarchow, the book was published in 1985 by John Wiley & Sons, Inc., under its professional books division. The text focuses on various aspects of syndication, including tax, securities and business issues.

The material, as stated by the author, is directed toward "... anyone involved with the industry (of syndication), including syndicators, brokers, lawyers, accountants, investors and advisors."

Although this is certainly a wide range of people who might find use for the text, the book is written in a more technical sense, mainly for attorneys and CPAs, as well as others dealing on the technical side of syndication.

The text could be considered to have a broader application than syndications. As an example, various aspects in the text discuss partnership rules which would be applicable to either a syndication or a general partnership.

The text includes chapters on the syndication business, choice of a business entity, general partnership law, partnership taxation, special allocations, partner and partnership transactions, disposition of syndication interests, examination of cost recovery and credits, structuring deductions as to tax issues, miscellaneous tax considerations, overview of securities laws, discussion of public offerings, syndications involving foreign investors, and special concerns involving lawyers and accountants. In addition, there is a chapter on investment analysis, and various documents are contained in the appendix which are helpful for general reference. The appendix includes such items as the Uniform Partnership Act, regulations, Regulation D, Guide 5, the North American Securities Administrators Association Statement of Policy relative to real estate offerings, as well as a syndication checklist and an acquisition summary.

There are also summary documents and samples with regard to partnership agreements, offering memorandums and various other documents used in syndication, such as promissory notes, subscription agreements and questionnaires for investors.

Mark Lee Levine, SRS, is a Professor at the University of Denver. He is also active in the real estate field through Levine, Ltd., REALTORS®, and is a practicing attorney with Levine & Pitler, P.C., Denver, CO.

Mr. Levine received his Ph.D. in Business Administration from Century University; J.D. from the University of Denver Law School; LL.M. from the New York University School of Law; P.A.P. from Northwestern University Graduate School of Management; and B.S., magna cum laude, from Colorado State University.

LEASE RATE ANALYSIS  
KING COUNTY INTERNATIONAL AIRPORT  
for  
KING COUNTY, WASHINGTON

AUGUST 1982

**MUNDY, JARVIS & ASSOCIATES, INC.**

**ECONOMIC MARKET & VALUATION ANALYSTS**

**900 SEATTLE TOWER BUILDING**

**THIRD & UNIVERSITY**

**SEATTLE, WASHINGTON 98101**

**206 623-2935**

**BILL MUNDY, Ph.D. MAI**

**JACK JARVIS MBA MAI CCIM**

**September 21, 1982**

**Mr. Chris J. Loutis  
Manager  
King County Real Property Division  
500 Fifth Avenue, Room 500-A  
Seattle, WA 98104**

**Dear Mr. Loutis:**

Transmitted with this letter is the report, "Lease Rate Analysis-King County Airport," completed for you by Mundy, Jarvis & Associates, Inc. This appraisal examined the fair market rental of two properties leased by The Boeing Company at the King County International Airport, one parcel of 249,919 square foot referred to as the Eastside Parcel, and one of 4,906,379 square foot, referred to as the Westside Parcel.

The analysis was directly supervised by Bill Mundy, Ph.D., MAI, and carried out by Judith Chaney, MBA. This project began on May 28, 1982 and was completed during August 1982. Revisions were made in conjunction with Robert Foreman, MAI, who is preparing a separate report for King County.

Our research began with an intensive analysis of the King County International Airport and the surrounding neighborhood. This included interviews with over 100 land users in the neighborhood and an extensive analysis of the demand for different types of space in the South Seattle subarea based on an economic base analysis of the Seattle consolidated area by Bill Mundy. On the basis of that research it was determined that the highest and best use of the subject property would be a mixed-use business, industrial, and distribution park including such uses as office, aircraft service and sales, warehousing, manufacturing, and a complementary line of retail establishments such as restaurants and office supplies. Lance Mueller & Associates has provided a site plan which demonstrates how the property could be developed.

On the basis of this highest and best use analysis, ten comparable sales were researched, five corresponding to the Eastside Parcel and five to the Westside Parcel. In addition, comparable leases from King County, the Port of Seattle, private parties, and the Seattle School District were examined. These data indicated a fair market rent as of July 1, 1982 of \$.60 per square foot per year for the Eastside Parcel and \$.38.5 for the Westside Parcel. Both these figures are inclusive of the 12.84% leasehold tax.

Mr. Chris J. Loutis  
September 21, 1982  
Page 2

This appraisal is subject to the assumptions and limiting additions included in the report. It has been a pleasure preparing this for you. If you have any questions or further comments, please do not hesitate to contact us.

Sincerely,

MUNDY, JARVIS & ASSOCIATES, INC.

Bill Mundy, Ph.D., MAI  
President

Judith Chaney, MBA  
Research Analyst

dc

Enclosure

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## APPENDICES

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- C. Comparable Sales
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## SUMMARY OF PERTINENT INFORMATION

### Purpose of the Report

The purpose of this research by Mundy, Jarvis & Associates, Inc. was to determine the fair market rental of the 5,156,298 square feet of land leased by the Boeing Company at the King County International Airport as of July 1, 1982.

### Research Design

There were several distinct steps in the research process for this assignment. The first was an orientation of our staff and that of Lance Mueller & Associates to the King County International Airport (Boeing Field). The site was inspected by Bill Mundy and Judith Chaney of Mundy, Jarvis & Associates and by Lance Mueller and Robert Fadden of Lance Mueller & Associates.

The next step was an analysis of the surrounding neighborhood which examined changes in land use as well as an inventory of present uses. The neighborhood for this purpose was defined as the area south of Spokane Street, west of Interstate 5, east of West Marginal Way, and north of 118th Street South.

Presently this area is a complex and diverse transportation and industrial center serving the Seattle Consolidated Area, the Pacific Northwest Region, national and worldwide markets. Heavy manufacturing and port-related activities such as transportation, shipping and storage are found within the IH (Heavy Industrial) zone, while warehousing, distribution, and Boeing manufacturing and testing facilities dominate the IG (General Industrial) and M (Manufacturing) zones.

The examination of land use patterns was augmented by telephone interviews with 102 major businesses in the area defined above. These interviews not only confirmed the land use changes found earlier but also indicated the reasons for those changes from the land user's point of view.

The most important locational factors cited by these respondents concerned access, such as access to the freeway (17.9%), a central location (17.2%) and being close to their customers (17.2%). Another major consideration was that they were able to find a site large enough for their business in the south-end industrial area (15.7%).

Table 6 discusses the locational disadvantages to the south-end industrial area which were mentioned by our respondents. The major factor was that there was no longer enough space in the area for the firm to expand (19.6%) followed by the concern that the location was too costly, either because of high rent or high taxes (17.6%). Interestingly, there

were 134 advantages cited and only 51 disadvantages. This difference would seem to indicate that many firms are satisfied with their location in the south-end industrial area.

The final step in the analysis of these interviews was to develop a profile of businesses located in the south-end industrial area over the past 17 years. This information is shown on Table 7. When the current tenant or the previous user were classified by major SIC categories, as shown in Table 6, many categories showed little change over time either in absolute number of businesses or in relative percentages. These stable categories were agriculture, construction, and finance, insurance, and real estate (FIR).

The number of manufacturing, transportation, and wholesale businesses has increased substantially over the past 17 years from 51 to 80 firms in our sample. The relative importance of these industries, however, has actually declined as the number of other types of businesses (e.g., services) have grown even faster. This differential clearly illustrates the diversification occurring in the Duwamish Valley.

In summary, the Duwamish Valley is experiencing significant changes in land use trends. As Seattle expands south, the remaining residential areas in the Valley are disappearing along with older businesses that depended on a residential neighborhood. Heavy demand from water and rail dependent industries has swallowed up large undeveloped parcels and led to more intensive land use. The increasing number of service - oriented industries and smaller wholesale/distribution firms has created demand for mixed use industrial/business park developments.

The information about businesses which are economically viable in the area was combined with an analysis of the economy of the region to make estimates of square feet of space which will be demanded in that area through 1995 by SIC (Standard Industrial Classification) category. Demand for nonaviation uses was based on the Economic Base Model of the Seattle Consolidated Area which was developed by Mundy, Jarvis & Associates and which is updated annually. Demand for general aviation uses was developed from interviews with tenants at the King County International Airport, with Don Smith, Manager of the Airport, and with other airport managers in the Puget Sound Region.

By 1995 this includes site demand of 89,000 square feet of retail space, 116,000 square feet of office, 418,000 square feet of office/warehouse and 307,000 feet of warehouse.

Next an analysis of the highest and best use of the property leased by Boeing was performed. The subject property consists of two irregularly shaped sites. One, on the westside of the airport is 4,906,379 square feet; the other, on the eastside, is 249,919 square feet. The difference in size and location necessitated a separate highest and best use determination for each.

It was determined that general aviation was the best use of the eastside parcel, including fixed base operators, aircraft hangers and tie downs, and other aircraft-related uses. An analysis was made of comparable leases, both aviation and nonaviation, which gave an indication of fair market rent. Little weight was given to existing aviation leases at the Airport because they have not been negotiated at fair market rent levels. The Port's leases indicate a rate of 60¢, as do the private leases. The School District lease is not firm enough to rely on at this time. Taking all these indicators into consideration, it is our opinion the fair market rent based on comparable leases is 60¢ per square foot a year effective rate of 53¢ contract rate exclusive of the 12.48% leasehold tax.

Another approach examined sales of comparable property to determine the fair market value of the eastside property. These sales were compared to the subject on the basis of general location, access, zoning, shape, size, time of sale, level of improvements, and location in the City vs. the County.

The general location of the comparables was quite similar to the subject since all are within the Duwamish Valley industrial area. All properties have excellent road access though East Marginal Way can be congested and has restricted left hand turns. Airport Way at the airport is less congested although it is only two lanes. All properties were zoned industrial and were not adjusted on this basis.

The subject was superior to all the comparables because it has airport access. The interview data discussed earlier, however, suggested that this access is not important to nonaviation users, so it was not judged to be important in adjusting the sales data. Waterway access is critical for some manufacturing companies and unimportant to others. The comparable leases, discussed earlier, showed no significant difference in rate between the Port properties which had water access and the private properties which did not. No adjustment to the sales data, therefore, was made because of water frontage.

The subject is roughly rectangular in shape and thus is superior to Comparables 4 and 5.

Time of sale was adjusted at 5% a year based on a regression analysis of over 100 sales of property up to 10 acres in the Duwamish Valley between 1978 and 1983. All properties were similar in level of improvements.

Finally, the interview data indicated a preference for being in King County rather than Seattle because of lower taxes. Comparable 4 is similar to the subject on that basis; the other comparables are inferior.

In reconciling the sale comparables, the most weight was given to Sales 1 and 2; Comparable 1 is the most recent and 2 the most similar in

size. The indicated price for the subject is \$5.50 per square foot. This estimate is well supported by Sales 4 and 5 at \$5.50 per square foot and Comparable 3 at \$5.00 per square foot.

This value was then capitalized to yield another indication of fair market rent. These indicators suggest a capitalization rate of about 11% would be appropriate at the King County International Airport. Multiplying the indicated land value of \$5.50 per square foot times 11% yields a rent rate of 60.0%. The two indicators were correlated to produce an estimated fair market rent of 60% per square foot per year.

An analysis of the probable rate of return which would be generated by each feasible use at the airport concluded that a mixed use business/industrial park with aviation and nonaviation uses would be the highest and best use of the westside parcel. Given the size of the westside parcel, its frontage on West Marginal Way, the airport location and favorable exposure from Interstate 5, we are of the opinion this site would be a strong candidate for a mixed use business, industrial and distribution park with a complementary line of retail establishments such as restaurant(s), office supplies and furniture, and business services such as travel agents. A mixed use business park development as a highest and best use is supported by the trend of land uses found in the area and by such successful developments as Benaroya Business Park and Fischer Business Park. Lance Mueller and Associates analyzed the site to determine the feasibility of various use options and completed a site plan which illustrates how this parcel could be developed to meet existing and projected demand in the area. An exhaustive search was made for sales of large parcels of undeveloped land which were purchased for development as mixed use business/industrial parks. Many of these sales were located on the fringes of urban growth in Renton, Kent and Bellevue. In addition comparable sales near Paine Field in Snohomish County were examined.

Most weight was given to Comparables 6 (Evergreen East) and 7 (Bellevue Airfield). Land Comparable No. 6 with an indicated value of \$3.50 per square foot is very similar to the subject although there is superior demand for the subject as well as a superior level of improvements. The Bellevue Airfield is a very important indication of the fact that the market is placing a higher value on industrial parks than airfields as one use replaces another. This sale supports the land use trends that were discussed earlier in the vicinity of the King County Airport. The sale by Cabot, Cabot, and Forbes to Boeing Computer Services indicates a value of \$3.45 to \$3.55. Taking these sales as well as the other sales into consideration, the indicated sales price for the subject is \$3.50 per square foot.

This land value was capitalized at the rate of 11% on the basis discussed earlier for the eastside parcel. Capitalizing \$3.50 at 11% gives a annual rent per square foot of 38.5%, rounded to 38%.

## INTRODUCTION

### Purpose of the Report

The purpose of this research by Mundy, Jarvis and Associates, Inc. was to determine the fair market rental of the 5,156,298 square feet of land leased by the Boeing Company at the King County International Airport. The legal descriptions of the subject property are retained in our files.

### Research Participants

The work on this project was completed under the supervision of Bill Mundy, Ph.D., MAI. Judith Chaney, MBA, designed the research, analyzed the data, and wrote the final report. Mike Griffin was responsible for obtaining and refining the comparable lease and sales information. Jean Bosch, Director of Survey Research, supervised the interviews with 100 major land users in the vicinity of the King County Airport. The site plan for the proposed highest and best use was provided by Robert Fadden, Lance Mueller & Associates. Francie Morgan completed the other graphics.

We would also like to acknowledge the assistance of Thomas E. Coulton and Robert C. Martin of the King County Real Property Division, and of Donald Smith, Manager, King County International Airport.

This work was conducted in conjunction with an appraisal by Robert Foreman, MAI.

### Research Timeframe

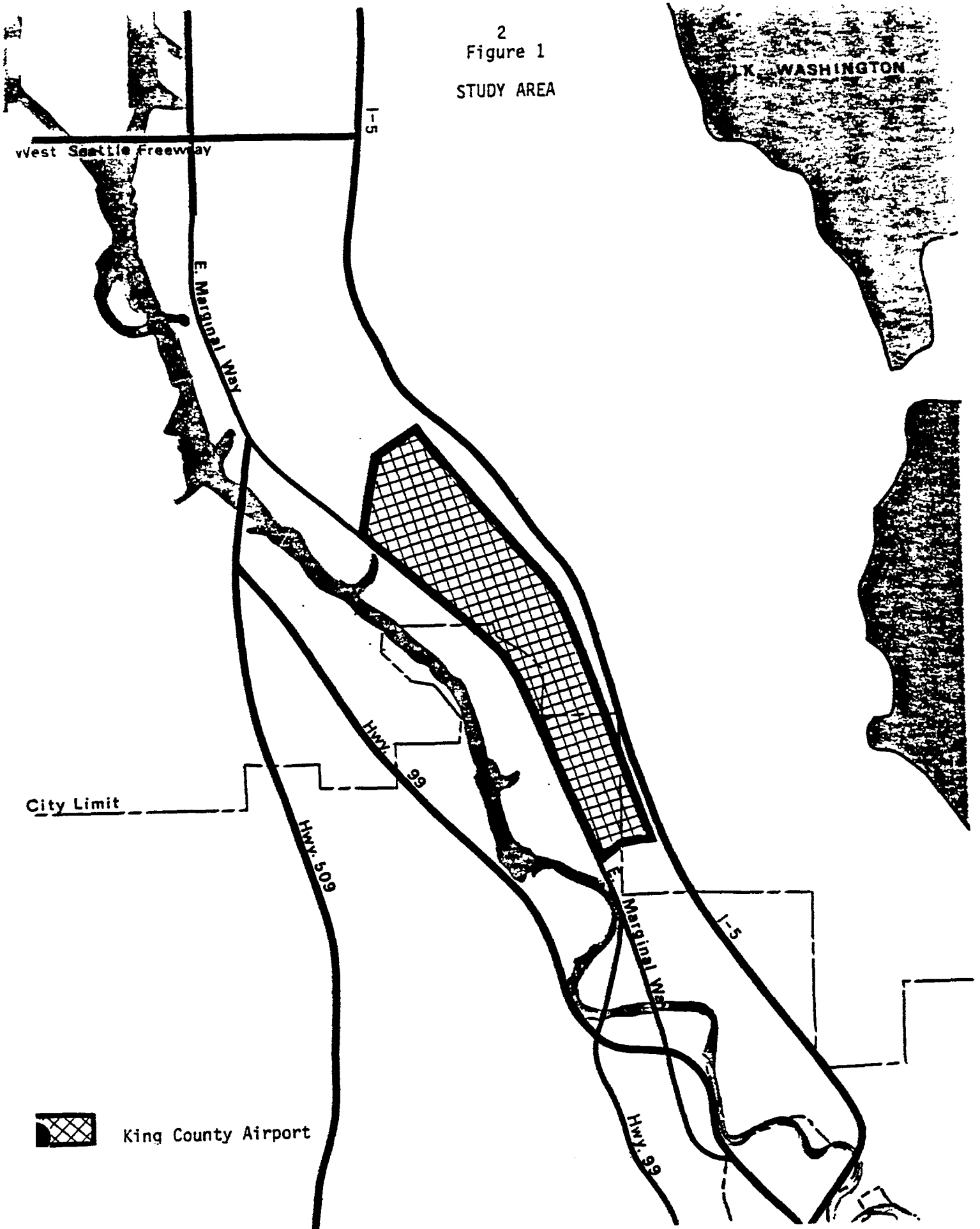
The project began on May 28, 1982. An interim report was submitted to King County on July 7, 1982, which contained preliminary lease and sales comparables. The analysis was refined during the month of July and the final report written during August.

### Research Design

There were several distinct steps in the research process for this assignment. The first was an orientation of our staff and that of Lance Mueller & Associates to the King County International Airport (Boeing Field). The site was inspected by Bill Mundy and Judith Chaney of Mundy, Jarvis & Associates and by Lance Mueller and Robert Fadden of Lance Mueller & Associates.

The next step was an analysis of the surrounding neighborhood which examined changes in land use as well as an inventory of present uses. The neighborhood for this purpose was defined as the area south of Spokane Street, west of Interstate 5, east of West Marginal Way, and north of 118th Street South, as shown on Figure 1.

2  
Figure 1  
STUDY AREA





The examination of land use patterns was augmented by telephone interviews with 102 major businesses in the area defined above. These interviews not only confirmed the land use changes found earlier but also indicated the reasons for those changes from the land user's point of view.

The information about businesses which are economically viable in the area was combined with an analysis of the economy of the region to make estimates of square feet of space which will be demanded in that area through 1995 by SIC (Standard Industrial Classification) category. Demand for nonaviation uses was based on the Economic Base Model of the Seattle Consolidated Area which was developed by Mundy, Jarvis & Associates and which is updated annually. Demand for general aviation uses was developed from interviews with tenants at the King County International Airport, with Don Smith, Manager of the Airport, and with other airport managers in the Puget Sound Region.

Next an analysis of the highest and best use of the property leased by Boeing was performed. The subject property consists of two irregularly shaped sites. One, on the westside of the airport is 4,906,379 square feet; the other, on the eastside, is 249,919 square feet. The difference in size and location necessitated a separate highest and best use determination for each.

It was determined that general aviation was the best use of the eastside parcel, including fixed base operators, aircraft hangers and tie downs, and other aircraft-related uses. An analysis was made of comparable leases, both aviation and nonaviation, which gave an indication of fair market rent. Another approach examined sales of comparable property to determine the fair market value of the eastside property. This value was then capitalized to yield another indication of fair market rent. The two indicators were correlated to produce an estimated fair market rent of 60¢ per square foot per year.

An appropriate lease rate for the subject property was determined by correlating comparable rents with a fair rate of return on the value of the land.

An analysis of the probable rate of return which would be generated by each feasible use at the airport concluded that a mixed use business/-industrial park with aviation and nonaviation uses would be the highest and best use of the westside parcel. Lance Mueller and Associates analyzed the site to determine the feasibility of various use options and completed a site plan which illustrates how this parcel could be developed to meet existing and projected demand in the area. An exhaustive search was made for sales of large parcels of undeveloped land which were purchased for development as mixed use business/industrial parks. Many of these sales were located on the fringes of urban growth in Renton, Kent and Bellevue. In addition comparable sales near Paine Field in Snohomish County were examined. These indicators of value were adjusted to the subject parcel to arrive at a final estimate of land value if developed

for the highest and best use. This land value was multiplied by an appropriate rate of return to determine fair market rent of 38¢ per square foot per year.

#### DEFINITION OF VALUE

Market rent is "the rental income that a property would most probably command on an open market as indicated by current rentals being paid for comparable space (as of the effective date of appraisal)" (The Appraisal of Real Estate, 1978, pg. 136).

The market value of the subject property is "the highest price in terms of money that a property would bring in a competitive and open market under all conditions requisite to a fair sale, the buyer and seller each acting prudently and knowledgeably and assuming the price is not affected by undue stimulus" (The Appraisal of Real Estate, 1978, pg. 23).

#### DATE OF APPRAISAL

The date of the fair market rent estimate is July 1, 1982.

#### THE SUBJECT PROPERTY

##### Site Description

The King County International Airport is located in the Duwamish Valley in the southern industrial region of Seattle, Washington. As shown in Figure 1 the Seattle-King County boundary jags through the airport, but it is under the sole jurisdiction of King County.

There is access from Interstate 5 to the east at the north end (Michigan Street) and the south end (Boeing Access Road) as well as from East Marginal Way (Highway 181) on the west. The Duwamish Waterway parallels the west boundary at a distance of about 1/4 mile. Figure 2 is a photograph of the airport looking northwest.

There are a number of leases for land and some for land and improvements at the airport both to private companies and public agencies. The Boeing parcels dominate the land uses as shown in Figure 3.

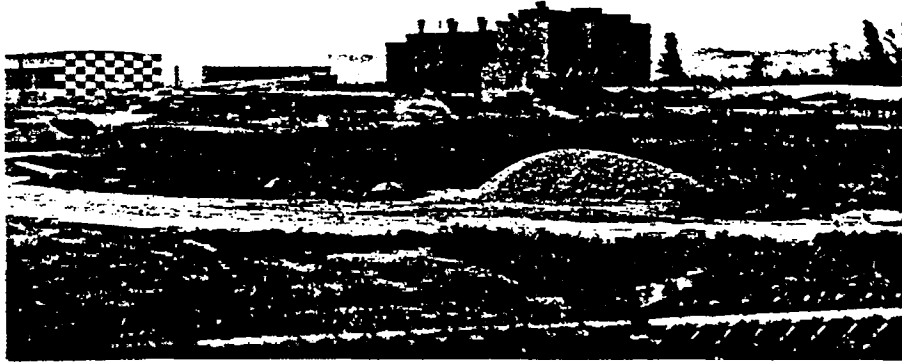
The Boeing Company presently leases 5,156,298 s.f. at the King County International Airport under eight separate leases. The leases became effective in 1952 and 1955 and are for periods of 40, 65, and 75 years. Table 1 summarizes the existing leases and Figure 4 shows these properties.

5  
Figure 2

KING COUNTY INTERNATIONAL AIRPORT



Figure 4  
VIEWS OF THE SUBJECT PROPERTY



Camera facing southwest toward Westside Parcel.



Camera facing east toward Westside Parcel.

Figure 4 (Con't)



Camera facing southwest toward the Eastside Parcel.



Camera facing northwest toward the Eastside Parcel.

Table 1  
Summary of Boeing Leases

| Lease Term | Eastside Area | Westside Area        | Total Area   | 1981 Revenue |
|------------|---------------|----------------------|--------------|--------------|
| 40 Years   | -0-           | 711,082 s.f.         | 711,082 s.f. | \$38,662.36  |
| 65 Years   | -0-           | 190,545 <sup>1</sup> | 190,545      | 14,862.51    |
| 75 Years   | 249,919 s.f.  | 4,004,752            | 4,254,671    | 264,664.98   |
| Total Area | 249,919 s.f.  | 4,906,379            | 5,156,298    | 318,189.85   |

Source: King County International Airport  
Mundy, Jarvis & Associates, Inc.

<sup>1</sup>Plus an easement of 45,810 s.f.

The present eastside annual rental rate is 17.16%, and the westside annual rental rate is 5.43%. Under the lease terms Boeing is guaranteed access to and use of the runways and operational airport areas, but does not pay landing fees or fuel flowage fees. Boeing does pay for its utilities and maintains a fire fighting capability as does King County. Boeing, but not King County, may delete areas from the leases upon six months' written notice.

As Figure 3 shows, the total area leased by Boeing historically has been divided into the eastside and the westside parcels. Because of the great difference in size, location, and use, the areas were analyzed separately in this report as well.

#### The Eastside Parcel

This property consists of 249,919 square feet (5.74 acres) located on the west side of East Perimeter Road. It is adjacent to the southeast side of the terminal and administration offices. Direct access is from East Perimeter Road which is a two lane service road for the airport.

The property is roughly rectangular in shape, is level, and has all utilities and sewer. Zoning is General Industrial with the additional lease restriction of aviation - related uses. There is a height restriction of approximately 20 feet at the western boundary to over 60 feet at the eastern boundary.

The existing improvements are the property of the Boeing Company and did not enter into the subsequent analysis.

### The Westside Parcel

The westside property is composed of the 12 parcels described below. For the purpose of this analysis, they have been considered as one piece of property because the leases are extensively cross referenced and because the property has one lessee who uses the land for a common purpose. In an economic sense, these 12 parcels are a single property.

Table 2  
The Westside Parcels

| Parcel                  | Square Feet | Acres  |
|-------------------------|-------------|--------|
| Parcel 2                | 3,824,753   | 87.80  |
| Parcel 2A               | 89,000      | 2.04   |
| Parcel 3                | 19,730      | .45    |
| Parcel 4                | 71,269      | 1.64   |
| Parcel 11               | 190,545     | 4.37   |
| Parcel 14 (Elect bldg.) | 77,000      | 1.77   |
| Parcel 15 (Elect bldg.) | 42,222      | .97    |
| Parcel 17 (Tank Test N) | 51,271      | 1.18   |
| Parcel 18 (Tank Test S) | 20,539      | .47    |
| Parcel 19 (Jet Fueling) | 425,375     | 9.77   |
| Parcel 20 (Jet Fueling) | 43,755      | 1.00   |
| Sound Suppressor Site   | 50,920      | 1.17   |
| Total Westside          | 4,906,199   | 112.63 |

Source: King County International Airport  
Mundy, Jarvis & Associates, Inc.

As Figure 3 shows, there are two areas which break up the westside property -- the FAA control tower on the south and a narrow strip on the north. The property is generally level.

Access is via East Marginal Way on the western boundary of the property. It is zoned General Industrial with the additional lease restriction of aviation - related uses. There is a side slope height restriction beginning at the east boundary of the property which increases at a ratio of 7 to 1.

All utilities and sewers are available and the existing buildings are the property of the lessee. The parcels have been variously improved with concrete and asphalt, and some parcels are bare land.



## LOCATION DATA

The Seattle Standard Consolidated Area

The King County International Airport lies within the Seattle Standard Consolidated Area (SSCA) which is composed of King, Pierce, and Snohomish Counties in Washington State. Like many other metropolitan areas, the SSCA was first settled and grew because of plentiful natural resources: farmland, timber, fish and a deep water port. Over the years, harnessing the abundant water flow has led to cheap hydroelectric power.

Recently, the natural amenities, coupled with a highly skilled workforce and the influence of the Boeing Company, have encouraged the development of local high technology companies as well as the immigration of such firms from other parts of the country. Finally, Seattle is becoming an important service and financial center for the Pacific Northwest, as well as for Alaska and the Pacific Rim Countries, further broadening the economic base of the region.

The first Boeing aircraft in 1916 heralded the beginning of a company which has become the major employer in the Consolidated Area. The number of people employed by Boeing has varied enormously dependent on military spending and the prosperity of commercial airlines. Figure 5 shows how this company has impacted employment in the Seattle metropolitan area since 1965.

Despite the current slump, the underlying base of the economy in the Consolidated Area is strong. The diversification into high technology, services, and financial firms has lessened the impact of any one employer, including the Boeing Company.

For a comprehensive discussion of the SSCA the reader is referred to Appendix B where the economic base of the metropolitan area is discussed.

The Duwamish ValleyHistorical Development

The immediate neighborhood of the King County International Airport is the Duwamish Valley, as shown in Figure 6. As the map shows, this area is composed of five census tracts (93, 99, 108, 109, 112) in Seattle as well as a small portion of census tract 263 in King County.

Development of the Duwamish Valley has centered around use of the Duwamish Waterway, although the waterway has been only one of many attractive features in the valley. The tidal flats of the Duwamish Valley were first developed in the early 1900's because they offered inexpensive land close to Seattle. As Seattle expanded, the tidal flats were filled with material from excavation in Seattle.

Figure 5  
EMPLOYMENT TRENDS FOR SEATTLE SMSR - 1/1966 TO 6/1982

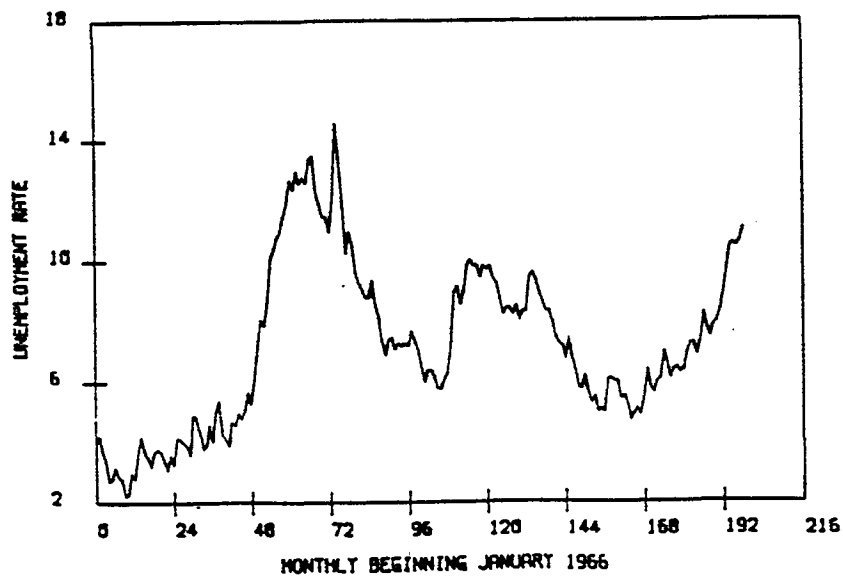
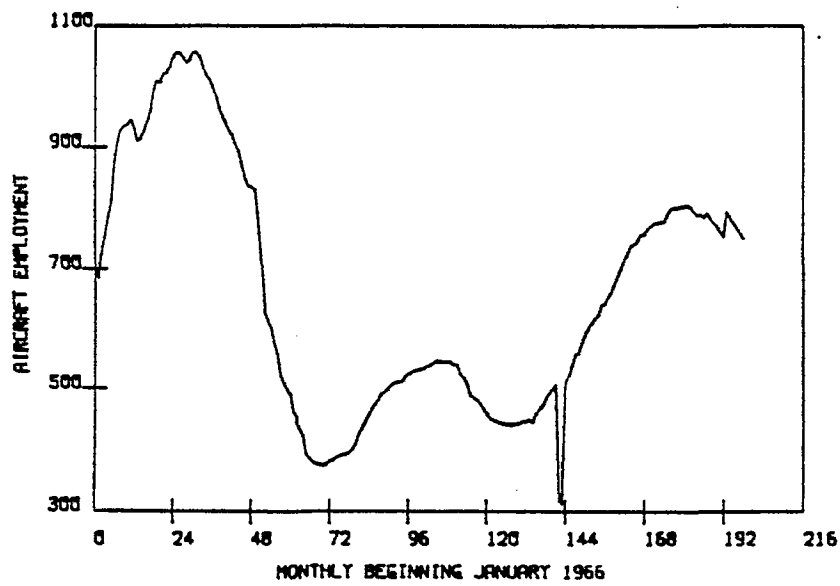
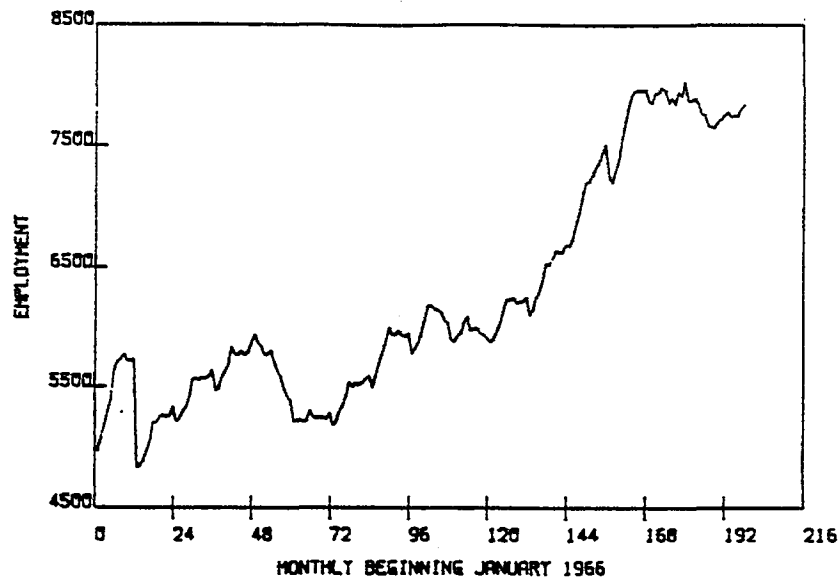
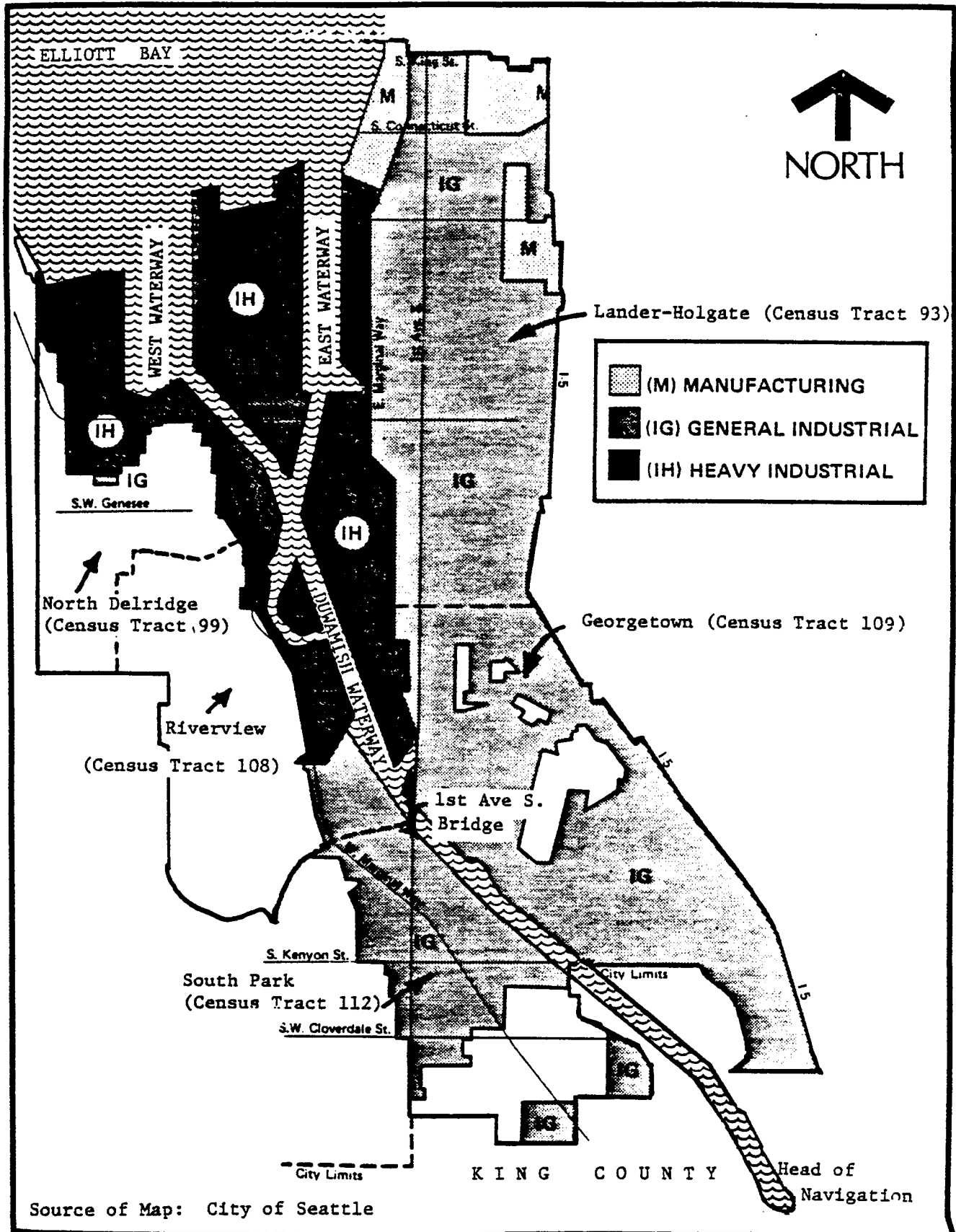


Figure 6  
THE DUWAMISH VALLEY



Source of Map: City of Seattle

By 1931 the Duwamish River was straightened for use as a commercial waterway and Harbor Island was built at the mouth of the river. Industrial development continued south from Seattle along the waterway, and the Boeing Company moved into the area. Boeing has become the major employer in the Duwamish Industrial Valley although it has not used the Duwamish River extensively. Other companies dependent on water transportation continued to move into the valley between 1920 and 1940.

In the 1960's the development of containerized cargo shipment increased the demand for large parcels of land with waterfront access. This need was met by sites on and near Harbor Island.

Presently, the Port of Seattle is sponsoring a plan by the Corps of Engineers which would improve the Federal navigation channel in the east, west, and Duwamish Waterways to allow larger cargo vessels to use the waterway. If approved the project would be completed in 1990.

Over 97% of the land within study area shown in Figure 6 is industrially zoned. Presently this area is a complex and diverse transportation and industrial center serving the Seattle Consolidated Area, the Pacific Northwest Region, national and worldwide markets. Heavy manufacturing and port-related activities such as transportation, shipping and storage are found within the IH (Heavy Industrial) zone, while warehousing, distribution, and Boeing manufacturing and testing facilities dominate the IG (General Industrial) and M (Manufacturing) zones. Table 3 shows the distribution of these businesses by acres.

Table 3

Land Use by SIC Category  
(1974 - 1976)

| SIC Category                                   | Number of Acres | Percent |
|--|-----------------|---------|
| Construction                                   | 49.1            | 1.5     |
| Manufacturing                                  | 927.7           | 28.1    |
| Transportation,<br>Communication,<br>Utilities | 1,235.20        | 37.4    |
| Wholesale Trade                                | 301.0           | 9.1     |
| Retail Trade                                   | 143.5           | 4.3     |
| Finance, Insurance,<br>Real Estate             | 144.1           | 4.4     |
| Public Administration                          | 234.0           | 7.1     |
| Residential                                    | 57.6            | 1.7     |
| Vacant Lot                                     | 178.6           | 5.4     |
| Vacant Unit                                    | 31.3            | .9      |
| Total  | 3302.1          | 99.9    |

Source: Mundy, Jarvis & Associates, Inc.  
"Industrial Area Background Report",  
Vol. II, City of Seattle. Office of Policy and Evaluation,  
pp. 64-75.

Note: Acreage also includes Boeing Plant No. 2, Isaacson Steel, Kenworth Trucks adjacent to King County International Airport and south of city limits.

Examination of these SIC categories shows many industries which are access - dependent. In the transportation, communication, and utilities group are maritime-released transportation industries. Manufacturing is concentrated in four major SIC groups - aircraft (Boeing), cement, glass and gypsum production. Boeing, of course, needs airport access while the other industries rely on the Duwamish Waterway for importing raw materials used in production. The steel manufacturers on Harbor Island are tied to truck and rail transport. Finally, the Port of Seattle operates a large number of container and noncontainer terminals and supporting warehouses.

### South Park

The South Park/Duwamish Annexation Area is 920 acres in unincorporated King County directly adjacent to existing city limits and directly west of the King County International Airport. This area has a residential district to the west and major industries to the east including Boeing, Kenworth Truck Company, Monsanto, Jorgenson Steel and Issacson Steel. If the annexation were approved by the Seattle City Council, the King County Boundary Review Board, and the voters, zoning for the industrial area east of the Duwamish would not change, but those businesses would be subject to city taxes. Benefits provided would include city sewer, utilities, and fire protection, as well as road improvements. The major businesses in the area have started a legal battle to prevent annexation which is yet to be resolved. If the plan proceeds as described in the Final EIS (November 1981) the airport property would not be directly affected. It would, however, be the only remaining property with good access to the airport, the Duwamish, railroads and I-5, and the low tax benefits of being in unincorporated King County. Figure 7 shows this area.

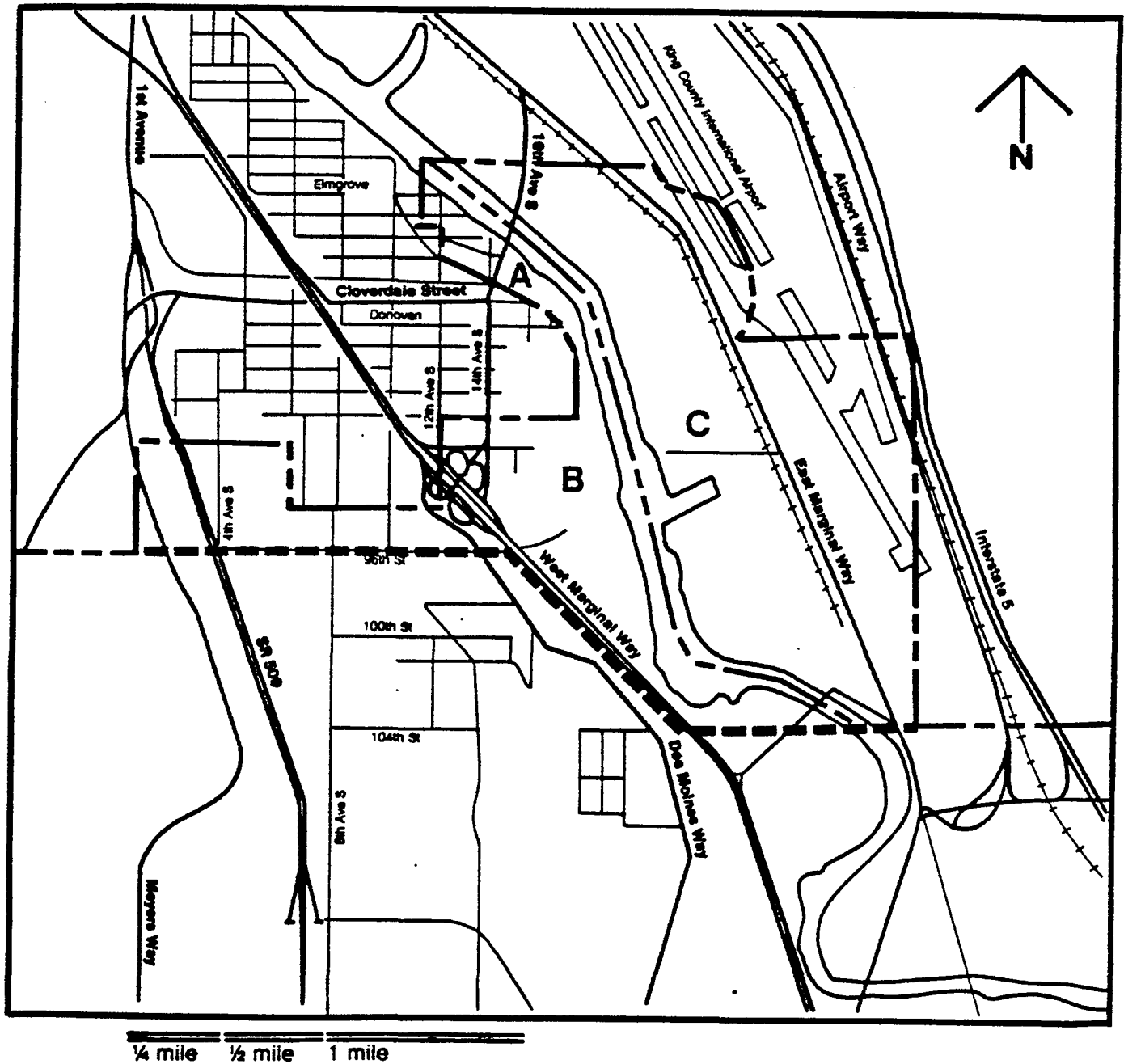
### Present Land Use

Current land use trends were examined by interviewing 102 major nonaviation land users in the area shown on Figure 1. These firms were selected on a stratified basis. Within one mile of the site all businesses were contacted. Between one and three miles the larger businesses were selected and beyond three miles only major land users were chosen. Of the firms contacted, approximately 95% completed the survey. The questionnaire is shown in Appendix A.

The purpose of these telephone interviews was to determine the distribution of significant businesses in the area and to assess the locational attributes of the site for their business. Finally, we attempted to determine who had occupied the site before the present user to pinpoint specific changes in land usage. The data are not directly comparable to those on Table 3; this information is the number of firms, the former is number of acres.

Table 4 shows the businesses we interviewed classified by major Standard Industrial Classification (SIC) categories. As this table shows, the majority of the businesses were wholesale dealers in durable goods, such as machinery, auto parts, furniture, and appliances. Table 4 also indicates a wide variety of firms are located in the area. Many of these such as the nursery and the businesses oriented towards residential neighborhoods, such as personal services, and retail trade are businesses that have been in their present location for 20 to 30 years. Overall, these 100 firms had been at their present locations for an average of 13.4 years, with a range between two months and 70 years.

SOUTH PARK ANNEXATION AREA



- A Residential/Commercial/Industrial Strip
- B Industrial Area (on west side of Duwamish)
- C Industrial Area (on east side of Duwamish)

--- Existing City Limits  
 - - - - - Proposed Annexation Boundary

Source: FEIS, November 20, 1981

The next question was whether the business had previously been located within the south-end industrial area. The respondents were fairly evenly divided on this question, with 43.8% having had their previous location outside of the south-end industrial area. The remaining businesses relocated to this area from another spot within the area (24.0%) or had originated at their present site (43.8%). This information confirms data collected by Mundy, Jarvis & Associates in previous studies which shows that business firms tend to prefer to remain within the same general area as their present location when relocation becomes necessary.

Table 4  
Businesses Interviewed

| SIC Category                     | Number of Interviews | Percent of Interviews |
|----------------------------------|----------------------|-----------------------|
| Agriculture, Nursery             | 1                    | 1.0%                  |
| Construction                     | 2                    | 2.0                   |
| Manufacturing                    | 24                   | 23.5                  |
| Transportation                   | 7                    | 6.9                   |
| Wholesale Trade                  | 49                   | 48.0                  |
| Retail Trade                     | 7                    | 6.9                   |
| Finance, Insurance & Real Estate | 2                    | 2.0                   |
| Services                         | 10                   | 9.8                   |
| Total                            | 102                  | 100.1%                |

Note: Percents may not sum to 100% due to rounding error.

Source: Mundy, Jarvis & Associates, Inc.

The most important locational factors cited by these respondents concerned access, such as access to the freeway (17.9%), a central location (17.2%) and being close to their customers (17.2%). Another major consideration was that they were able to find a site large enough for their business in the south-end industrial area (15.7%). This information is shown on Table 5.



Table 5  
Locational Advantages to the Southend Industrial Area

| Advantage                   | Number of Responses | Percent of Responses |
|-----------------------------|---------------------|----------------------|
| Freeway Access              | 24                  | 17.9%                |
| Central Location            | 23                  | 17.2                 |
| Close to Customers          | 23                  | 17.2                 |
| Site Large Enough           | 21                  | 15.7                 |
| Railroad Access             | 10                  | 7.5                  |
| Parking Available           | 8                   | 6.0                  |
| Duwamish Waterway Access    | 7                   | 5.2                  |
| Close to the Boeing Company | 3                   | 2.2                  |
| Close to Truck Lines        | 3                   | 2.2                  |
| Close to Competitors        | 3                   | 2.2                  |
| High Traffic Volume         | 3                   | 2.2                  |
| All Other Responses         | 6                   | 4.5                  |
| Total                       | 134                 | 100.0%               |

Source: Mundy, Jarvis & Associates, Inc.

To test directly the value of proximity to the King County International Airport, we asked the respondents to rate the importance of that proximity on the following scale: 1 = must have; 3 = neutral; 5 = major inconvenience. Overall the respondents gave access to the King County and international airport a rating of 2.9, neutral. They were also asked to rank access to the Duwamish Waterway on the same scale. The mean rating was 2.8.

These interviews specifically excluded businesses located at the King County International Airport since these firms were interviewed more intensively in personal interviews. For the 102 nonaviation respondents discussed above, the airport is not an important location factor.

Table 6 discusses the locational disadvantages to the south-end industrial area which were mentioned by our respondents. The major factor was that there was no longer enough space in the area for the firm to expand (19.6%) followed by the concern that the location was too costly, either because of high rent or high taxes (17.6%). Interestingly, there were 134 advantages cited and only 51 disadvantages. This difference would seem to indicate that many firms are satisfied with their location in the south-end industrial area. As Table 6 shows, only three firms (5.9%) indicated that they are planning a move in the near future.

Table 6  
Locational Disadvantages to the Southend Industrial Area

| Disadvantage            | Number of Responses | Percent of Responses |
|-------------------------|---------------------|----------------------|
| Not Enough Space        | 10                  | 19.6%                |
| Too Costly (Rent/Taxes) | 9                   | 17.6                 |
| Too Noisy               | 7                   | 13.7                 |
| Unpleasant Environment  | 4                   | 7.8                  |
| Not Enough Parking      | 4                   | 7.8                  |
| Plan to Move Soon       | 3                   | 5.9                  |
| Too Far from Customers  | 3                   | 5.9                  |
| All Other Responses     | 11                  | 21.6                 |
| Total                   | 51                  | 99.9%                |

Note: Percent may not sum to 100% due to rounding error.

Source: Mundy, Jarvis & Associates, Inc.

The final step in the analysis of these interviews was to develop a profile of businesses located in the south-end industrial area over the past 17 years. This information is shown on Table 7. When the current tenant or the previous user were classified by major SIC categories, as shown in Table 6, many categories showed little change over time either in absolute number of businesses or in relative percentages. These stable categories were agriculture, construction, and finance, insurance, and real estate (FIR).

The number of manufacturing, transportation, and wholesale businesses has increased substantially over the past 17 years from 51 to 80 firms in our sample. The relative importance of these industries, however, has actually declined as the number of other types of businesses (e.g., services) have grown even faster. This differential clearly illustrates the diversification occurring in the Duwamish Valley.

In summary, the Duwamish Valley is experiencing significant changes in land use trends. As Seattle expands south, the remaining residential areas in the Valley are disappearing along with older businesses that depended on a residential neighborhood. Heavy demand from water and rail dependent industries has swallowed up large undeveloped parcels and led to more intensive land use. The increasing number of service - oriented industries and smaller wholesale/distribution firms has created demand for mixed used industrial/business park developments.

Industrial parks are more than a mix of industrial, warehouse, and office users. Using a master plan, the developer controls the mix of

Table 7  
Business Profile Over Time

| Type of Business | 1982 |       | 1980 |       | 1975 |       | 1970 |       | 1965 |       |
|------------------|------|-------|------|-------|------|-------|------|-------|------|-------|
|                  | N    | %     | N    | %     | N    | %     | N    | %     | N    | %     |
| Agriculture      | 1    | 1.0   | 1    | 1.1   | 1    | 1.3   | 1    | 1.4   | 1    | 1.5   |
| Construction     | 2    | 2.0   | 2    | 2.2   | 3    | 3.8   | 2    | 2.8   | 2    | 3.0   |
| Manufacturing    | 24   | 23.5  | 24   | 25.8  | 22   | 27.8  | 19   | 26.4  | 18   | 26.9  |
| Transportation   | 7    | 6.9   | 7    | 7.5   | 5    | 6.3   | 4    | 5.6   | 2    | 3.0   |
| Wholesale Trade  | 49   | 48.0  | 45   | 48.4  | 38   | 48.1  | 35   | 48.6  | 31   | 46.3  |
| Retail Trade     | 7    | 6.9   | 6    | 6.5   | 7    | 8.9   | 8    | 11.1  | 8    | 11.9  |
| FIR              | 2    | 2.0   | 2    | 2.2   | 1    | 1.3   | 1    | 1.4   | 1    | 1.5   |
| Services         | 10   | 9.8   | 6    | 6.5   | 2    | 2.5   | 2    | 2.8   | 2    | 3.0   |
| Government       | 0    | 0.0   | 0    | 0.0   | 0    | 0.0   | 0    | 0.0   | 2    | 3.0   |
| Subtotal         | 102  | 100.1 | 93   | 100.2 | 79   | 100.0 | 72   | 100.1 | 67   | 100.1 |
| Unknown          | 0    | -     | 9    | -     | 23   | -     | 30   | -     | 35   | -     |
| Total            | 102  | 100.1 | 102  | 100.2 | 102  | 100.0 | 102  | 100.1 | 102  | 100.1 |

Source: Mundy, Jarvis & Associates, Inc.

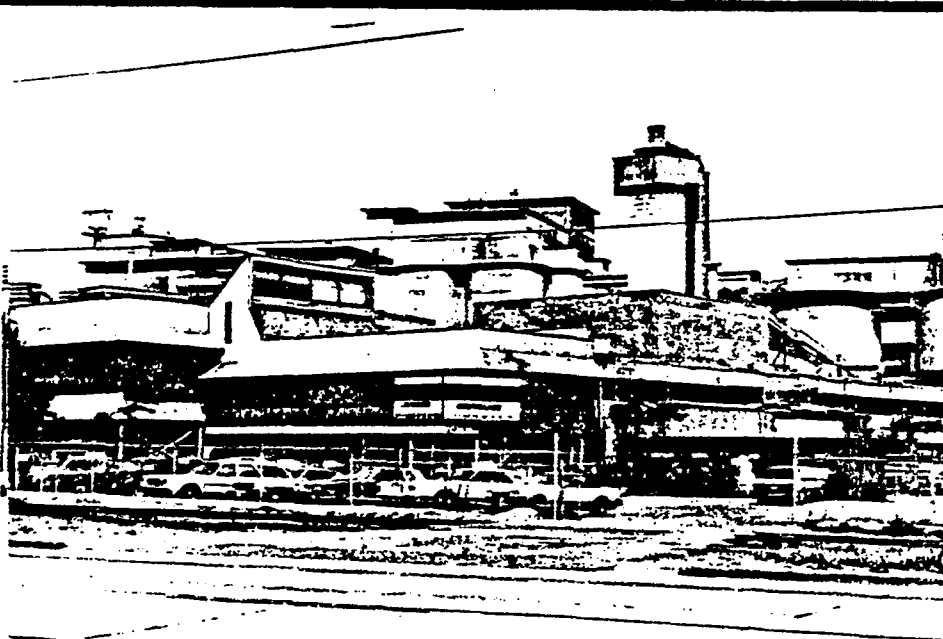
tenants and appearance of the property. Improvements include underground utilities, uniform site grading, landscaping, planned circulation patterns, sign restrictions, mandatory setbacks and controlled construction materials. This care in development leads to an industrial area which is clean and nonpolluting and which is compatible with residential neighborhoods. Rail and truck access is crucial.

While many industrial parks have been built in outlying areas (Kent, Everett, the Eastside) several innovative ventures in south Seattle have been successful. The Benaroya Business Park at 5950 6th Avenue South has 70 acres and 1.5 million square feet of developed space with railroad access. Similarly, the Fisher Industrial Center at 4th Avenue South and South Atlantic Street with 3+ acres has 80,000 square feet of space. The main deterrent to similar developments in the Duwamish Valley is the lack of large tracts of properly zoned land. Assemblage is a time-consuming and costly process. Figure 8 shows the difference between the older heavy manufacturing companies and the newer office and industrial park developments in the neighborhood of the subject property. The Boeing leasehold, particularly the westside parcel, is a unique opportunity in the southend because of its large size and excellent accessibility.

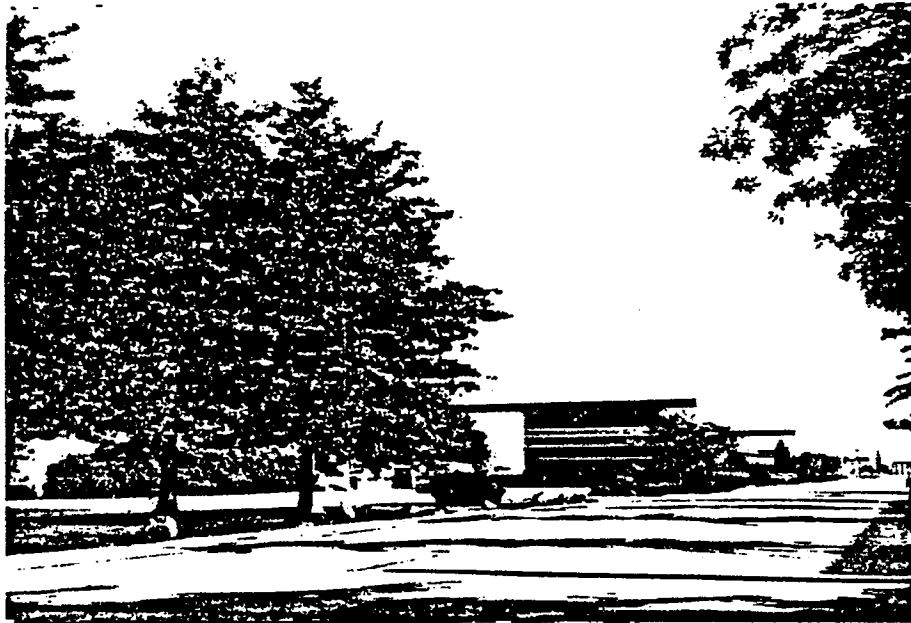
Figure 8  
SOUTH SEATTLE SUBAREA  
LAND USE TRENDS



Older Heavy Industrial Users.



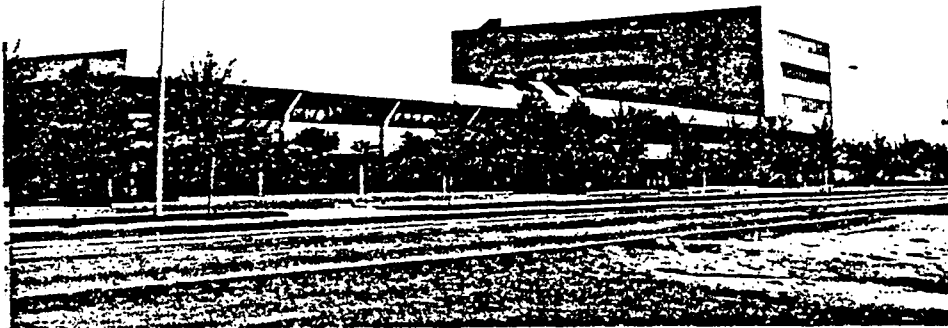
Older Heavy Industrial Users.



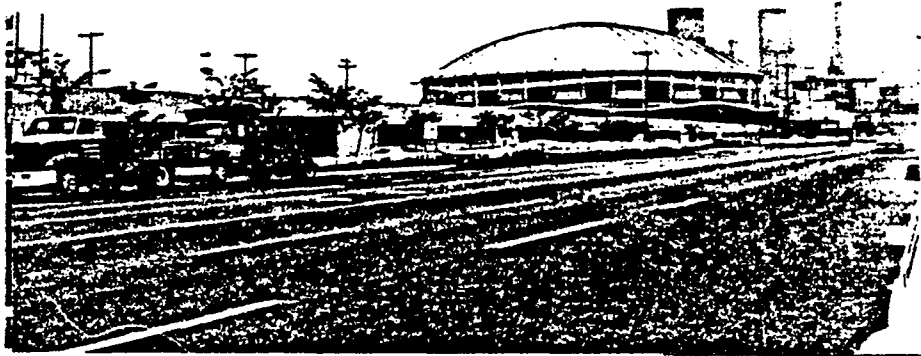
Benaroya Business Park



Seattle Design Center



6100 Building  
6100 4th Avenue South



Fisher Industrial Park

## HIGHEST AND BEST USE ANALYSIS

Definition of Highest and Best Use

The objective of this research was to determine the fair market rental of the property leased by the Boeing Company at the King County International Airport. The fair market rental is defined as "the rental income that a property would most probably command on the open market as indicated by current rentals being paid for comparable space as of the effective date of the appraisal" (Real Estate Appraisal Terminology, Byrl N. Boyce, Ed., 1975). The determination of what constitutes comparable properties depends on a highest and best use analysis. This analysis identified the use(s) that return the highest rental to the subject property. Comparable leases are those of properties used at this highest and best use.

Another method of determining fair market rental besides direct market comparables is to determine the fair market value of the subject property and a fair rate of return on value. This rate of return may be found by comparing the return on competing investment opportunities or by developing a capitalization rate from the marketplace. Both methods of estimating fair market rental were used in this analysis.

Land is valued as if vacant and available for its highest and best use. Highest and best use is defined as

That reasonable and probable use that will support the highest present value, as defined, as of the effective date of the appraisal.

Alternatively, that use, from among reasonably probable and legal alternative uses, found to be physically possible, appropriately supported, financially feasible, and which results in highest land value. (Real Estate Appraisal Terminology, Byrl N. Boyce, Ed., 1975.)

The subject property, both the westside and eastside parcels, is zoned IG, general industrial. King County is not planning any zoning changes at the airport; the legally allowable uses under the present zoning are industrial, heavy and light manufacturing, and retail businesses and services. The business inventory discussed earlier demonstrated that all of these uses are found in the immediate neighborhood of the subject property.

The current leases have further restrictions on permitted activities. Section 12, page 30 of the Basic Comprehensive 75-year lease and Section 7 of the 65-year lease state that

Lessee is leasing the Leased Property and is acquiring the interests, rights, and privileges granted hereunder for aircraft manufacturing or aircraft industrial purposes or for other business, manufacturing or industrial purposes or operations relating to, identified with or in some way dependent upon the use, operation or maintenance of the Airport.



The 40-year lease for the electronics building states that

The lessee is leasing the leased property primarily for the purpose of constructing thereon one or more buildings . . . to be used, among other things, for the testing, repairing, installing, maintaining, manufacturing, developing, designing and modifying of electronic equipment, apparatus, parts or devices used in or in connection with aircraft.

Furthermore,

All of the property involved in this lease is, or is to be, devoted to airport purposes, including those purposes designated in . . . (the paragraph quoted above). The installation of a building to be used for these purposes is contemplated and this lease shall be cancelled if Lessee fails to construct such building within or prior to three years from the date of this lease.

It is our opinion, based on the research performed by Robert Foreman, MAI and cited in his letter to the King County Division of Real Estate (August 5, 1982), that these restrictions in the present lease do not constitute a restriction on future uses of the property to aviation-related uses only.

Physically, the site is adequate for all permitted uses in size, access, and utilities available. The smaller eastside parcel may be inadequate for some large-scale operations, such as concrete manufacturing, but it is large enough to support smaller scale repair and manufacturing operations as well as retail and office uses. The height restrictions on this parcel, discussed earlier, do not preclude typical industrial buildings.

While the westside parcel is sufficiently large to support any permitted use, the irregular shape coupled with the nonleased strips which divide the property pose some problems. The height limitations on this parcel would permit typical industrial development with required parking located in the most restricted areas.

Once uses which are physically possible and legally permitted were identified, the next step in the highest and best use analysis was to determine which uses are economically viable through an analysis of market demand. Demand must be sufficient within a reasonable developmental timeframe to support the proposed use. Often it can be demonstrated that a particular development will draw market support from existing competing developments which are inferior to the proposed project. In this case, however, we have taken a more conservative approach which focuses on meeting unmet demand that will be created by incremental additions to the labor force through 1995. Market demand for each use was projected using an economic base model of the King-Snohomish-Pierce Counties region which was developed by Mundy, Jarvis & Associates, Inc. and is updated annually. These regional projections were then refined to the South Seattle subarea which contains the subject property.

### The Economic Base Model

An analysis of the demand for space by various types of users in South Seattle was made using the Economic Base developed by Mundy, Jarvis & Associates, Inc. This technique looks at changes in employment patterns in the Seattle consolidated area, including Everett, Seattle, and Tacoma. The overall trends are broken down to specific types of industries and specific sub-areas within the consolidated area to determine actual demand for commercial, industrial, and residential space. Appendix B is the complete regional model.

### Distribution of Employment to Sub-Market Areas

Once employment projections for the consolidated area were made, they were disaggregated to sub-market areas based on their historical share of employment. Data on the share of employment for each sub-market area was obtained from the Washington State Employment Security Department, Puget Sound Council of Governments and data from a sampling of 912 business establishments located in Snohomish, King and Pierce Counties. Employment was also disaggregated by employment category, such as construction, durable manufacturing, etc. These data are shown in Table 8 (Employment Distribution, in Percent, Seattle SCA).

Based on the distribution shown in Table 8 (Employment Distribution) and the employment projections for 1982 through 1995 employment was distributed to the Seattle area. This is the shaded area shown in Figure 8. The projections assume that Seattle's proportion of employment, by each employment category, will remain constant through the 1982 through 1995 period.

Importantly, these numbers represent additions to the Seattle labor force assuming that space is provided in the Seattle area to accommodate these employment additions. If this space is not provided migration from the Seattle area will occur to other areas within the SCA. This is especially important in categories such as manufacturing, wholesale trade and certain service categories where industrial sites are required which, even today, are in extremely short supply (given requirements such as size, plottage, and access). Based on our employment projections and the distribution of employment for Seattle we can expect to see employment additions in Seattle, given the above assumptions, as shown in Table 9 (Seattle Employment Additions, 1983-1995).

### South Seattle Employment Additions

From the Seattle information employment was disaggregated to South Seattle (Figure 9). The basis for this disaggregation was information on 216 firms located in South Seattle which were a portion of the 912 firms interviewed in the Seattle SCA. The South Seattle share of employment, by employment category, as well as the probable increase in South Seattle

Table 8

## Employment Distribution (in %) for Seattle SCA

| Category   | Rural<br>Snohomish | Everett | N. King<br>S. Snohomish | Seattle | E. King | S.E. King | So. King | Pierce |
|--|--------------------|---------|-------------------------|---------|---------|-----------|----------|--------|
| Construction                                     | .187               | .61     | .56                     | 2.131   | .592    | .268      | .344     | .84    |
| Durable Mfg.                                     | .846               | 1.28    | 1.90                    | 7.187   | 2.399   | 1.252     | .602     | 1.57   |
| Non-Durable Mfg.                                 | .137               | .21     | .17                     | 1.777   | .573    | .162      | .048     | .84    |
| Transportation,<br>Communications &<br>Utilities | .187               | .39     | .31                     | 3.832   | .354    | .172      | .172     | .67    |
| Wholesale Trade                                  | .759               | .21     | .29                     | 3.603   | .440    | 1.128     | .201     | .80    |
| Retail Trade                                     | .137               | .09     | .24                     | 8.381   | 3.048   | 2.351     | .086     | 2.85   |
| Finance, Insurance,<br>Real Estate               | .05                | .41     | .05                     | 5.151   | .459    | .038      | .038     | .75    |
| Services   | .548               | .96     | .96                     | 10.712  | 1.472   | .736      | .554     | 3.10   |
| Government                                       | .548               | 1.08    | 1.24                    | 5.619   | 1.825   | 1.328     | .975     | 3.69   |
| Total  | 3.40               | 5.24    | 5.73                    | 49.02   | 11.16   | 7.43      | 3.02     | 15.11  |

Source: Mundy, Jarvis &amp; Associates, Inc.

Table 9

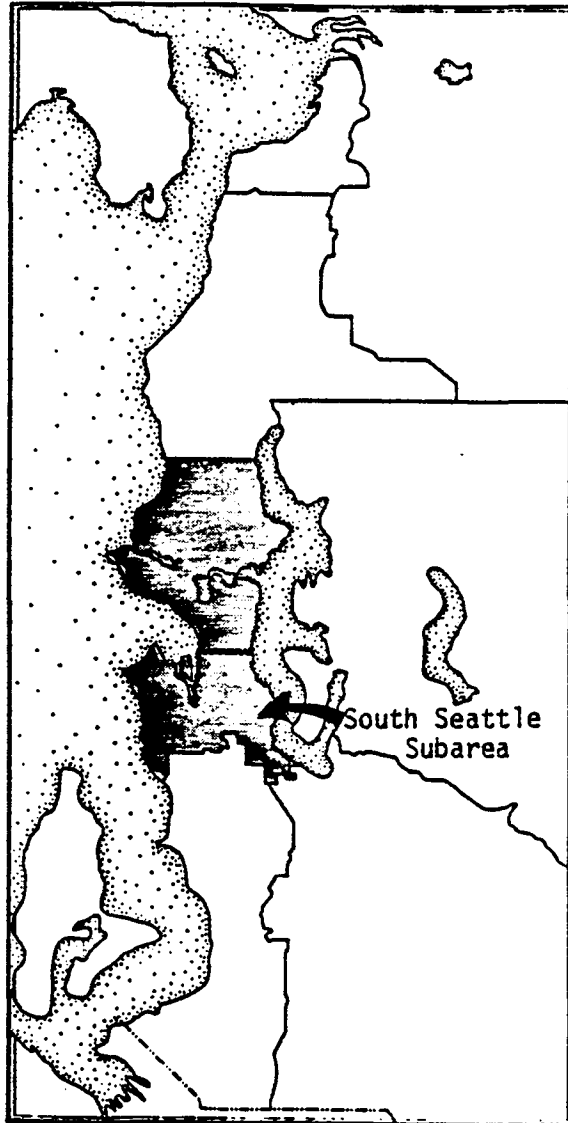
Seattle Employment Additions  
1983-1995

|   |           | 1982  | 1983  | 1984  | 1985   | 1990   | 1995   |
|---|-----------|-------|-------|-------|--------|--------|--------|
| Total Employment (000)                          |           | 896.0 | 928.6 | 975.7 | 1022.9 | 1115.1 | 1232.4 |
| Net Employment Addition (000)                   |           |       | 32.6  | 47.1  | 47.2   | 92.2   | 117.3  |
| Seattle Share, by Type                          |           |       |       |       |        |        |        |
| Construction                                    | (2.13%)   |       | 690   | 1,000 | 1,010  | 1,960  | 2,500  |
| Durable Mfg.                                    | (7.187%)  |       | 2,340 | 3,390 | 3,390  | 6,630  | 8,430  |
| Non-Durable Mfg.                                | (1.777%)  |       | 580   | 840   | 840    | 1,640  | 2,080  |
| Transportation,<br>Communication &<br>Utilities | (3.832%)  |       | 1,250 | 1,800 | 1,810  | 3,530  | 4,490  |
| Wholesale Trade                                 | (3.603%)  |       | 1,170 | 1,700 | 1,700  | 3,320  | 4,230  |
| Retail Trade                                    | (8.381%)  |       | 2,730 | 3,950 | 3,960  | 7,730  | 9,830  |
| Finance, Insurance                              |           |       |       |       |        |        |        |
| Real Estate                                     | (5.151%)  |       | 1,680 | 2,430 | 2,430  | 4,750  | 6,040  |
| Services  | (10.712%) |       | 3,490 | 5,050 | 5,060  | 9,880  | 12,670 |
| Government                                      | (5.619%)  |       | 1,830 | 2,650 | 2,650  | 5,180  | 6,590  |

Source: Mundy, Jarvis &amp; Associates

Figure 9

## SOUTH SEATTLE SUBAREA



employment for the years 1983 through 1995 are shown in Table 10 (South Seattle Employment Additions, 1983-1995). Once again, it is important to remember that these employment additions are based on the assumption that facilities will be available in the South Seattle area to accommodate this net increase in employment.

### Demand Analysis

Given the probable additions to the South Seattle labor force we are in a position to make estimates of probable space needs. Space estimates for the subject site are based on three important variables, which are discussed in the following paragraphs.

The first is employment additions to the area, which are taken from Table 10 (South Seattle Employment Additions).

The second variable is typical square feet per employees found for different business establishments in each of the employment categories. These square feet per employee ratios are based on more than 2,000 interviews Mundy, Jarvis & Associates, Inc. has conducted with firms in the Pacific Northwest where information has been sought on the type of business, number of employees in that establishment and the amount of area either owned or leased by that establishment. This data is from a proprietary data base of Mundy, Jarvis & Associates, Inc. which is continually updated as research studies are performed.

The third variable is the site capture ratio. This ratio is our opinion of the percentage of increased space demand that could be captured at the subject site. It takes into consideration such important market related variables as transportation systems, types of facilities to be offered at the subject site, the competitive characteristics of the marketplace including vacancy, rents, and quality of competitive space.

Space demand for South Seattle is shown in Table 11 (South Seattle Space Demand). Two different types of demand are shown. The first is incremental demand. This is demand that is created as the labor force in an area expands. The second type of demand is latent demand. Latent demand is that demand existing in the marketplace which is inadequately served for one reason or another. This might be from obsolete facilities or facilities which are demolished for one reason or another. The sum of incremental and latent demand yields total demand. The market capture ratio is then applied to total demand to yield the probable number of square feet required at the site, in net rentable square feet.

These demand figures were then dissagregated into different types of space categories including retail, office, office-warehouse, warehouse and its equivalent, light industrial. Those demand figures are shown in Table 12 (Space Demand by Type).

Table 10  
South Seattle Employment Additions  
1983-1995

|  | South<br>Seattle<br>Share(1) | 1983 | 1984  | 1985  | 1990  | 1995  |
|--|------------------------------|------|-------|-------|-------|-------|
| Construction                                     | 45.3%                        | 310  | 450   | 460   | 890   | 1,130 |
| Durable Manufacturing                            | 41.6%                        | 970  | 1,410 | 1,410 | 2,760 | 3,510 |
| Non-Durable Mfg.                                 | 39.2%                        | 230  | 330   | 330   | 640   | 820   |
| Transportation,<br>Communications &<br>Utilities | 18.8%                        | 240  | 340   | 340   | 660   | 840   |
| Wholesale Trade                                  | 46.2%                        | 540  | 780   | 780   | 1,530 | 1,950 |
| Retail Trade                                     | 28.7%                        | 780  | 1,130 | 1,140 | 2,220 | 2,820 |
| Finance, Insurance &<br>Real Estate              | 2.1%                         | 40   | 50    | 50    | 100   | 130   |
| Service  | 11.2%                        | 390  | 570   | 570   | 1,110 | 1,420 |
| Government                                       | 10.0% (e)                    | 180  | 270   | 270   | 520   | 660   |

Notes: (1) Based on employment data on 216 South Seattle firms.

(e) Mundy, Jarvis & Associates estimate. Specific data on this category not available.

Source: Mundy, Jarvis & Associates, Inc.

for the subject site are based on three important variables. They are discussed in the following paragraphs.

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The third variable is the site capture ratio. This ratio is our opinion of the percentage of increased space demand that could be captured at the subject site. It takes into consideration such important market related variables as transportation systems, types of facilities to be offered at the subject site, the competitive characteristics of the marketplace including vacancy, rents, quality of competitive space.

Space demand for South Seattle is shown in Table 10 (South Seattle Space Demand). Two different types of demand are shown. The first is incremental demand. This is demand that is created as the labor force in an area expands. The second type of demand is latent demand. Latent demand is that demand existing in the marketplace which is inadequately served for one reason or another. This might be from obsolete facilities or facilities which are demolished for one reason or another. The sum of incremental and latent demand yields total demand. The market capture ratio is then applied to total demand to yield the probable number of square feet required at the site, in net rentable square feet.

These demand figures were then dissaggregated into different types of space categories including retail, office, office-warehouse and warehouse. Those demand figures are shown in Table 11 (Space Demand, by Type).



**Table 10**  
**South Seattle Space Demand**

|                 | SF/<br>Empl.<br>(1) | Site<br>Capture<br>(2) | 1983          |                   |               |           |        | 1984          |                   |         |           |         |
|-----------------|---------------------|------------------------|---------------|-------------------|---------------|-----------|--------|---------------|-------------------|---------|-----------|---------|
|                 |                     |                        | Empl.<br>Inc. | Demand in Sq. ft. |               |           |        | Empl.<br>Inc. | Demand in Sq. ft. |         |           |         |
|                 |                     |                        |               | Incre-<br>mental  | Latent<br>(2) | Total     | Site   |               | Incre-<br>mental  | Latent  | Total     | Site    |
| Construction    | 200                 | 10                     | 310           | 62,000            | 6,200         | 68,200    | 6,820  | 450           | 90,000            | 9,000   | 99,000    | 9,900   |
| Dur. Mfg.       | 350                 | 2                      | 970           | 339,500           | 33,950        | 373,450   | 7,469  | 1,410         | 493,500           | 49,350  | 542,850   | 10,857  |
| Non-dur. Mfg.   | 350                 | 2                      | 230           | 80,500            | 8,050         | 88,550    | 1,771  | 330           | 115,500           | 1,550   | 127,050   | 2,541   |
| ICU             | 220                 | 15                     | 240           | 52,800            | 5,280         | 58,080    | 8,712  | 340           | 74,000            | 7,400   | 82,200    | 12,342  |
| Wholesale Trade | 500                 | 10                     | 540           | 270,000           | 27,000        | 297,000   | 29,700 | 780           | 390,000           | 39,000  | 429,000   | 42,900  |
| Retail Trade    | 500                 | 2                      | 780           | 390,000           | 39,000        | 429,000   | 8,580  | 1,130         | 565,000           | 56,500  | 621,500   | 12,430  |
| FIN             | 275                 | 20                     | 40            | 11,000            | 1,100         | 12,100    | 2,420  | 50            | 13,750            | 1,375   | 15,125    | 3,025   |
| Service         | 350                 | 15                     | 390           | 136,500           | 13,650        | 150,150   | 22,523 | 570           | 199,500           | 19,950  | 219,450   | 32,917  |
| Gov't.          | 220                 | 5                      | 180           | 39,600            | 3,960         | 43,560    | 2,178  | 270           | 59,400            | 5,940   | 65,340    | 3,267   |
| Total           |                     |                        |               | 1,381,900         | 138,190       | 1,520,090 | 90,173 |               | 2,001,450         | 200,145 | 2,201,595 | 130,160 |

Table 10 (con't.)

|                 | 1995                |                        |               |                   |               |           |         |
|-----------------|---------------------|------------------------|---------------|-------------------|---------------|-----------|---------|
|                 | SF/<br>Empl.<br>(1) | Site<br>Capture<br>(%) | Empl.<br>Inc. | Demand in Sq. Ft. |               | Total     | Site    |
|                 |                     |                        |               | Incre-<br>mental  | Latent<br>(2) |           |         |
| Construction    | 200                 | 10                     | 1,130         | 226,000           | 22,600        | 248,600   | 24,860  |
| Dur. Mfg.       | 350                 | 2                      | 3,510         | 1,228,500         | 122,850       | 1,351,350 | 27,027  |
| Non-dur. Mfg.   | 350                 | 2                      | 820           | 287,000           | 28,700        | 315,700   | 6,314   |
| TCU             | 220                 | 15                     | 840           | 184,800           | 18,480        | 203,280   | 30,492  |
| Wholesale Trade | 500                 | 10                     | 1,950         | 975,000           | 97,500        | 1,072,500 | 107,250 |
| Retail Trade    | 500                 | 2                      | 2,820         | 1,410,000         | 141,000       | 1,551,000 | 31,020  |
| FIR             | 275                 | 20                     | 130           | 35,750            | 3,575         | 39,325    | 7,865   |
| Service         | 350                 | 15                     | 1,420         | 497,000           | 49,700        | 546,700   | 82,005  |
| Gov't.          | 220                 | 5                      | 660           | 145,200           | 14,520        | 159,720   | 7,986   |
| Total           |                     |                        |               | 4,989,250         | 498,925       | 5,488,175 | 324,819 |

Source: Mundy, Jarvis & Associates, Inc.

Table 10 (con't.)

|                 | SF/<br>Empl.<br>(1) | Site<br>Capture<br>(2) | 1985              |                  |               |           |         | 1990              |                  |         |           |         |
|-----------------|---------------------|------------------------|-------------------|------------------|---------------|-----------|---------|-------------------|------------------|---------|-----------|---------|
|                 |                     |                        | Demand in Sq. Ft. |                  |               |           |         | Demand in Sq. Ft. |                  |         |           |         |
|                 |                     |                        | Empl.<br>Inc.     | Incre-<br>mental | Latent<br>(2) | Total     | Site    | Empl.<br>Inc.     | Incre-<br>mental | Latent  | Total     | Site    |
| Construction    | 200                 | 10                     | 460               | 92,000           | 9,200         | 101,200   | 10,120  | 890               | 178,000          | 17,800  | 195,800   | 19,580  |
| Dur. Mfg.       | 350                 | 2                      | 1,410             | 493,500          | 49,350        | 542,850   | 10,857  | 2,760             | 966,000          | 96,600  | 1,062,600 | 21,252  |
| Non-dur. Mfg.   | 350                 | 2                      | 330               | 115,500          | 11,550        | 127,050   | 2,541   | 640               | 224,000          | 22,400  | 246,400   | 4,928   |
| ICU             | 220                 | 15                     | 340               | 74,800           | 7,480         | 82,280    | 12,342  | 660               | 145,200          | 14,520  | 159,720   | 23,958  |
| Wholesale Trade | 500                 | 10                     | 780               | 390,000          | 39,000        | 429,000   | 42,900  | 1,530             | 765,000          | 76,500  | 841,500   | 84,150  |
| Retail Trade    | 500                 | 2                      | 1,140             | 570,000          | 57,000        | 627,000   | 12,540  | 2,220             | 1,110,000        | 111,000 | 1,221,000 | 24,420  |
| FIR             | 275                 | 20                     | 50                | 13,750           | 1,375         | 15,125    | 3,025   | 100               | 27,500           | 2,750   | 30,250    | 6,050   |
| Service         | 350                 | 15                     | 570               | 199,500          | 19,950        | 219,450   | 32,917  | 1,110             | 388,500          | 38,850  | 427,350   | 64,102  |
| Gov't.          | 220                 | 5                      | 270               | 59,400           | 5,940         | 65,340    | 3,267   | 520               | 114,400          | 11,440  | 125,840   | 6,292   |
| Total           |                     |                        |                   | 2,008,450        | 200,845       | 2,209,295 | 117,971 |                   | 3,918,600        | 391,860 | 4,310,460 | 254,732 |

Table 11  
South Seattle Space Demand

|                 | SF/<br>Empl.<br>(1) | Site<br>Capture<br>(%) | 1983          |                   |               |           |        | 1984          |                   |         |           |         |
|-----------------|---------------------|------------------------|---------------|-------------------|---------------|-----------|--------|---------------|-------------------|---------|-----------|---------|
|                 |                     |                        | Empl.<br>Inc. | Demand in Sq. Ft. |               |           |        | Empl.<br>Inc. | Demand in Sq. Ft. |         |           |         |
|                 |                     |                        |               | Incre-<br>mental  | Latent<br>(2) | Total     | Site   |               | Incre-<br>mental  | Latent  | Total     | Site    |
| Construction    | 200                 | 10                     | 310           | 62,000            | 6,200         | 68,200    | 6,820  | 450           | 90,000            | 9,000   | 99,000    | 9,900   |
| Dur. Mfg.       | 350                 | 2                      | 970           | 339,500           | 33,950        | 373,450   | 7,469  | 1,410         | 493,500           | 49,350  | 542,850   | 10,857  |
| Non-dur. Mfg.   | 350                 | 2                      | 230           | 80,500            | 8,050         | 88,550    | 1,771  | 330           | 115,500           | 1,550   | 127,050   | 2,541   |
| TCU             | 220                 | 15                     | 240           | 52,800            | 5,280         | 58,080    | 8,712  | 340           | 74,800            | 7,480   | 82,280    | 12,342  |
| Wholesale Trade | 500                 | 10                     | 540           | 270,000           | 27,000        | 297,000   | 29,700 | 780           | 390,000           | 39,000  | 429,000   | 42,900  |
| Retail Trade    | 500                 | 2                      | 780           | 390,000           | 39,000        | 429,000   | 8,580  | 1,130         | 565,000           | 56,500  | 621,500   | 12,430  |
| FIR             | 275                 | 20                     | 40            | 11,000            | 1,100         | 12,100    | 2,420  | 50            | 13,750            | 1,375   | 15,125    | 3,025   |
| Service         | 350                 | 15                     | 390           | 136,500           | 13,650        | 150,150   | 22,523 | 570           | 199,500           | 19,950  | 219,450   | 32,917  |
| Gov't.          | 220                 | 5                      | 180           | 39,600            | 3,960         | 43,560    | 2,178  | 270           | 59,400            | 5,940   | 65,340    | 3,267   |
| Total           |                     |                        |               | 1,381,900         | 138,190       | 1,520,090 | 90,173 |               | 2,001,450         | 200,145 | 2,201,595 | 130,180 |

|                 | SF/<br>Empl.<br>(1) | Site<br>Capture<br>(%) | 1985          |                   |               |           |         | 1990          |                   |         |           |         |
|-----------------|---------------------|------------------------|---------------|-------------------|---------------|-----------|---------|---------------|-------------------|---------|-----------|---------|
|                 |                     |                        | Empl.<br>Inc. | Demand in Sq. Ft. |               |           |         | Empl.<br>Inc. | Demand in Sq. Ft. |         |           |         |
|                 |                     |                        |               | Incre-<br>mental  | Latent<br>(2) | Total     | Site    |               | Incre-<br>mental  | Latent  | Total     | Site    |
| Construction    | 200                 | 10                     | 460           | 92,000            | 9,200         | 101,200   | 10,120  | 890           | 178,000           | 17,800  | 195,800   | 19,580  |
| Dur. Mfg.       | 350                 | 2                      | 1,410         | 493,500           | 49,350        | 542,850   | 10,857  | 2,760         | 966,000           | 96,600  | 1,062,600 | 21,252  |
| Non-dur. Mfg.   | 350                 | 2                      | 330           | 115,500           | 11,550        | 127,050   | 2,541   | 640           | 224,000           | 22,400  | 246,400   | 4,928   |
| TCU             | 220                 | 15                     | 340           | 74,800            | 7,480         | 82,280    | 12,342  | 660           | 145,200           | 14,520  | 159,720   | 23,958  |
| Wholesale Trade | 500                 | 10                     | 780           | 390,000           | 39,000        | 429,000   | 42,900  | 1,530         | 765,000           | 76,500  | 841,500   | 84,150  |
| Retail Trade    | 500                 | 2                      | 1,140         | 570,000           | 57,000        | 627,000   | 12,540  | 2,220         | 1,110,000         | 111,000 | 1,221,000 | 24,420  |
| FIR             | 275                 | 20                     | 50            | 13,750            | 1,375         | 15,125    | 3,025   | 100           | 27,500            | 2,750   | 30,250    | 6,050   |
| Service         | 350                 | 15                     | 570           | 199,500           | 19,950        | 219,450   | 32,917  | 1,110         | 388,500           | 38,850  | 427,350   | 64,102  |
| Gov't.          | 220                 | 5                      | 270           | 59,400            | 5,940         | 65,340    | 3,267   | 520           | 114,400           | 11,440  | 125,840   | 6,292   |
| Total           |                     |                        |               | 2,008,450         | 200,845       | 2,209,295 | 117,971 |               | 3,918,600         | 391,660 | 4,310,460 | 254,732 |

Table 11 (con't.)

|                 | 1995                |                        |               |                   |               |           | Site    |
|-----------------|---------------------|------------------------|---------------|-------------------|---------------|-----------|---------|
|                 | SF/<br>Empl.<br>(1) | Site<br>Capture<br>(%) | Empl.<br>Inc. | Demand in Sq. Ft. |               | Total     |         |
|                 |                     |                        |               | Incre-<br>mental  | Latent<br>(2) |           |         |
| Construction    | 200                 | 10                     | 1,130         | 226,000           | 22,600        | 248,600   | 24,860  |
| Dur. Mfg.       | 350                 | 2                      | 3,510         | 1,228,500         | 122,850       | 1,351,350 | 27,027  |
| Non-dur. Mfg.   | 350                 | 2                      | 820           | 287,000           | 28,700        | 315,700   | 6,314   |
| TCU             | 220                 | 15                     | 840           | 184,800           | 18,480        | 203,280   | 30,492  |
| Wholesale Trade | 500                 | 10                     | 1,950         | 975,000           | 97,500        | 1,072,500 | 107,250 |
| Retail Trade    | 500                 | 2                      | 2,820         | 1,410,000         | 141,000       | 1,551,000 | 31,020  |
| FIR             | 275                 | 20                     | 130           | 35,750            | 3,575         | 39,325    | 7,865   |
| Service         | 350                 | 15                     | 1,420         | 497,000           | 49,700        | 546,700   | 82,005  |
| Gov't.          | 220                 | 5                      | 660           | 145,200           | 14,520        | 159,720   | 7,986   |
| Total           |                     |                        |               | 4,989,250         | 498,925       | 5,488,175 | 324,819 |

Source: Mundy, Jarvis &amp; Associates, Inc.

Table 11  
Space Demand - by Type  
(in square feet of NRA, rounded)

| Year | Retail(1) | Office(2) | Office-<br>Warehouse(3) | Warehouse(4) | Total   |
|------|-----------|-----------|-------------------------|--------------|---------|
| 1983 | 8,580     | 11,420    | 40,480                  | 29,700       | 90,180  |
| 1984 | 12,430    | 16,190    | 58,660                  | 42,900       | 130,180 |
| 1985 | 12,540    | 16,410    | 58,660                  | 42,900       | 130,510 |
| 1990 | 24,420    | 31,920    | 114,240                 | 84,150       | 254,730 |
| 1995 | 31,020    | 40,710    | 145,840                 | 107,250      | 324,820 |

Notes: (1) Includes retail trade.  
(2) Includes construction, finance, insurance, real estate, government.  
(3) Includes durable and non-durable mfg., transportation, communications and utilities, and service.  
(4) Includes wholesale trade.

Source: Mundy, Jarvis & Associates, Inc.

Table 12  
Space Demand by Type  
(in square feet of NRA, rounded)

| Year  | Retail(1) | Office(2) | Office-<br>Warehouse(3) | Warehouse(4) | Total   |
|-------|-----------|-----------|-------------------------|--------------|---------|
| 1983  | 8,580     | 11,420    | 40,480                  | 29,700       | 90,180  |
| 1984  | 12,430    | 16,190    | 58,660                  | 42,900       | 130,180 |
| 1985  | 12,540    | 16,410    | 58,660                  | 42,900       | 130,510 |
| 1990  | 24,420    | 31,920    | 114,240                 | 84,150       | 254,730 |
| 1995  | 31,020    | 40,710    | 145,840                 | 107,250      | 324,820 |
| Total | 88,990    | 116,650   | 417,880                 | 306,900      | 930,420 |

Notes: (1) Includes retail goods and services.  
 (2) Includes construction, finance, insurance, real estate, government.  
 (3) Includes durable and non-durable manufacturing, transportation, communication and utilities, and services.  
 (4) Includes wholesale trade.

Source: Mundy, Jarvis & Associates, Inc.

These demand projections must be considered the minimum level of demand since they are based solely on changes in the regional economy. If a parcel the size of the westside property were available, the market would be truly national in scope. Development would require the financial, planning, and marketing resources of a major development company. The finished property would be marketed to attract new businesses to the region, perhaps even national headquarters of companies with significant holdings in the Pacific Northwest. Burlington Northern's recent move to Seattle illustrates the potential demand from the corporate market.

#### Aviation Demand

The Economic Base Model includes demand for office, industrial and warehouse space generated by general aviation users under such SIC categories as 37--"Manufacturing, Transportation Equipment" and 45--"Transportation and Public Utilities, Transportation by Air." Demand

for parking space for aircraft, however, is a special use not covered by the model. Demand for this use was determined through interviews with airport managers and managers of businesses at the King County International Airport who lease space for private aircraft. All these sources indicated that there is a strong demand for tie-downs and hanger space. Typical rental rates are \$75 per month for a tie-down of about 2,500 square feet and \$550 per month for hanger space for a twin engine plane. While these rates are well below the return generated by more intensive uses, they do provide a rent on otherwise unuseable land, such as that with a low height restriction.

Interviews with present tenants at the airport indicated that there is a high demand for general aviation space of the type provided by Fixed Base Operators (FBO). For example, Seattle Flight Service now leases 243,300 square feet. They indicated they could absorb as much more space and use it for tie-down leases, parking, hangers, and servicing. Orville Tosch who has a 6,000 square foot hanger is turning away repair work because of a lack of space and of skilled employees. Federal Express indicated a need for 14,000 to 15,000 square feet in the next 3 to 5 years. The pending closure of the Bellevue Airfield will increase the pressure at the King County International Airport to handle service for the small private aircraft.

#### The Highest and Best Use

Given the strong demand from general aviation users and the unique location with airfield access, it was determined that general aviation was the highest and best use of the eastside parcel. This use would include offices, repair facilities, flight training schools, aircraft service and storage, and light manufacture of aircraft parts.

The economic base analysis suggests demand for numerous uses as shown in Table 12. By 1995 this includes site demand of 89,000 square feet of retail space, 116,000 square feet of office, 418,000 square feet of office/warehouse and 307,000 feet of warehouse. Given the size of the westside parcel, its frontage on West Marginal Way, the airport location and favorable exposure from Interstate 5, we are of the opinion this site would be a strong candidate for a mixed use business, industrial and distribution park with a complementary line of retail establishments such as restaurant(s), office supplies and furniture, and business services such as travel agents. A mixed use business park development as a highest and best use is supported by the trend of land uses found in the area and by such successful developments as Benaroya Business Park and Fischer Business Park.

After making our highest and best use determination, the next step was to select appropriate sale and rent comparables. The sale comparables were used to determine the land value which was then capitalized to estimate the fair market rental. The rent comparables were used for the direct market data approach to estimating fair market rent.



## **APPENDIX A**

### **Telephone Questionnaire**

## USER INVENTORY

Hello. My name is \_\_\_\_\_ and I am with Mundy, Jarvis. We are doing a survey of major land users for King County. May I ask you a few questions:

1. Name of Company \_\_\_\_\_
2. Address \_\_\_\_\_
3. Contact \_\_\_\_\_ Phone # \_\_\_\_\_
4. Nature of Business \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_ (SIC \_\_\_\_\_ )
5. How long have you been in this location? \_\_\_\_\_ Years
6. Was your previous location within the Southend industrial area?  
Harbor Ave to Marginal way, south to S. 118th (A. Grocer's Coop.) to I-5 on  
the east?  
\_\_\_\_\_ this has been our only location.  
\_\_\_\_\_ Yes  
\_\_\_\_\_ No
7. Who was in this location before you?  
\_\_\_\_\_  
What was the nature of their business? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
8. What are the advantages to this location for your business?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
9. What are the disadvantages?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
10. How important is proximity to the Duwamish Waterway to your company on a scale  
from 1 to 5 where,  
1 = must have  
2 = nice but not essential  
3 = indifferent  
4 = minor drawback  
5 = major inconvenience
11. On the same scale how would you rate proximity to Boeing Field? \_\_\_\_\_

Thank you.

## **APPENDIX B**

### **Economic Base Model**

## THE SEATTLE METROPOLITAN AREA ECONOMIC BASE

The need for commercial and residential real estate is directly tied to the economic base of an area. As the area's economic base changes so do other "non-basic" or support sectors. Housing and commercial real estate services are several of the more important support sectors. Therefore, to understand the present and probable future need for real estate services it is important to understand the "workings" of the area's economic base. The Seattle area economic base is discussed in five sections which follow, beginning with a brief review of the area's resources and history. We then compare Seattle's recent growth on a national and regional basis. A shift-share analysis analyzes the components comprising the Seattle area economy and how those components have changed over time. Then, a "minimum requirements" economic base model for the economy is developed whereby employment projections are made using two different growth scenarios for the period 1982 through 2000. From the employment projections a demographic model is developed whereby population and housing projections are made.

For the purpose of this analysis, the Seattle Consolidated Area is defined by King, Snohomish and Pierce Counties. Therefore, the Seattle area economic base includes the major cities, such as Seattle, Everett, and Tacoma, minor municipalities, such as Arlington, Issaquah, and Puyallup, and the unincorporated areas of Snohomish, King, and Pierce Counties.

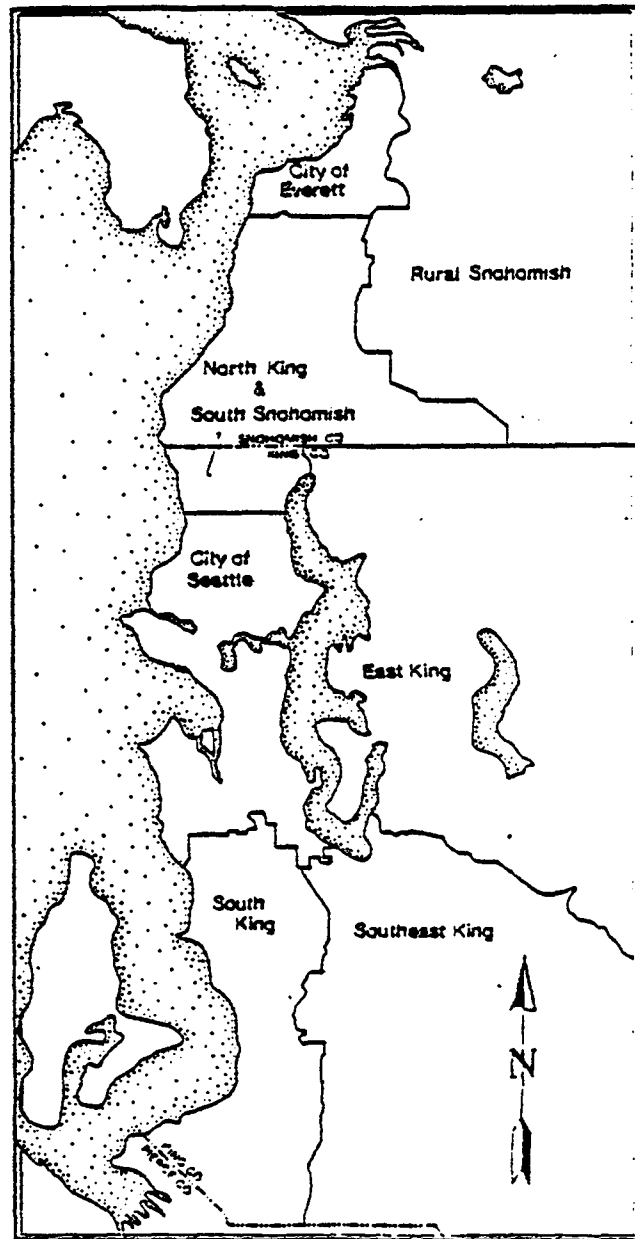
The three-county area was divided into eight sub-markets. These areas represent independent "micro" economics. The sub-market area boundaries are shown in Figure 1.

### Area Resources and History

Like many cities in the United States, Seattle, Tacoma and Everett owe their existence to a plentiful supply of important natural resources. Even though the Puget Sound area was "discovered" by Captain George Vancouver in 1775--charting many of our present landmarks including Mt. Rainier, Mt. Hood, Admiralty Inlet and Hood Canal--it wasn't until the 1850's that the forest resources of Puget Sound were tapped. In 1870 the population of Walla Walla and Olympia still remained greater than that of Seattle. The area was dependent upon shipping and forestry until Seattle was linked by rail (the Great Northern Railroad) to Tacoma and cities to the south, which were tied to Sacramento, California. Sacramento, in turn, was linked to Omaha, Nebraska by the Central Pacific Railroad. The link to Seattle was completed in 1893.

In 1889 Washington produced four percent of the nation's lumber output. Washington remained first in lumber output until 1938, when surpassed by Oregon. Also important were pulp and plywood production.

Figure 1



The Seattle area was pulled up by its bootstraps from a severe recession in 1897 by the Alaska gold rush, thereby establishing Seattle as a major port and outfitting point for Alaska trade, and then soon to follow, trade to the Orient. The area's deep water ports also fostered a large shipbuilding industry. In 1891 the government selected Bremerton as a site for its Naval shipyard, where warships were produced for World Wars I and II. Many ships were also produced during this same period in Seattle, where employment increased from 6,000 prior to World War II, to 140,000 in 1943.

The Seattle area has also benefitted from an impressive agricultural industry that established itself in central and eastern Washington in the early 1900's. Early-day eastern Washington wheat farming was important. Then with the completion of Grand Coulee Dam and the opening of the Columbia Basin to agriculture in 1948 the agricultural industry made another surge. Also related to the Grand Coulee development was the provision of cheap hydroelectric power which in 1941 attracted the state's first aluminum manufacturer, Alcoa.

Until recently the one major industry that was not dependent on regional natural resources was aerospace. Starting in 1916 with William Boeing's first airplane, Boeing and the aerospace industry have contributed to impressive growth and economic well-being for this area and its residents. However, it has also caused many recessions and grief. A chronology of change at Boeing and in the aerospace industry from 1916 through 1979 is depicted in Table 1.

TABLE 1  
SEATTLE'S AEROSPACE INDUSTRY

| Period    | Employment | Event  |
|-----------|------------|--|
| 1916-1939 | 0-7,000+   | William Boeing's B&W Twin Float sport seaplane launched.<br>The beginning of Pacific Aeroproducts Company.                   |
| 1940      | 7,600      | Mobilization for World War II.   |
| 1944      | 44,000     | Production of Flying Fortress and Superfortress.   |
| 1946      | 10,000     | Sales decrease from \$600 million to \$14 million in 2 years.  |
| 1947      |            | Introduction of B-47 followed by B-52.   |
| 1960*     | 58,000     | First commercial jet - Boeing 707.   |
| 1962      | 73,300     | Diversification into missiles and space.   |
| 1964      | 52,000     | Retrenchment due to several major defense contract losses.   |
| 1968      | 104,500    | Expansion due to 707/727 success; intensive airline orders.  |
| 1971      | 37,500     | SST contract loss; softness in commercial aircraft market.   |
| 1978      | 58,700     | Diversification, expanding commercial aircraft orders, and success in military contracts.                                    |
| 1979      | 76,800     | Introduction of 757/767; Everett plant's major expansion.  |
| 1980      | 80,550     | Workforce peaks with 299 commercial plan deliveries and 757/767 startup.   |
| 1981      | 79,700     | Workforce decreases slightly due to softness in national economy and decreasing 727/747 orders. Commercial deliveries - 257. |
| 3/82      | 74,000     | Workforce declines due to falling commercial aircraft production.  |

\*All aerospace employment.

Source: Mundy, Jarvis & Associates, Inc.

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As with the development of any economy, there are certain events that are very instrumental in an area's development. A chronology of those events is shown below:

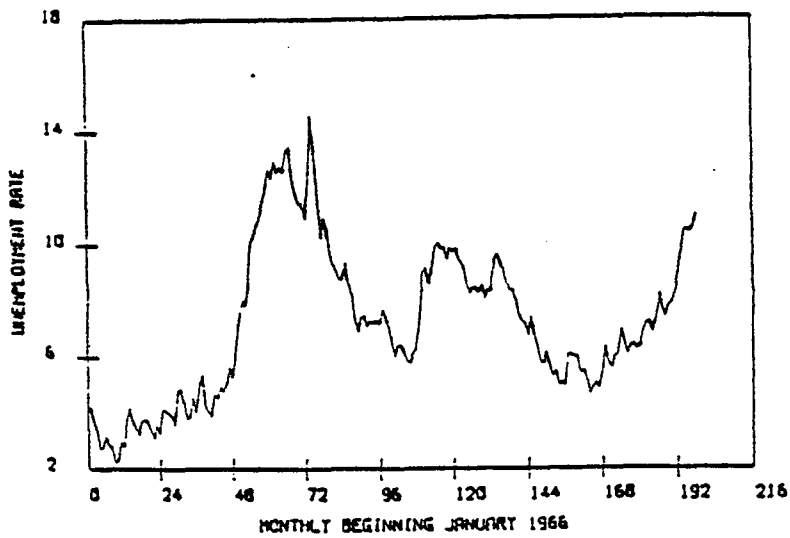
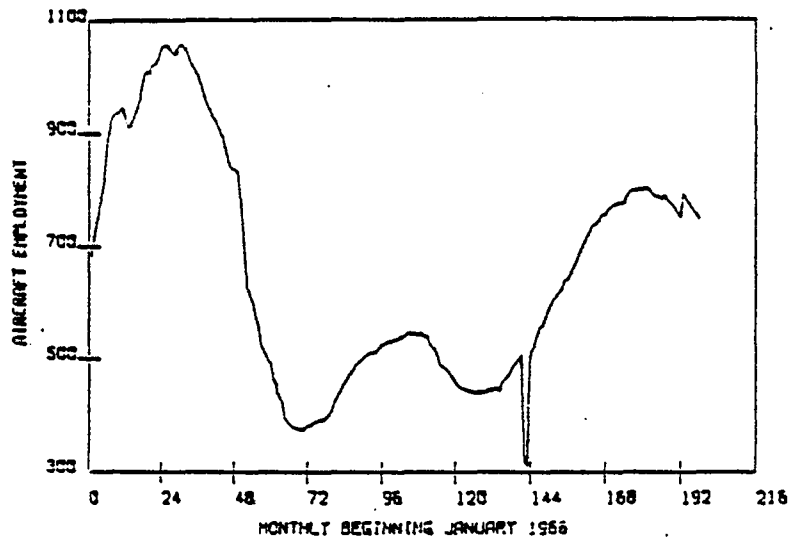
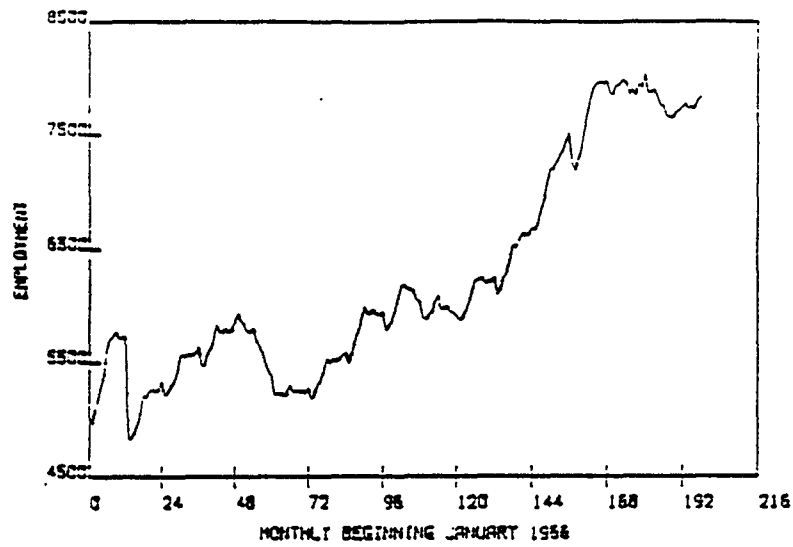
- 1878 Rail connection from Seattle to the Renton and Newcastle coal mines.
- 1883 Northern Pacific transcontinental railroad reaches Tacoma via Columbia River route.
- 1885 First pulp mill in Washington Territory at Camas.
- 1889 Statehood.
- 1889 Fires destroy major parts of both Seattle and Spokane.
- 1891 Bremerton navy yard established.
- 1893 Great Northern Railroad reaches terminus and Yukon begins.
- 1900 Northern Pacific sells 900,000 acres of timberland to Frederick Weyerhaeuser; one of several major sales of railroad land-grant properties.
- 1905 Washington gains first place in output of lumber.
- 1905 Pacific Car and Foundry established.
- 1909 Milwaukee Railroad completed to Seattle and Tacoma.
- 1909 Alaska-Yukon-Pacific Exposition, Seattle.
- 1914 Panama Canal opened, aiding cargo shipments to East Coast.
- 1916 Pacific Aero Products Company (later, the Boeing Company), founded in Seattle.
- 1917 Lake Washington Ship Canal opened; Fort Lewis established.
- 1918 World War I. Puget Sound shipyards employ 50,000.
- 1926 Washington State lumber production at all-time high.
- 1929 Great Northern Railroad completes Cascade Tunnel.
- 1940 State's first primary aluminum plant in operation at Vancouver, Washington.
- 1941 Grand Coulee Dam completed.

- 1943      World War II shipbuilding employs 140,000 in the state.
- 1947      Kaiser Aluminum takes over government-built aluminum plants at Spokane and Tacoma.
- 1949      Seattle-Tacoma International Airport opened.
- 1955      The Boeing Company enters the commercial jet transport market.
- 1956      Natural gas becomes available by pipelines from the Southwest and Canada.
- 1962      Century 21 - Seattle World's Fair.
- 1966      Intalco Aluminum, Bellingham, builds Washington's sixth aluminum plant.
- 1966      Boeing opts to build the 747 superjet.
- 1968      Major oil field discovered at Prudhoe Bay on Alaska's North Slope.
- 1978      Boeing announces the 757 and 767 commercial jets.

Figure 2 shows how employment, unemployment and aircraft employment have changed in the Seattle metropolitan area since 1965. The relationship between changes in aircraft employment and changes in Seattle's total employment and unemployment are vividly shown. As aircraft employment increased dramatically during the 1967 through 1968 period, so did the area's total employment, with a slight lag, approximating one year. Then, with Boeing's loss of the SST contract and the downturn in the airline industry and subsequent aircraft orders, aircraft employment dropped dramatically. This is directly correlated with the increase in the unemployment rate. The annual peaks and troughs are related, to a large extent, to the seasonal nature of many major industries, especially contract construction, fishing, food processing, lumber and wood products. The causes of these changes and probable future changes that will occur in employment and thereby the area's economic base are discussed in the next two sections.



Figure 2  
EMPLOYMENT TRENDS FOR GENTILE OMR - 1/1/66 TO 6/1/82



### Shift-Share Analysis

A region may grow either because it has industries that are growing nationally or because it is gaining an increasing proportion of industries, regardless of whether these industries are growing or not. The shift-share analysis formalizes these two separate effects.

The share analysis addresses the first portion of the problem, the proportion of national industry totals found within each region. It provides a snapshot of a region's structure vis-a-vis the national economy. This is, however, only a static analysis.

The shift analysis studies the region's structure from a dynamic standpoint. It is concerned with regional changes in economic activity between two defined points in time and concentrates on whether the regional change is greater than or less than the national average change. The shift measures the difference between the actual regional change and the change that would have occurred had the region grown at statewide or national average rates. This is a measure of an area's industrial advantage.

Average annual employment for 1965 and 1982 (February) by industry is shown for the Seattle area, the State of Washington and the United States in Table 2 (Shift-Share Analysis). The first six columns of the Table show the 1965 and 1980 employment for Seattle, Washington State and the United States respectively. In the right hand columns the Seattle Metropolitan Area's share of Washington State employment and United States employment is shown. In the last columns the total shift statistics are shown. The implications of the statistics are discussed in the paragraphs below.

Table 2  
Seattle SCA Shift-Share Analysis  
(Number of Jobs in 000 except US in 100,000)

|                      | Seattle SCA |       | WA. State |         | United States |       | Share for Seattle |      |                         |       | Shift for Seattle |        |
|----------------------|-------------|-------|-----------|---------|---------------|-------|-------------------|------|-------------------------|-------|-------------------|--------|
|                      | 1965        | 1982  | 1965      | 1982    | 1965          | 1982  | Wash.             |      | U.S. (10 <sup>4</sup> ) |       | WA                | US     |
|                      |             |       |           |         |               |       | 1965              | 1982 | 1965                    | 1982  |                   |        |
| Construction         | 24.4        | 40.8  | 46.4      | 72.1    | 3.29          | 3.74  | .53               | .57  | 7.42                    | 10.79 | 2.89              | 12.77  |
| Manufacturing        | 136.5       | 185.3 | 227.0     | 289.6   | 18.06         | 19.36 | .60               | .64  | 7.56                    | 9.58  | 11.16             | 39.06  |
| Durable              | 102.6       | 150.7 | 156.0     | 208.4   | 10.41         | 11.51 | .66               | .72  | 9.86                    | 13.09 | 13.64             | 37.26  |
| Lumber & Wood        | 13.6        | 12.7  | 46.9      | 39.7    | .61           | .61   | .29               | .32  | 22.30                   | 20.82 | 1.19              | -.90   |
| Furniture            | 2.1         | 2.0   | 2.8       | 2.7     | .43           | .46   | .75               | .74  | 4.88                    | 4.35  | -.02              | -.25   |
| Stone, Clay, Glass   | 2.7         | 3.0   | 5.4       | 5.7     | .63           | .69   | .50               | .53  | 4.29                    | 5.08  | .15               | .47    |
| Primary Metal        | 4.1         | 4.7   | 11.7      | 14.6    | 1.30          | 1.02  | .35               | .32  | 3.15                    | 4.61  | -.42              | 1.48   |
| Fabricated Metal     | 6.2         | 8.5   | 6.9       | 11.6    | 1.27          | 1.49  | .90               | .73  | 4.88                    | 5.71  | -1.92             | 1.23   |
| Machinery            | 5.1         | 7.6   | 8.6       | 15.1    | 1.74          | 2.44  | .59               | .50  | 2.93                    | 3.11  | -1.36             | .45    |
| Electrical           | 2.4         | 8.6   | 2.8       | 10.5    | 1.66          | 2.08  | .86               | .82  | 1.45                    | 4.14  | -.40              | 5.59   |
| Transportation       | 66.4        | 91.1  | 68.7      | 97.0    | 1.74          | 1.73  | .97               | .94  | 38.16                   | 52.66 | -2.65             | 25.08  |
| Aircraft             | 56.8        | 78.2  | 57.0      | 70.4    | .62           | NA    | .99               | .99  | 91.61                   | -     | -                 | -      |
| Ship Building        | 5.4         | 9.0   | 6.7       | 13.5    | .13           | NA    | .81               | .67  | 41.54                   | -     | -                 | -      |
| Other                | 4.2         | 3.5   | 5.0       | 5.1     | .99           | NA    | .84               | .69  | 4.24                    | -     | -                 | -      |
| Non-Durable          | 28.4        | 35.0  | 71.0      | 81.2    | 7.66          | 7.84  | .40               | .43  | 3.71                    | 4.46  | 2.62              | 5.93   |
| Food                 | 12.5        | 12.1  | 26.2      | 27.9    | 1.76          | 1.61  | .48               | .43  | 7.10                    | 7.52  | -1.21             | .67    |
| Apparel              | 2.6         | 2.9   | 4.5       | 5.3     | 1.35          | 1.20  | .58               | .55  | 1.93                    | 2.42  | -.16              | .59    |
| Paper                | 6.1         | 4.5   | 19.8      | 16.1    | .63           | .67   | .31               | .28  | 9.68                    | 6.72  | -.46              | -1.99  |
| Printing             | 4.9         | 8.7   | 9.2       | 15.6    | .98           | 1.30  | .53               | .56  | 5.00                    | 6.69  | .39               | 2.20   |
| Chemicals            | 2.3         | 1.9   | 8.5       | 9.0     | .91           | 1.09  | .27               | .21  | 2.52                    | 1.73  | -.53              | -.86   |
| Trans., Comm., Util. | 36.7        | 59.0  | 61.7      | 85.8    | 4.04          | 5.05  | .60               | .69  | 9.08                    | 11.68 | 7.96              | 13.12  |
| Misc. & Ret. Trade   | 112.7       | 223.9 | 190.9     | 369.1   | 12.72         | 20.60 | .57               | .61  | 8.86                    | 10.87 | 14.76             | 41.38  |
| Fin., Ins., R.E.     | 30.4        | 65.6  | 44.4      | 90.4    | 3.02          | 5.34  | .68               | .73  | 10.07                   | 12.28 | 3.71              | 11.85  |
| Services             | 68.4        | 185.9 | 123.3     | 309.3   | 9.49          | 18.80 | .55               | .60  | 7.52                    | 9.89  | 14.32             | 44.43  |
| Government           | 91.6        | 145.8 | 193.1     | 317.3   | 10.07         | 16.18 | .47               | .46  | 9.10                    | 9.01  | -4.72             | -1.48  |
| Total                | 503.3       | 889.3 | 896.6     | 1,536.7 | 82.14         | 90.26 | .56               | .58  | 6.13                    | 9.85  | 26.68             | 336.25 |

Note: 1982 data for February. Columns will not total since "Other" categories have been deleted.

### Seattle's Employment Share

Seattle's employment share is compared, in the following paragraphs, with both the State of Washington and the United States.

Seattle-Washington State. The Seattle Consolidated Area accounted for 56% of Washington employment in 1965. This has increased to 58% for the present period. Considerable growth has occurred in all major employment categories except government. Increases have been consistently in the 4% to 5% range except transportation, communications and utilities which has increased by 9%. The proportion of employment by category for 1965 and 1982 is shown below.

| <u>Employment Category</u>                    | <u>1965</u> | <u>1982</u> |
|---|-------------|-------------|
| Contract Construction                         | 53%         | 57%         |
| Manufacturing                                 | 60%         | 64%         |
| Transportation, Communications &<br>Utilities | 60%         | 69%         |
| Wholesale & Retail Trade                      | 57%         | 61%         |
| Finance, Insurance & Real Estate              | 68%         | 73%         |
| Service                                       | 55%         | 60%         |
| Government                                    | <u>47%</u>  | <u>46%</u>  |
| Overall Share                                 | 56%         | 58%         |

Employment in durable manufacturing increased at a rate greater than non-durable manufacturing, 6% versus 3%. Several areas in durable manufacturing where Seattle's share of State Employment has eroded significantly include fabricated metal products and machinery manufacturing. For non-durable categories Seattle's position has also eroded in several major categories including food processing, apparel manufacturing, paper production and chemical processing.

Seattle - United States. In 1965 Seattle's share of United States employment was 0.613%. This has increased to 0.985% to 1982, a 61% increase in its employment share over the last 17 years.

Contract construction has enjoyed the greatest proportionate change in its share, increasing by 45%. Service was second with a 32% increase. Manufacturing, wholesale and retail trade and finance, insurance, real estate all increased in the 20% range. The shares of employment and proportionate increases are shown below.

| <u>Employment Category</u>                 | <u>1965</u>  | <u>1982</u>  | <u>% Change</u> |
|--|--------------|--------------|-----------------|
| Contract Construction                      | .742%        | 1.079%       | 45%             |
| Manufacturing                              | .756%        | .958%        | 27%             |
| Transportation, Communications & Utilities | .908%        | 1.868%       | 29%             |
| Wholesale & Retail Trade                   | .886%        | 1.087%       | 23%             |
| Finance, Insurance & Real Estate           | 1.007%       | 1.228%       | 22%             |
| Service                                    | .752%        | .989%        | 32%             |
| Government                                 | <u>.910%</u> | <u>.901%</u> | <u>-1%</u>      |
| Overall Share                              | .613%        | .985%        | 61%             |

In the manufacturing sector, durable manufacturing's share increased by 33%, due mainly to significant employment increases in the transportation sector, fueled by Boeing and its sub-contractors. The share decreased in lumber and wood products, and furniture manufacturing.

For non-durable employment growth in Seattle's share was nominal, 20%. Chemical and paper and allied products decreased, the other categories increased.

#### Seattle's Employment Shift

The employment shift measures the regional change in comparison to change both on a state level and United States level. This variable shows clearly which sectors are doing well in the Seattle Consolidated Area.

Over the last 17 years a significant shift has occurred in favor of Seattle and Washington State. Ranked in order of magnitude of change are the following categories.

Service

Wholesale, retail trade

Manufacturing, mainly durable manufacturing and transportation equipment

Transportation, communications and utilities

Contract construction

Finance, insurance and real estate

Government

Four basic employment categories in manufacturing, transportation and electrical equipment manufacturing have performed significantly better than the United States. Two categories have not grown as fast, lumber and wood products and furniture manufacturing. Seattle in comparison to Washington has performed "at par", losing slightly in most durable manufacturing categories and gaining in other durable manufacturing.

For non-durable manufacturing there has been a slight shift in Seattle's favor, mainly occurring in other non-durable manufacturing when comparing Seattle to Washington. The shift has been in favor of non-durable manufacturing, printing, food processing and apparel when comparing Seattle with the United States.

A table detailing the employment for Seattle, Washington State and the United States as well as Seattle's share of employment and the shift occurring in favor of Seattle was shown in Table 2 (Seattle SCA, Shift-Share Analysis).

## SEATTLE'S NEIGHBORS

Over the last decade (1970 through September 1981) employment in the United States increased by 29%. In comparison, employment in the five West Coast states increased by 43.3%. On a state-by-state basis the increases have been:

|             |        |
|-------------|--------|
| California: | 42.5%  |
| Oregon:     | 42.4%  |
| Idaho:      | 56.1%  |
| Montana:    | 43.6%  |
| Washington: | 46.1%* |

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\* Using Washington data from 1971 (the bottom of the Boeing "bust") indicates a 48.0% increase.

These data are also displayed in Figure 3 (Rate of Employment Growth, 1970 to September 1981) and Figure 4 (Employment Increase, 1970 to September 1981).

For the West Coast, California has captured the majority of absolute employment change, increasing by 2.9 million over the decade. This equals 75% of the West Coast employment increase. Oregon increased by 317,000 (8% of the West Coast Employment Increase) and Washington by 514,000 (13%). Importantly, 60% of Washington's employment increase occurred in the Seattle Consolidated Area (Snohomish, King and Pierce Counties).

Figure 3

RATE OF EMPLOYMENT GROWTH - 1970 TO SEPT 1981 (NON-AG)

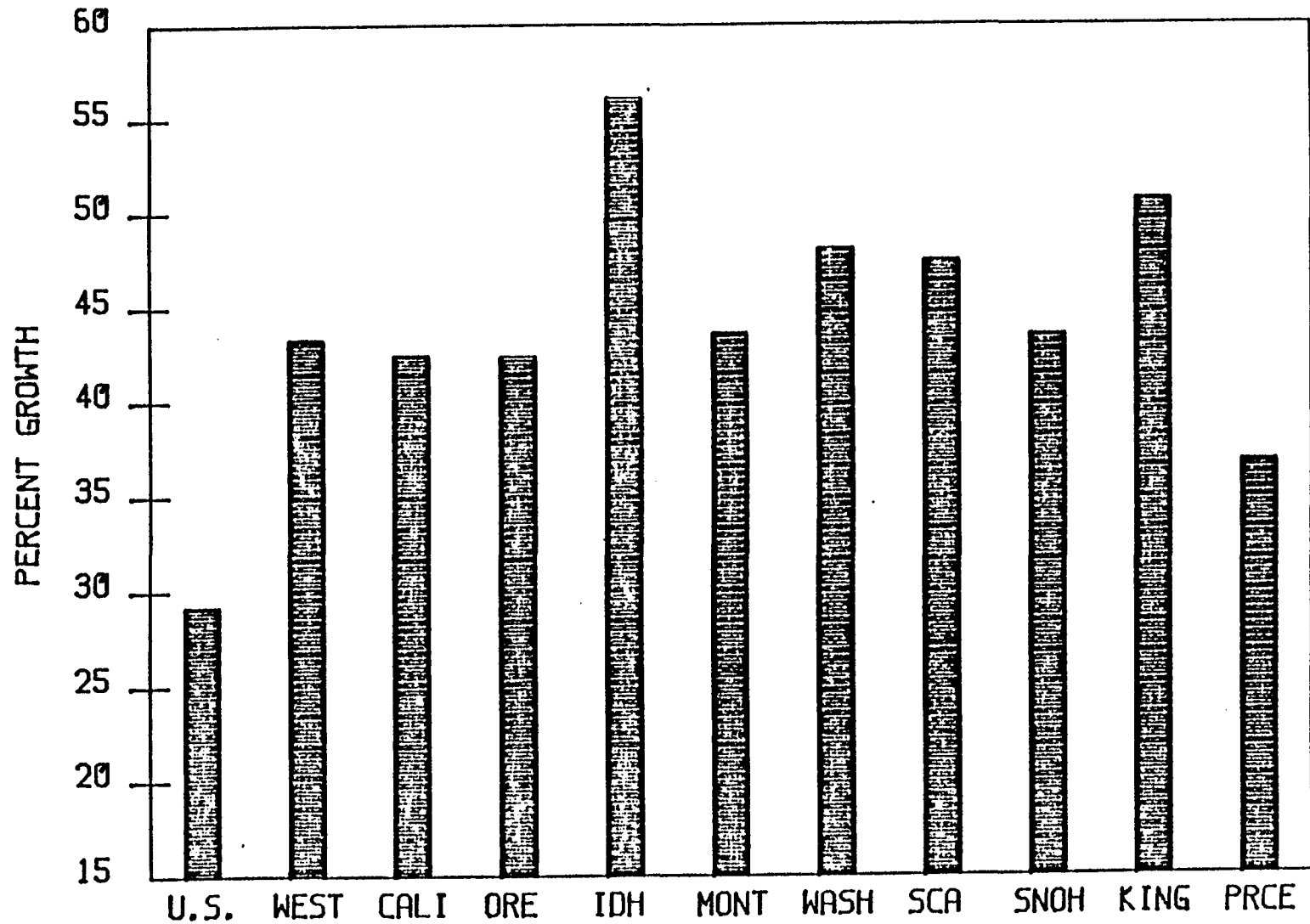
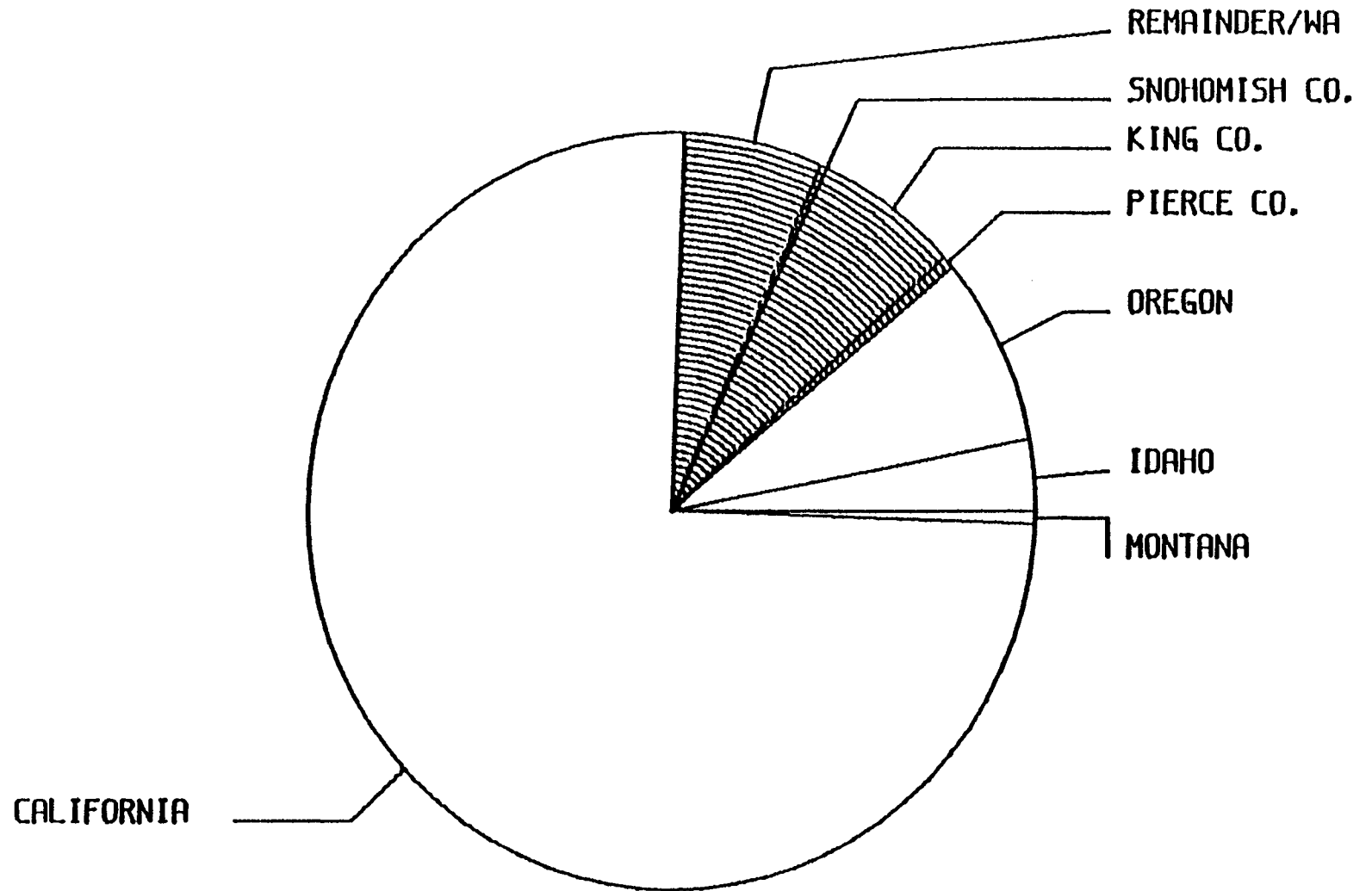




Figure 4

EMPLOYMENT INCREASE - 1970 TO SEPT 1981 (000'S)



### Minimum Requirements Approach

The following analysis is based on one of several economic base analysis techniques. It is a "middle-range" analysis, the minimum requirements method.\*

The minimum requirements method is based on the assumption that a "minimum" number of employees in any metropolitan area are required to provide such necessary goods as groceries and services. Excesses above this minimum are employees engaged in export activities: Producing goods and services locally and selling them beyond the boundaries of the metropolitan area (aircraft for instance) are export activities that provide the growth and dynamics for an area vis-a-vis a stagnating "no-growth" economy.

The minimum requirements approach provides the analyst with insight into what makes a particular economy "tick". It is a method of assessing the extent to which an area's industries sell outside the local economy. The portion of an industry that sells within the local economy is termed service, since it is needed to serve the needs of the area's residents. Retail trade is an example of an industry with a large service component, because it sells mostly within the local economy. The portion of an industry that sells outside the local economy is termed basic or export, because it generates a net flow of income from which necessary imports are financed. Aircraft manufacturing is an example of an industry with a large basic component, because it sells mostly outside the local economy. The majority of industries fall somewhere between the extremes of retail trades and aircraft manufacturing and have both basic and service components.

As an urban area grows in size there is a tendency toward self-sufficiency. An area the size of Moses Lake, Washington (population 10,900) for example, is on the average about 68% export (basic) and 32% service, or a ratio of one export to less than one-half service employee. In comparison, a metropolitan area of approximately 300,000 inhabitants (Spokane, Washington) has a ratio of 50% export to 50% service and a city the size of Seattle (some 1.7 million), may have a ratio of 40% export to 60% service. Research shows that the export to service ratio has been slowly changing with time, moving toward an increasing proportion of service workers.

A minimum requirements analysis disaggregates a local economy into two major parts, the export or basic component and the service component. By determining the composition of each sector and how that composition changes with time, it is possible to gain valuable insight into how the local economy performs, upon which industries the economy is dependent, and how it may perform in the future. Employment in the Seattle-Everett-Tacoma area was broken down by industry and by basic and service components, and is shown in Table 3 for 1970 to 1981 and Table 4 for 1982.

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\*Ullman, Edward, Michael F. Dacey and Harold Brodsky,

The Economic Base of American Cities, The University of Washington Press, Seattle, Washington, 1969.

TABLE 3  
BASIC AND SERVICE EMPLOYMENT IN  
SEATTLE-EVERETT-TACOMA

1970

|                     | % TOTAL<br>EMPLOY. | % MIN.<br>REQ. | BASIC       | % BASIC | SERVICE     | % SERV. | SERVICE<br>DEFICIT | TOTAL        |
|---------------------|--------------------|----------------|-------------|---------|-------------|---------|--------------------|--------------|
| Construction        | 4.8                | 3.3            | 9.2         | 30.9    | 20.5        | 69.1    | 0.0                | 29.7         |
| Manufacturing       | 23.8               | 9.2            | 40.9        | 61.4    | 57.2        | 38.6    | 0.0                | 148.1        |
| Durable             | 18.5               | 6.1            | 77.0        | 67.0    | 37.9        | 33.0    | 0.0                | 114.9        |
| NonDurable          | 5.3                | 3.1            | 13.9        | 42.0    | 19.3        | 58.0    | 0.0                | 33.2         |
| T.C.U. <sup>1</sup> | 7.4                | 5.0            | 14.6        | 32.0    | 31.1        | 68.0    | 0.0                | 45.7         |
| Trades              | 22.3               | 16.5           | 36.4        | 26.2    | 102.5       | 73.8    | 0.0                | 138.9        |
| Wholesale           | 6.3                | 3.5            | 17.5        | 44.7    | 21.8        | 55.3    | 0.0                | 39.3         |
| Retail              | 16.0               | 13.0           | 18.8        | 18.9    | 80.8        | 81.1    | 0.0                | 99.6         |
| F.I.R. <sup>2</sup> | 6.6                | 4.1            | 15.7        | 38.2    | 25.5        | 61.8    | 0.0                | 41.2         |
| Services            | 15.9               | 17.7           | 0.0         | 0.0     | 99.1        | 100.0   | 10.9               | 99.1         |
| Government          | 19.1               | <u>9.8</u>     | <u>57.9</u> | 48.7    | <u>60.9</u> | 51.3    | <u>0.0</u>         | <u>118.8</u> |
| TOTAL               |                    | 65.6           | 213.8       |         | 407.7       |         | 10.9               | 621.5        |

SOURCE: Bill Mundy & Associates, Inc.

(All employment figures in thousands.)

<sup>1</sup>Transportation, Communication and Utilities

<sup>2</sup>Finance, Insurance and Real Estate

Table 4

Basic and Service Employment in  
Seattle-Everett-Tacoma  
April 1982

|               | Employment |      | Min.<br>Req. (%) | Basic |      | Service |      |         |
|---------------|------------|------|------------------|-------|------|---------|------|---------|
|               | Total      | %    |                  | No.   | %    | No.     | %    | Deficit |
| Construction  | 38.3       | 4.3  | 3.3              | 8.7   | 22.7 | 29.6    | 77.3 | 0       |
| Manufacturing | 186.1      | 20.7 | 9.2              | 103.5 | 16.6 | 82.6    | 44.4 | 0       |
| Durable       | 151.2      | 16.8 | 6.1              | 96.4  | 63.8 | 54.8    | 36.2 | 0       |
| Non-durable   | 35.0       | 3.9  | 3.1              | 7.2   | 20.5 | 27.8    | 79.5 | 0       |
| T.C.U. (1)    | 56.5       | 6.3  | 5.0              | 11.6  | 20.6 | 44.9    | 79.4 | 0       |
| Trade         | 216.5      | 24.1 | 16.5             | 68.4  | 31.6 | 148.1   | 68.4 | 0       |
| Wholesale     | 64.5       | 7.2  | 3.5              | 33.1  | 51.3 | 31.4    | 48.7 | 0       |
| Retail        | 152.0      | 16.9 | 13.0             | 35.3  | 23.2 | 116.7   | 76.8 | 0       |
| FIR (2)       | 64.9       | 7.2  | 4.1              | 28.1  | 43.3 | 36.8    | 56.7 | 0       |
| Service       | 182.6      | 20.3 | 17.7             | 23.7  | 13.0 | 158.9   | 87.0 | 0       |
| Government    | 149.9      | 16.7 | 9.8              | 61.9  | 41.3 | 88.0    | 58.7 | 0       |
| Total         | 897.7      |      | 65.6             | 305.9 |      | 588.9   |      |         |

Source: Mundy, Jarvis & Associates, Inc., 6/1982

Notes: All employment figures in thousands  
 (1) Transportation, communications and utilities  
 (2) Finance, insurance and real estate.  
 Columns may not add due to rounding errors

### Basic Employment

After partitioning employment into basic and service components by industry, basic employment was further analyzed to determine historical trends. Table 5 reports basic employment broken down by seven sectors in both numerical and percentage form. The following paragraphs discuss the trends evident in basic employment since 1970.

#### Contract Construction

Basic employment in 1970 was 9,200 and comprised 4.3% of all basic employment in the consolidated area. By 1974, basic employment had fallen to 5,400 or 2.3% of total basic employment, due to the 1971 Boeing layoffs and a recession in the housing industry. Consequently, the demand for housing grew faster than the supply. This situation helped stimulate housing construction in the late 1970's and by 1979, basic employment had grown to 24,400 or 7.9% of total basic employment. In 1980, basic employment fell to 21,300 or 6.7% of total basic employment as a result of tight money market conditions. The 1980 basic employment probably would have been lower if it were not for a surge in the construction of office space in Seattle and Bellevue. Since 1980 construction employment has continued its downward trend, now at 8,700 basic employees (38,300 total), slightly higher than the 1974 low. Major construction projects continue to provide support for this category (i.e., Bellevue offices, Seattle hotels, I-90, Bangor).

#### Durable Manufacturing

In 1970, durable manufacturing was the backbone of the local economy. Basic durable employment was at 77,000 or 36.0% of total basic employment. When the federal government canceled plans to build the SST in 1971, the Boeing Company was forced to reduce the size of its work force. Basic durable employment fell to 54,900 or 26.9% of total basic employment. By 1974, basic durable employment had risen to 74,800 or 32.3% of total basic employment. By 1976, however, it had fallen back to 62,800 or 25.7% of total basic employment. With the introduction of the Boeing 757 and 767 aircraft and the acquisition of government defense contracts to build cruise missiles, aircraft employment has grown substantially. Also, the development of the electronics industry has contributed to an increase in basic employment and the diversification of the local economy. Thus, by 1981 basic employment in durable manufacturing had increased to 98,500. Through April 1982 all durable manufacturing categories were showing weakness, however the weakness is especially noticeable in aircraft employment, accounting for more than 50% of the year-to-year decline.

#### Non-Durable Manufacturing

In 1970, basic employment in nondurable manufacturing was 13,900 or 6.5% of total basic employment. By 1975, basic durable employment had declined to 11,600 or 5.2% of total basic employment. Growth in food and kindred products, apparel, and printing and publishing helped push basic

TABLE 5  
BASIC EMPLOYMENT IN CONSOLIDATED AREA  
1970 - 1980

|               | <u>1970</u> |       | <u>1971</u> |       | <u>1972</u> |       | <u>1973</u> |       | <u>1974</u> |       | <u>1975</u> |       | <u>1976</u> |       | <u>1977</u> |       | <u>1978</u> |       |
|---------------|-------------|-------|-------------|-------|-------------|-------|-------------|-------|-------------|-------|-------------|-------|-------------|-------|-------------|-------|-------------|-------|
|               | n           | %     | n           | %     | n           | %     | n           | %     | n           | %     | n           | %     | n           | %     | n           | %     | n           | %     |
| Constr.       | 9.2         | 4.3   | 6.8         | 3.3   | 5.7         | 2.7   | 6.5         | 2.9   | 5.4         | 2.3   | 7.6         | 3.4   | 8.4         | 3.4   | 13.3        | 5.1   | 19.2        | 6.9   |
| Manufac.      | 90.9        | 42.5  | 69.1        | 33.8  | 71.7        | 33.9  | 81.6        | 36.5  | 87.1        | 37.6  | 84.2        | 37.7  | 74.9        | 30.7  | 77.5        | 29.9  | 92.1        | 33.1  |
| Durable       | 77.0        | 36.0  | 54.9        | 26.9  | 57.6        | 27.2  | 69.0        | 30.9  | 74.8        | 32.3  | 72.6        | 32.5  | 62.8        | 25.7  | 64.4        | 24.9  | 76.6        | 27.5  |
| NonDur        | 13.9        | 6.5   | 14.2        | 6.9   | 13.5        | 6.7   | 12.6        | 5.6   | 12.3        | 5.3   | 11.6        | 5.2   | 12.1        | 5.0   | 13.1        | 5.0   | 15.5        | 5.6   |
| T.C.U.        | 14.6        | 6.8   | 14.5        | 7.1   | 13.4        | 6.3   | 13.0        | 5.8   | 12.2        | 5.3   | 10.0        | 4.5   | 12.6        | 5.2   | 12.5        | 4.8   | 11.8        | 4.2   |
| Trades        | 36.4        | 17.0  | 37.4        | 18.5  | 39.0        | 18.4  | 40.7        | 18.2  | 42.5        | 18.4  | 54.1        | 24.2  | 55.6        | 22.8  | 60.5        | 23.4  | 66.5        | 23.9  |
| Wholesale     | 17.5        | 8.2   | 17.2        | 8.4   | 17.2        | 8.1   | 18.3        | 8.2   | 20.1        | 8.7   | 25.5        | 11.4  | 25.4        | 10.4  | 28.4        | 11.0  | 29.7        | 10.7  |
| Retail        | 18.8        | 8.8   | 20.7        | 10.1  | 21.8        | 10.3  | 22.5        | 10.0  | 22.5        | 9.7   | 28.6        | 12.8  | 30.2        | 12.4  | 32.9        | 12.4  | 35.1        | 13.2  |
| F.I.R.        | 15.7        | 7.3   | 16.0        | 7.8   | 16.6        | 7.8   | 16.9        | 7.6   | 17.1        | 7.4   | 17.1        | 7.7   | 17.1        | 7.0   | 19.3        | 7.5   | 22.1        | 7.9   |
| Services      | 0.0         | 0.0   | 0.0         | 0.0   | 0.0         | 0.0   | 0.0         | 0.0   | .6          | .3    | 5.6         | 2.5   | 8.2         | 3.4   | 11.2        | 4.3   | 12.4        | 4.5   |
| Govrnmnt      | 57.9        | 27.1  | 65.3        | 31.9  | 68.3        | 32.3  | 66.4        | 29.7  | 66.4        | 28.7  | 67.5        | 30.2  | 66.8        | 27.4  | 64.7        | 25.0  | 63.0        | 22.7  |
| Total Basic   | 213.8       | 100.0 | 204.4       | 100.0 | 211.5       | 100.0 | 223.3       | 100.0 | 231.4       | 100.0 | 233.2       | 100.0 | 243.6       | 100.0 | 258.9       | 100.0 | 278.1       | 100.0 |
| Total Service | 407.7       |       | 389.9       |       | 403.2       |       | 425.8       |       | 421.2       |       | 425.7       |       | 464.4       |       | 493.8       |       | 547.4       |       |
| GRAND TOTAL   | 621.5       |       | 594.3       |       | 614.7       |       | 649.1       |       | 672.6       |       | 658.9       |       | 708.0       |       | 752.7       |       | 825.5       |       |

NOTE: In thousands of employees.

Source: Bill Mundy & Associates, Inc.

Table 5 (con't)

| <u>1979</u> |             | <u>1980</u> |             | <u>1981</u> |             | <u>1982</u> |             |
|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| n           | %           | n           | %           | n           | %           | n           | %           |
| 24.4        | 7.9         | 21.3        | 6.7         | 13.8        | 5.5         | 8.7         | 3.6         |
| 107.5       | 34.8        | 109.9       | 34.5        | 106.6       | 42.7        | 103.5       | 42.4        |
| 92.5        | 30.0        | 97.5        | 30.6        | 98.5        | 39.5        | 96.4        | 39.5        |
| 15.0        | 4.8         | 12.4        | 3.9         | 8.1         | 3.2         | 7.2         | 2.9         |
| 12.3        | 4.0         | 13.6        | 4.3         | 12.2        | 4.9         | 11.6        | 4.8         |
| 67.6        | 21.9        | 65.7        | 20.6        | 67.5        | 27.1        | 68.4        | 28.0        |
| 32.2        | 10.4        | 32.0        | 10.0        | 33.0        | 13.2        | 33.1        | 13.6        |
| 35.4        | 11.5        | 33.7        | 10.6        | 35.2        | 14.1        | 35.3        | 14.5        |
| 23.5        | 7.6         | 24.0        | 7.5         | 26.6        | 10.7        | 28.1        | 11.5        |
| 13.0        | 4.2         | 17.2        | 5.4         | 22.1        | 8.9         | 23.7        | 9.7         |
| <u>60.6</u> | <u>19.6</u> | <u>66.9</u> | <u>21.0</u> | <u>61.7</u> | <u>24.7</u> | <u>61.9</u> | <u>25.4</u> |
| 308.8       | 100.0       | 318.6       | 100.0       | 310.5       | 100.0       | 305.9       | 100.0       |
| 589.0       |             | 607.7       |             | 605.9       |             | 588.9       |             |
| 897.8       |             | 926.3       |             | 916.4       |             | 897.7       |             |

non-durable employment to 15,500 or 5.6% of total basic employment in 1978. Since 1979 there has been a steady erosion in non-manufacturing employment due mainly to decreasing employment in food and kindred products as well as printing and publishing. However, all categories have shown some weakness. Food and kindred products declines are related to closures of food processing plants in the area, printing and publishing to the general economic slow down.

#### Transportation, Communication and Utilities

Basic T.C.U. employment in 1970 was 14,600 or 6.5% of total basic employment. By 1975, basic T.C.U. employment declined to 10,000 or 4.5% of total basic employment. In spite of an increase in total T.C.U. employment, from 44,200 in 1975 to 59,900 in 1980, basic T.C.U. employment increased only to 13,600 and the percentage of total basic T.C.U. employment fell to 4.3%. This is because employment increases have been in the service component, rather than the basic component, to serve the needs of the expanding population. Basic employment in this sector has declined only nominally since 1980 and has exhibited substantial stability since 1976.

#### Wholesale Trades

In 1970, 17,500 workers or 8.2% of total basic employment were in wholesale trades. As of 1975, this figure had grown steadily to 25,500 or 11.4% of total basic employment. By 1980, basic wholesale trade employment had increased to 32,000 or 10.0% of total basic employment and by April 1982 it had increased to 33,100 employees (10.7%). This increase is evidence of the increasing importance of the Seattle SCA as a major transshipment point to regions outside the SCA.

#### Retail Trades

In spite of having a large service component, retail trade continues to sell to customers outside the local economy. In 1970, basic retail trade employment was at 18,800 or 8.8% of total basic employment. By 1975, basic employment had grown to 28,600 or 12.8% of total basic employment. By 1978, 35,100 or 13.2% of total basic employment was in retail trades. This figure declined to 33,700 or 10.6% of total basic employment as growth failed to keep pace with that of other sectors of the economy. The overall increase in basic retail trade employment was due to growth in restaurants and taverns. Employment in automotive dealers and service stations was also responsible for much of the growth between 1974 and 1978, but has fallen on hard times due to the current economic recession. Since 1978 basic employment has remained static. Interesting dynamics occur in this and the service category during periods of employment and economic weakness, which are discussed in the service section.

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### Finance, Insurance and Real Estate

The finance, insurance and real estate category accounted for 15,700 (7.3%) of basic employment. Even though the proportion of basic employees fluctuated considerably between 1970 and 1976, the number was remarkably constant. In 1977 significant changes started to occur in this category as the Seattle SCA began to take on a more regional financial services center role. Since 1976 basic employment increases in this category have been growing at a steady rate, from 17,100 individuals in 1976 (7.0% basic) to a current level of 28,100 or 9.1% of basic employment.

### Services

In spite of its name, not all employment in the service category is service employment, because many of the services available in Seattle are also sold outside the local economy. Although this may foster some degree of confusion, we now have some 5.4% of total basic employment employed in services. This includes business services, such as accountants or data processing consultants, who sell their services to businesses in Spokane or Fairbanks. In 1970 we were in a position of having a service deficit. This means that the Seattle area had to import services from other areas to serve the needs of the local economy, or, the needs were simply not being adequately met. In 1974, however, the Seattle area began to export services to other areas. Increases in basic service employment have continued unabated since then. This was due primarily to increases in business services and health services. Other services such as legal, hotel and lodging, social services, educational and personal services all registered increases.

Interestingly, retail trade and services have held constant and risen (respectively) during this recent recession. An analysis performed in the Seattle economy after the 1971 local recession indicated that these two sectors show surprising stability during economic downturns, not resulting in a "negative" multiplier effect as is often popularly believed. The retail trade sector is now exhibiting this character. Basic service employment has continued to increase due, in part, to the increasing financial importance of the area and also because of the rapid employment increases in business services (i.e., advertising, consulting and management, commercial R&D), health and legal services.

### Government

While the government does not normally sell its services it certainly provides them. Seattle has become a major regional government center. Basic employment in government goes to serving needs outside the local economy. For example, the Federal Regional Training Center is located in Seattle and serves the needs of Washington, Idaho, Oregon and Alaska. Consequently, government accounted for 27.1% of total basic employment in 1970. This was second only to durable manufacturing. In 1971, with the layoffs at Boeing and the sharp decline in durable manufacturing, basic

employment in government increased to 65,300 or 31.9% of total basic employment. By 1972 it had increased to 68,300 or 32.3%. Since 1972 basic government employment has been slowly decreasing. In 1980 there was an increase in both federal and state and local employment. Most recently government employment has dropped or remained constant, comparable with 1979 figures.

### Employment Projections

Given the recent trends in basic employment it is possible to make assumptions about future trends and develop employment projections. The projections are based on the following assumptions: First, since more precision is possible in making short term projections than long term projections, it is assumed that the long term trends will be extensions of short term trends with a gradual decline in the growth rates. Second, the national trend of migration into the area will continue at a strong rate. Third, there is a continued trend toward more service-type employment. The final assumption concerns the effects of the current economic recession. Projection "A" assumes that the effects of the recession are currently at their peak and recovery will begin by mid-1982. It is anticipated in this projection that growth will be steady but gradual.

## Projection "A"

### Contract Construction

Basic employment in commercial and industrial contract construction will remain at present levels. This is due to the large number of commercial real estate development projects committed and underway in the SCA. We anticipate a slight moderating of interest rates during the latter one-half of 1982 and into 1983, which will encourage residential construction only slightly. For the mid and longer terms we expect contract construction to increase at a rate similar to that for the 1970-77 period.

### Durable Manufacturing

Basic employment in durable manufacturing has been erratic over the last decade because of the influence of Boeing and the aircraft industry. While the aerospace industry will continue to play a major role, the local economy has become more diverse and less dependent on it. This trend is expected to continue in the future. Aerospace employment is expected to increase, but not as rapidly as employment in other high-technology industries. Electronic-related industries have a particularly bright future. Companies such as John Fluke Manufacturing, Interface Mechanisms, Criton Industries, Physio-Control and Data I/O will contribute significantly to basic employment. Also, the location of major electronics manufacturers like Hewlett-Packard, Fairchild Camara and Honeywell are expected to stimulate employment growth in the area. The lumber and wood products industry has been especially hard hit by the current recession, it is expected to make a modest recovery when housing starts pick up again nation-wide. Growth in other durable manufacturing industries such as, fabricated metals, machinery or stone, clay and glass products, are expected to lag behind that of the high-technology industries. Growth in basic employment is expected to increase at a rate typical of the past decade until 1990, then gradually slow. The type of increase will vary, favoring light industry to heavy.

### Non-Durable Manufacturing

Basic non-durable employment has also been erratic over the last decade, but not as much as in durable manufacturing. Basic non-durable employment has been decreasing in the past few years because of in-migration increasing the size of the population, which in turn, generated a stronger demand for non-durable goods within the local economy. Basic non-durable employment has failed to keep pace with this growth trend. In-migration is expected to continue and basic non-durable employment is expected to increase, and even "catch up" ground lost since 1978-79. Over the long-term growth is expected to be moderate. Employment in processed foods, especially convenience foods and beverages, apparel, printing and publishing and chemicals are expected to grow most rapidly. Basic employment in paper products, however, is expected to decline.

### Transportation, Communications and Utilities

Basic T.C.U. employment has declined during the 1970's. Railroad transportation is expected to show a healthy short-term growth rate as Burlington Northern relocates its headquarters here. We expect more corporate and related BN facilities to find their way to the Seattle SCA - over the next five years - than has been announced to date. The long-promised trade with China is just beginning to be realized. It won't reach a significant level in the immediate future because their import needs do not match our leading exports. However, in the long run, trade with China will help to stimulate basic employment in transportation. We expect trade with other Pacific Rim countries, especially Japan, to continue at healthy levels. Also, the development of natural resources in Alaska will help to stimulate basic employment in transportation.

Communications, such as television, radio and telephone, are also expected to contribute to growth in basic employment. Employment in utilities, including electricity, natural gas, water and sewer services is expected to be for service use only.

### Wholesale and Retail Trades

The growth of basic employment in this sector over the past decade, showing only a slight moderation during the current recession. The current recession is expected to constrain growth for 1982, especially in such areas as automobiles and home furnishings. Growth in basic employment is expected to be generated in areas like food stores, general merchandise, restaurants, and so forth. After recovering from the recession growth is expected to continue at a rate equal to that of the past decade until 1990, then increase at a decreasing rate.

### Finance, Insurance and Real Estate

Seattle is rapidly becoming the major financial center for the Northwest. Basic employment has grown steadily over the past decade - especially the last five years - and this trend is expected to continue. The largest banks in the state--Seattle First National, Rainier, First Interstate Bank and Peoples -- are headquartered in Seattle. These financial institutions can be expected to participate in the growth of the Pacific Northwest. With the introduction of interstate banking the largest banks in the country are expected to open or expand branches in Seattle. Many, in fact, already have including the largest; Bank of America, Chase and Citibank. Locally headquartered insurance companies such as Safeco, Pemco and Unigard are expected to contribute growth in basic employment. Other major insurance companies have regional headquarters in Seattle, including Aetna, Prudential and Equitable, to serve the needs of the Pacific Northwest. Basic employment is expected to grow much more rapidly than the average of the past decade, then taper off starting in 1990.

### Services

Since 1974 the growth of basic service employment has been outstanding and the trend is expected to continue. Much of this growth will be generated by the hotel and lodging industry. The new Westin Tower, the newly remodeled Olympic Hotel and other new hotels under construction (Sheraton, the Madison) and in planning (both in Seattle and Tacoma) will help generate basic employment. Business services, such as advertising, computer and data processing services, research and development laboratories, architectural and engineering and accounting services, and medical services will also contribute to the growth of basic service employment. Basic service employment is expected to grow at a rate similar to its 1974 to 1982 rate then taper off slightly.

### Government

While government has been a major source of basic employment in the past, future growth is likely to be slow. New policies of the Reagan administration will constrain employment growth at all levels. Federal employment will decrease. State Government, even though it will have to pick up a larger burden from the federal government will decline moderately. County and local governments, who depend on C.E.T.A. funds and revenue sharing, will be hard-pressed. Growth at the county and local level - in terms of basic employment - will remain constant.

### Projection "B"

#### Contract Construction

A severe recession and slow recovery will keep growth in basic construction employment well below the average rate of the 1970's. Tight money market conditions will keep residential construction at minimal levels through mid-1982. Growth in basic construction employment will be powered by industrial and commercial construction at this time. After 1982 pent-up housing demand and easing money market conditions will increase employment in residential construction. From that point basic employment will follow the same trend as under Projection "A".

#### Durable Manufacturing

Basic durable employment trends will follow those of Projection "A", except that aircraft manufacturing is assumed to hold constant at present levels. Electronics and high-technology industries are expected to provide the impetus for growth in basic employment.

#### Other Sectors

The remaining sectors--non-durable manufacturing, transportation, communication and utilities, wholesale and retail trades, finance, insurance and real estate, services, and government--will follow the same basic employment trends as under Projection "A", except they are slightly lower.

Figure 5 shows the employment projections for 1982 to 2000, based on the growth assumptions discussed above. These are translated into the numerical projections shown in Table 6 (Employment Projection A). In this table service employment is added based on the 1970-1980 basic: service ratio to obtain total employment. The growth trend for total employment (Projection A) is shown in Figure 5 (Employment - Projection A, 1970-2000).

Table 6  
Employment Projection A  
1982-2000  
(000)

|                       | 1982  | 1983  | 1984  | 1985    | 1990    | 1995    | 2000    |
|-----------------------|-------|-------|-------|---------|---------|---------|---------|
| Contract Construction | 8.5   | 10.2  | 14.0  | 16.0    | 10.2    | 15.0    | 17.0    |
| Manufacturing         | 102.7 | 103.8 | 108.3 | 113.9   | 128.0   | 143.1   | 159.7   |
| Durable               | 95.7  | 96.0  | 98.6  | 100.9   | 113.0   | 126.5   | 141.7   |
| Non-durable           | 7.0   | 7.8   | 9.7   | 13.0    | 15.0    | 16.6    | 18.0    |
| T.C.U.                | 11.8  | 12.2  | 13.1  | 14.0    | 15.0    | 15.7    | 16.2    |
| Trade                 | 69.7  | 73.2  | 76.2  | 79.4    | 88.0    | 94.3    | 101.0   |
| Wholesale             | 33.7  | 35.5  | 37.0  | 38.4    | 43.0    | 46.3    | 50.0    |
| Retail                | 36.0  | 37.7  | 39.2  | 41.0    | 45.0    | 48.0    | 51.0    |
| FIR                   | 29.2  | 31.2  | 33.1  | 35.2    | 40.2    | 44.3    | 48.0    |
| Service               | 25.0  | 28.0  | 31.0  | 34.0    | 41.3    | 46.5    | 52.0    |
| Government            | 61.0  | 60.5  | 59.6  | 59.0    | 60.5    | 64.6    | 66.0    |
| Total Basic           | 307.9 | 319.1 | 335.3 | 351.5   | 383.2   | 423.5   | 459.9   |
| Total Service         | 588.1 | 609.5 | 640.4 | 671.4   | 731.9   | 808.9   | 878.4   |
| Total Employment      | 896.0 | 928.6 | 975.7 | 1,022.9 | 1,115.1 | 1,232.4 | 1,338.3 |

Source: Mundy, Jarvis & Associates, Inc.

### Distribution of Employment to Sub-Market Areas

Once employment projections were made, they were dissaggregated to sub-market areas based on their historical share of employment. Data on the share of employment for each sub-market area was obtained from the Washington State Employment Security Department, Puget Sound Council of Governments and data from a sampling of 912 business establishments located in Snohomish, King and Pierce Counties. Employment was also dissaggregated by employment category, such as construction, durable manufacturing, etc. This data is shown in Table 7 (Employment Distribution, in Percent, Seattle SCA).

Based on the distribution shown in Table 7 (Employment Distribution) and the employment projections for 1982 through 1995 employment was distributed to the Seattle area. This is the shaded area shown in Figure 6. The projections assume that Seattle's proportion of employment, by each employment category, will remain constant through the 1982 through 1995 period.

Importantly, these numbers represent additions to the Seattle labor force assuming that space is provided in the Seattle area to accommodate these employment additions. If this space is not provided migration from the Seattle area will occur to other areas within the SCA. This is especially important in categories such as manufacturing, wholesale trade and certain service categories where industrial sites are required which, even today, are in extremely short supply (given size, plottage, access, etc. requirements). Based on our employment projections and the distribution of employment for Seattle we can expect to see employment additions in Seattle, given the above assumption, as is shown in Table 8 (Seattle Employment Additions, 1983-1995).

### South Seattle Employment Additions

From the Seattle information employment was dissaggregated to South Seattle. The basis for this dissaggregation was information on 216 firms located in South Seattle which were a portion of the 912 firms interviewed in the Seattle SCA. The South Seattle share of employment, by employment category as well as the probable increase in South Seattle employment for the years 1983 through 1995 are shown in Table 9 (South Seattle Employment Additions, 1983-1995). Once again, it is important to remember that these employment additions are based on the assumption that facilities will be available in the South Seattle area to accommodate this net increase in employment.

### South Seattle Space Demand

Given the probable additions to the South Seattle labor force we are in a position to make estimates of probable space needs. Space estimates



Figure 5

BASIC EMPLOYMENT - PROJECTION A

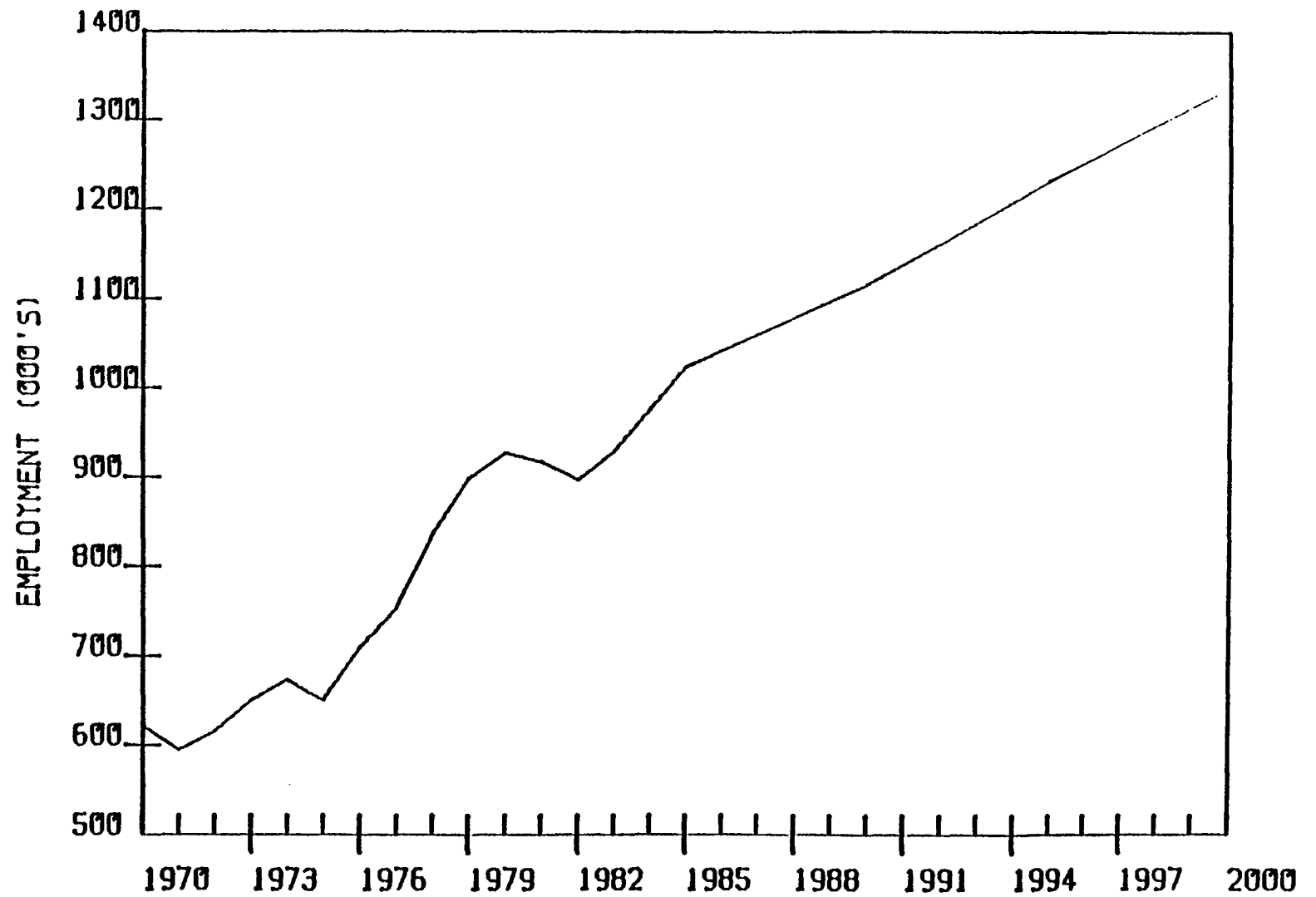


Table 7

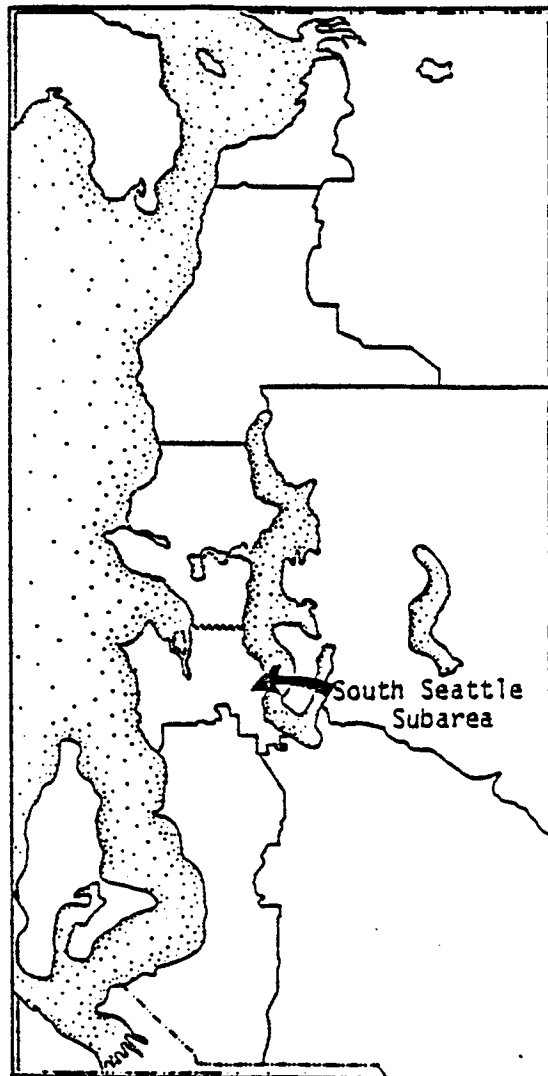
## Employment Distribution (in %) for Seattle SCA

| Category   | Rural<br>Snohomish | Everett | N. King<br>S. Snohomish | Seattle | E. King | S.E. King | So. King | Pierce |
|--|--------------------|---------|-------------------------|---------|---------|-----------|----------|--------|
| Construction                                     | .187               | .61     | .56                     | 2.131   | .592    | .268      | .344     | .84    |
| Durable Mfg.                                     | .846               | 1.28    | 1.90                    | 7.187   | 2.399   | 1.252     | .602     | 1.57   |
| Non-Durable Mfg.                                 | .137               | .21     | .17                     | 1.777   | .573    | .162      | .048     | .84    |
| Transportation,<br>Communications &<br>Utilities | .187               | .39     | .31                     | 3.832   | .354    | .172      | .172     | .67    |
| Wholesale Trade                                  | .759               | .21     | .29                     | 3.603   | .440    | 1.128     | .201     | .80    |
| Retail Trade                                     | .137               | .09     | .24                     | 8.381   | 3.048   | 2.351     | .086     | 2.85   |
| Finance, Insurance,<br>Real Estate               | .05                | .41     | .05                     | 5.151   | .459    | .038      | .038     | .75    |
| Services   | .548               | .96     | .96                     | 10.712  | 1.472   | .736      | .554     | 3.10   |
| Government                                       | .548               | 1.08    | 1.24                    | 5.619   | 1.825   | 1.328     | .975     | 3.69   |
| Total  | 3.40               | 5.24    | 5.73                    | 49.02   | 11.16   | 7.43      | 3.02     | 15.11  |

Source: Mundy, Jarvis &amp; Associates, Inc.

Figure 6

SOUTH SEATTLE SUBAREA



 Seattle

Table 8

Seattle Employment Additions  
1983-1995

|   |           | 1982  | 1983  | 1984  | 1985   | 1990   | 1995   |
|---|-----------|-------|-------|-------|--------|--------|--------|
| Total Employment (000)                          |           | 896.0 | 928.6 | 975.7 | 1022.9 | 1115.1 | 1232.4 |
| Net Employment Addition (000)                   |           |       | 32.6  | 47.1  | 47.2   | 92.2   | 117.3  |
| Seattle Share, by Type                          |           |       |       |       |        |        |        |
| Construction                                    | (2.13%)   |       | 690   | 1,000 | 1,010  | 1,960  | 2,500  |
| Durable Mfg.                                    | (7.187%)  |       | 2,340 | 3,390 | 3,390  | 6,630  | 8,430  |
| Non-Durable Mfg.                                | (1.777%)  |       | 580   | 840   | 840    | 1,640  | 2,080  |
| Transportation,<br>Communication &<br>Utilities | (3.832%)  |       | 1,250 | 1,800 | 1,810  | 3,530  | 4,490  |
| Wholesale Trade                                 | (3.603%)  |       | 1,170 | 1,700 | 1,700  | 3,320  | 4,230  |
| Retail Trade                                    | (8.381%)  |       | 2,730 | 3,950 | 3,960  | 7,730  | 9,830  |
| Finance, Insurance                              |           |       |       |       |        |        |        |
| Real Estate                                     | (5.151%)  |       | 1,680 | 2,430 | 2,430  | 4,750  | 6,040  |
| Services  | (10.712%) |       | 3,490 | 5,050 | 5,060  | 9,880  | 12,670 |
| Government                                      | (5.619%)  |       | 1,830 | 2,650 | 2,650  | 5,180  | 6,590  |

Source: Mundy, Jarvis &amp; Associates

Table 9  
South Seattle Employment Additions  
1983-1995

|  | South<br>Seattle<br>Share(1) | 1983 | 1984  | 1985  | 1990  | 1995  |
|--|------------------------------|------|-------|-------|-------|-------|
| Construction                                   | 45.3%                        | 310  | 450   | 460   | 890   | 1,130 |
| Durable Manufacturing                          | 41.6%                        | 970  | 1,410 | 1,410 | 2,760 | 3,510 |
| Non-Durable Mfg.                               | 39.2%                        | 230  | 330   | 330   | 640   | 820   |
| Transportation,<br>Communications<br>Utilities | 18.8%                        | 240  | 340   | 340   | 660   | 840   |
| Wholesale Trade                                | 46.2%                        | 540  | 780   | 780   | 1,530 | 1,950 |
| Retail Trade                                   | 28.7%                        | 780  | 1,130 | 1,140 | 2,220 | 2,820 |
| Finance, Insurance &<br>Real Estate            | 2.1%                         | 40   | 50    | 50    | 100   | 130   |
| Service  | 11.2%                        | 390  | 570   | 570   | 1,110 | 1,420 |
| Government                                     | 10.0% (e)                    | 180  | 270   | 270   | 520   | 660   |

Notes: (1) Based on employment data on 216 South Seattle firms.

(e) Mundy, Jarvis & Associates estimate. Specific data on this category not available.

Source: Mundy, Jarvis & Associates, Inc.