JAMES A. GRAASKAMP COLLECTION OF TEACHING MATERIALS
VII. INDUSTRY EDUCATIONAL COURSES - LONG TERM
F. U.W. Extension And Executive Development
6. "Real Estate Development Process", University of Wisconsin School of Business Executive Management Series for Real Estate Development, April 24-26, 1983: Includes James A. Graaskamp lecture and correspondence

Index

# REAL ESTATE DEVELOPMENT PROCESS

A University of Wisconsin School of Business
Executive Management Series for
Real Estate Development

April 24-26, 1983

Course Schedule

# INTRODUCTION TO REAL ESTATE DEVELOPMENT PROCESS

A University of Wisconsin School of Business
Executive Management Series for
Real Estate Development
April 24-26, 1983
Lowell Conference Center

SUNDAY, APRIL 24

| | |
|---|---|
| 4:30-5:30 | Registration |
| 5:30-6:00 | Cash Bar |
| 6:00-7:00 | Sunday Night Dinner |
| 7:00-8:00 | Course Introduction |

MONDAY, APRIL 25

| | |
|---|---|
| 8:30-9:30 | Decision Process, Problem Solving, and Feasibility for Real Estate Development (Prof. James Graaskamp) |
| 9:30-10:15 | Definition and Measurement of Objectives |
| 10:30-11:30 | Basic Financial Parameters for Feasibility Analysis |
| 11:30-12:00 | Concept of Risk Management |
| 1:00-2:00 | Site Analysis |
| 2:00-3:00 | Market Analysis |
| 3:15-4:45 | Evolution of Neighborhood Shopping Center Project (Prof. Michael L. Robbins) |
| 6:00-7:00 | Dinner |
| 7:00-8:30 | The Psychology of Shopping Center Design (slide lecture) |

TUESDAY, APRIL 26

| | |
|---|---|
| 8:30-9:30 | Dynamics of Office Building Design |
| 9:30-10:15 | Private/Public Interface for Land Development |
| 10:30-12:00 | Public Incentives in Private Development |
| 12:00-1:00 | Lunch |
| 1:00-2:00 | Structuring Group Investments |
| 2:00-3:00 | Structuring Private/Public Joint Ventures |

TABLE OF CONTENTS



— Not legible - ∴ Not included

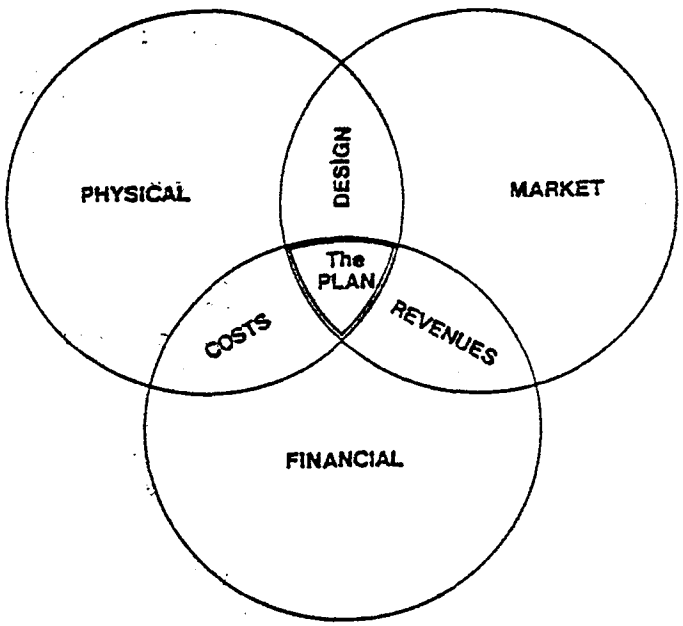
## STATEMENT OF PURPOSE

The objective of Project Feasibility Analysis is to:

reduce the risk of uncertainty by stating assumptions completely and explicitly, and

enhance the value of the asset— land— by maximizing the margin between revenues from market opportunities and costs of development.

The process and techniques employed can be used to continuously assess feasibility from undocumented to fully documented assumptions. The level of documentation may vary for each of three categories of input, but each requires consideration as the analysis is undertaken.



# INTRODUCTION

The Development Impact Model (DIM) provides a technique for performing a balanced feasibility analysis. It was developed by John Rahenkamp and Associates, Inc., in response to the need for feasibility evaluations which incorporate the social and political externalities affecting the feasibility of a proposed project. By recognizing the real and growing power of local political forces and environmental values as well as the need for a reasonable rate of return, the DIM measures the true feasibility of a particular project from the developer's and also the community's point of view.

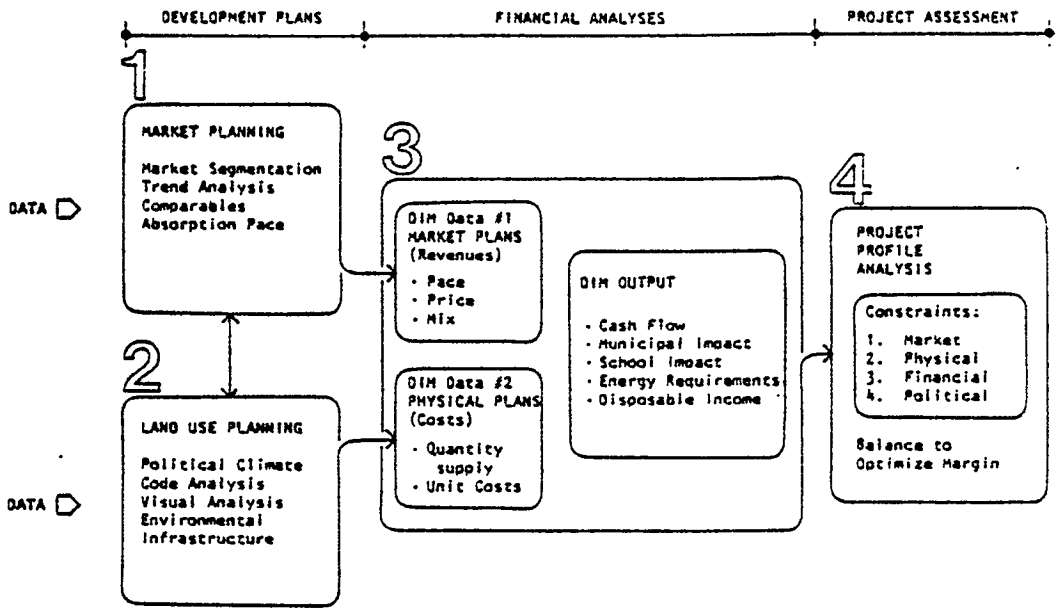
Essentially, the model identifies existing capacities of physical and fiscal systems, the projected demands resulting from the proposed project, and the resulting costs or benefits. It calculates not only front end expenses and bottom line profit, but it may also calculate the development's impact on local educational and municipal support systems. This information provides the developer and/or the community with a balanced measure of feasibility, political and environmental as well as financial. Since this information is objective as well as extensive, it should establish a sound basis for proper project approval or rezoning decisions.

Furthermore, the DIM is a computerized system utilizing the speed of the computer to deal with the numerous factor items and the vast range of possible combinations and permutations. Manual calculations of possible alternatives may take weeks, forcing decision-makers to act on incomplete information. In contrast, the computer offers the critical advantage of simulating available options quickly and performing continuous runs as criteria change either in the community's or developer's requirements.

It must be recognized that the value of a DIM feasibility evaluation is directly related to the accuracy and completeness of the basic data input. Each DIM analysis pertains only to the individual project and requires site-specific information. Much of the required data is usually already held by the developer or immediately available to him. The cost of a DIM feasibility analysis will obviously vary significantly depending on the amount of in-house research and data gathering required. If the information is provided directly by the developer in an appropriate form, the DIM evaluation costs are appreciably reduced.

The schematic diagram on the following page indicates the framework in which a feasibility analysis is carried out. Careful attention must be given to each of the three categories of project parameters depending upon the political/market/physical situation of a specific property. Once a minimum level of data is acquired and synthesized, gaming with critical variables can be accomplished quickly to develop an optimum project profile.

## PROJECT FEASIBILITY ANALYSIS




The sections following discuss the kinds and character of analysis required prior to establishing data inputs to DIM. The level of detail of each separate analysis will depend upon that element's criticality for project approval, both from public officials and the developer initiating the evaluation.

The third section contains a project checklist itemizing the information supplied by a developer. This checklist illustrates the scope and detail of the DIM feasibility analysis and provides the necessary data to run the DIM program.

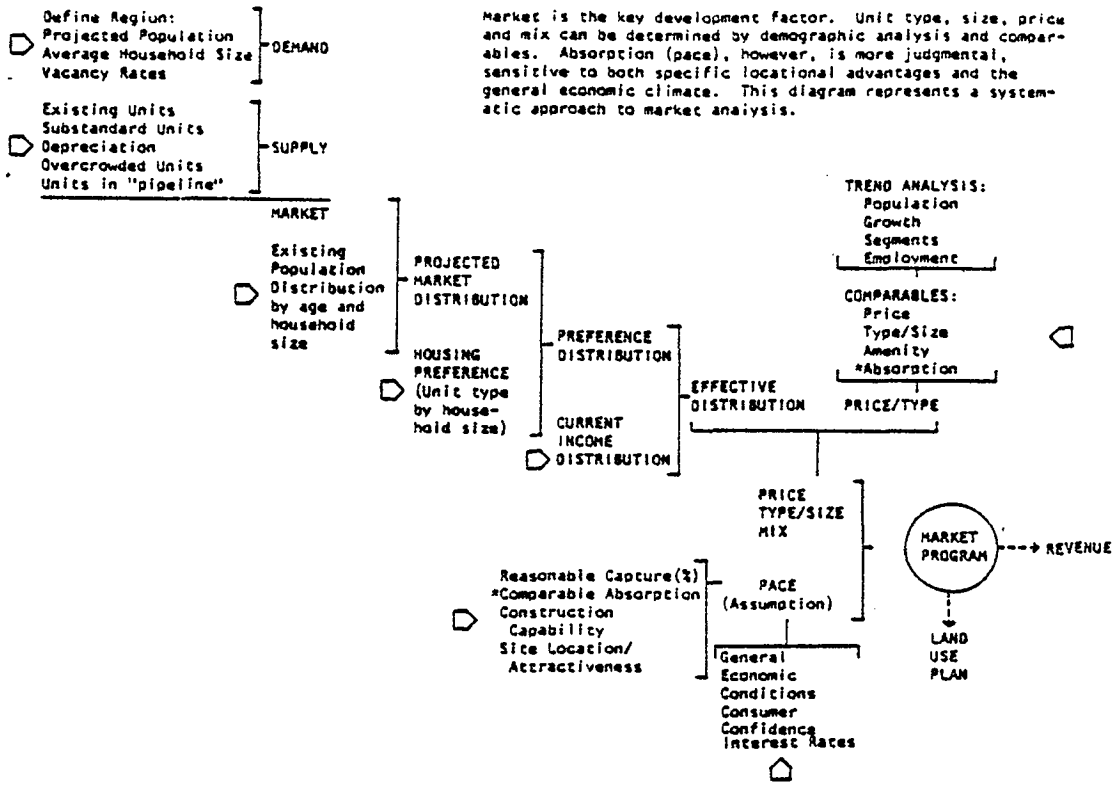
The Feasibility Checklist is supplemented by several pages of explanatory notes and exhibits. Each input space on the checklist has been assigned a code number which corresponds to a note describing the information required, and in five cases, these notes refer to one of the exhibits. After the exhibits is a sample of the checklist which was prepared for a typical project and a feasibility analysis printout which can be a guide.

It should be noted that all of the data indicated on the checklist is not required for analysis purposes. Where data is missing either a specific analysis will not be performed, e.g., School, Municipal, Demand, or the computer will assume a zero value. However, before each analysis all the data is reviewed by a staff computer specialist to insure its completeness.

# 1

# market planning

# MARKET SEGMENTATION




Market is the key development factor. Unit type, size, price and mix can be determined by demographic analysis and comparables. Absorption (pace), however, is more judgmental, sensitive to both specific locational advantages and the general economic climate. This diagram represents a systematic approach to market analysis.

# MARKET SEGMENTATION ILLUSTRATION

MONTGOMERY CO.

PRICE LEVEL COMPARABLES

| (RENT/MONTH) | 180. | 225. | 275. | 350. |
|---|---|---|---|---|
| GA-1BR | 9697. | 0. | 0. | 0. |
| GA-2BR | 1727. | 7856. | 0. | 0. |
| TH | 2715. | 2761. | 2590. | 0. |
| SF | 422. | 5368. | 4808. | 13836. |
| TOTAL NET MARKET | 14562. | 15986. | 14397. | 13836. |
| % TOTAL DEMAND | 25. | 27. | 24. | 24. |

TOTAL NET MARKET (15 YEAR ESTIMATE) 58780.

# MARKET TREND ANALYSIS

RESEARCH:

* Major commercial centers within 15 minutes
* Major commercial centers within 45 minutes
* Major employment centers within 15 minutes
* Major employment centers within 45 minutes
* Commercial and employment growth rate
* Population growth rate by age segments
* Family income growth rate by segments
* Housing vacancy rates
* Permits issued by type

INTERPRETATIONS:

* Strength and income/housing type implications of future employment opportunities
* Locational convenience
* Growing age and income segments related to price and housing type
* Strengh of competition; how much of the market is being absorbed and/or lost?

CONCLUSIONS:

* What is presently being built (price/type) is correct; follow the leaders and do comparables
* Identify market demands not being met
* There is some elasticity in the market to support price increases over competition
* Hold or reduce prices due to competition

# MARKET COMPARABLES

Date: 2/14/75

Project Name: Indian Hills — Address: Winona Way
Owner: C. Quinn — Lender:
Builder: — Architect:
Age or Status: 6 yrs. — No. of Units: 120 — No. of Bldgs: 10
No. of Stories: 2 & 3 — No. Vacant: none — Type of Constr: Frame
Map Key: 9

| | | |
|---|---|---|
| Bedrooms - Baths: | 1/1 | 2/1 |
| Number of Units: | | |
| Monthly Rents: | 185 | 275 |
| Square Feet: | 900 | 1000 |
| Rent/Sq. Ft. (Unfurn): | .206 | .275 |
| No. of Furn. Apts: | none | |
| No. of Vacant Apts: | none | |

Utilities Furnished: Electric: ____ Gas: ____ Water: x

Extra Charges: Refrigerator: ____ Other: ____
Furniture: 0 BR ____ 1 BR ____ 2 BR ____ 3 BR ____

Cooking Energy: elec. — Type of Heating: central gas — Walk-In Closets: ____
Air Conditioning: central — Ranges/Ovens: x — Fireplaces: ____
Dishwashers: x — Patios/Balconies: x — Carpets/Drapes: x
Washer/Dryer: in bldg. — Other Good Features/Remarks: ____

Pool(s): x — Laundry Facilities: in bldg.
Clubhouse(s): x — Security System: ____
Tennis: ____ — Parking: incl. garages
Playground Area: ____ — Storage Lockers: ____
Other Good Recreation or Project Features/Remarks: ____

# MARKET PLAN/SUMMARY OF ASSUMPTIONS

Upon completion of the market segmentation analysis, the following information is arranged in a convenient form for direct input to the DIM data sheets and as a working program for physical land use planning.

| Unit Types: | Single Family | Townhouse | Garden Apartment |
|---|---|---|---|
| Mix (%): | 11.3 | 54.7 | 34.0 |
| Price (K$): | 60.0 | 45.0 | 30.0 |
| Average Size (S.F.): | 2,000 | 1,500 | 900 |
| Average Stories: | 1.5 | 2.5 | 3.0 |

| Annual Sales*: | | | | | Pace |
|---|---|---|---|---|---|
| Year | 1 | 0 | 0 | 0 | 0 |
| | 2 | @ | @ | @ | 100 |
| | 3 | @ | @ | @ | 130 |
| | 4 | @ | @ | @ | 130 |
| | 5 | @ | @ | @ | 130 |
| | 6 | @ | @ | @ | 130 |
| | 7 | @ | @ | @ | 140 |

*Based on market analysis only: Subject to physical confirmation after land use planning.

@Actual minimal distribution will be approximately equal to projected market mix but is subject to physical planning

# 2

# land use planning

# POLITICAL CLIMATE ANALYSIS

APPROVABILITY

| | |
|---|---|
| Project Proposal Impacts: | on existing zoning<br>on fair share<br>on existing demography<br>on existing population size<br>on growth rate |
| Index of Exclusionary Tendency: | elected official turnover rate<br>professional staff capability and attitudes<br>change approval rate<br>allowable density and land use types<br>fair share allocation<br>"vigilante" groups<br>community income distribution |
| Codes and Procedures: | complexity<br>clarity<br>time lines<br>flexibility<br>requirements<br>standards |
| Local Issues: | fiscal<br>environmental<br>land use<br>utilities<br>open space |

---

Estimate of legal position and potential tradeoffs.

Summary estimate of probability (%) of approval for proposed project.

# CODE ANALYSIS

Applicable zoning codes are reviewed and analyzed to determine development potential under existing zoning or the availability of appropriate zoning districts which might satisfy the client's building program.

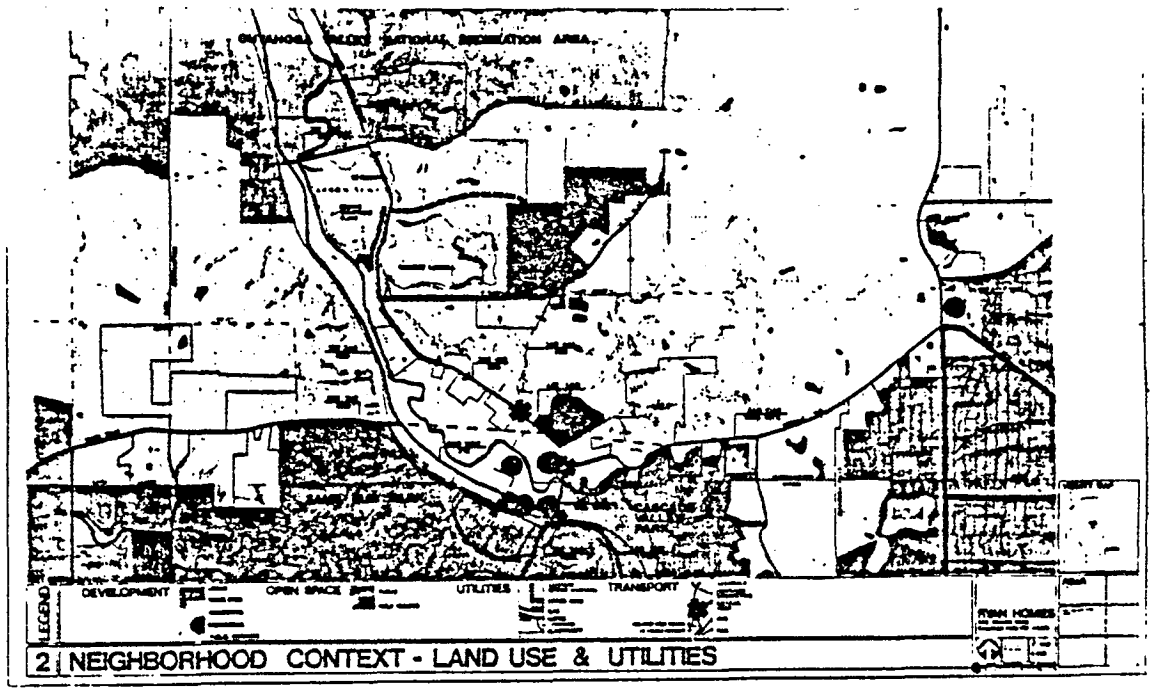
[illegible] election expected a drastic realignment in its political structure. The Township, turned-out the "democratic machine" who had dominated Berlin for the past thirty to forty years. A group of young independents, whose platform was a change of government was elected with nearly 75% of the vote. As a result, all the major administrative boards were changed and people of the same persuasion as the Mayor-Council were appointed. A portion of the platform of the new government was to promote good substantial growth.

As a result of these changes, the Mayor-Council has appointed a Land Use Study Committee to review the Township's existing zoning ordinance to determine what changes should be made to encourage growth while minimizing its adverse effects.

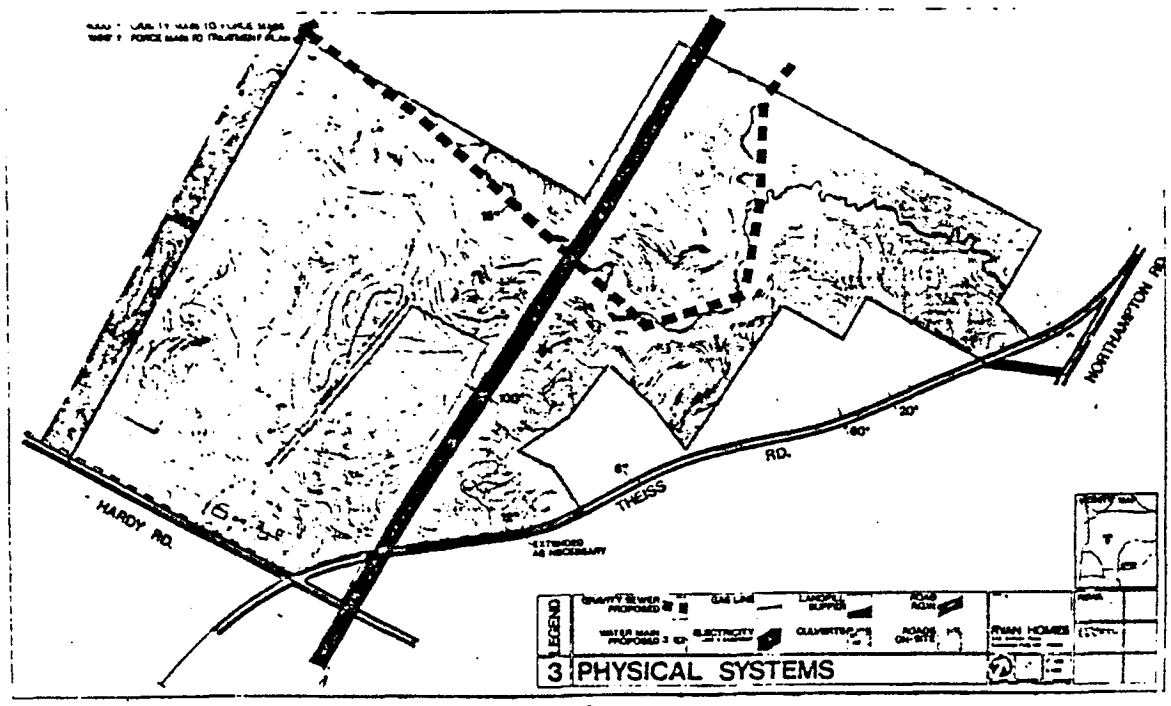
The site is presently zoned into three categories: 276 ac. in R-1 Residential with minimum lots of one acre; 21.5 ac. I-1 Light Industrial; and 2.5+ ac. C-2 Neighborhood Commercial. With this splitting of the parcel into various zones, the chance of unified development is lessened which would not permit maximizing the site's development potential. The Township is relatively unsophisticated in its planning activities, but the new officials are aggressive and appear to be open to construction suggestion which will enable them to promote the desired quality growth.

# INFRASTRUCTURE ANALYSIS

Every development generates demands on man-made systems. The capacity to absorb these demands must exist or be built. An analysis is required to make this determination which is often the difference between a profitable project and one that is marginal or premature.




2 NEIGHBORHOOD CONTEXT - LAND USE & UTILITIES

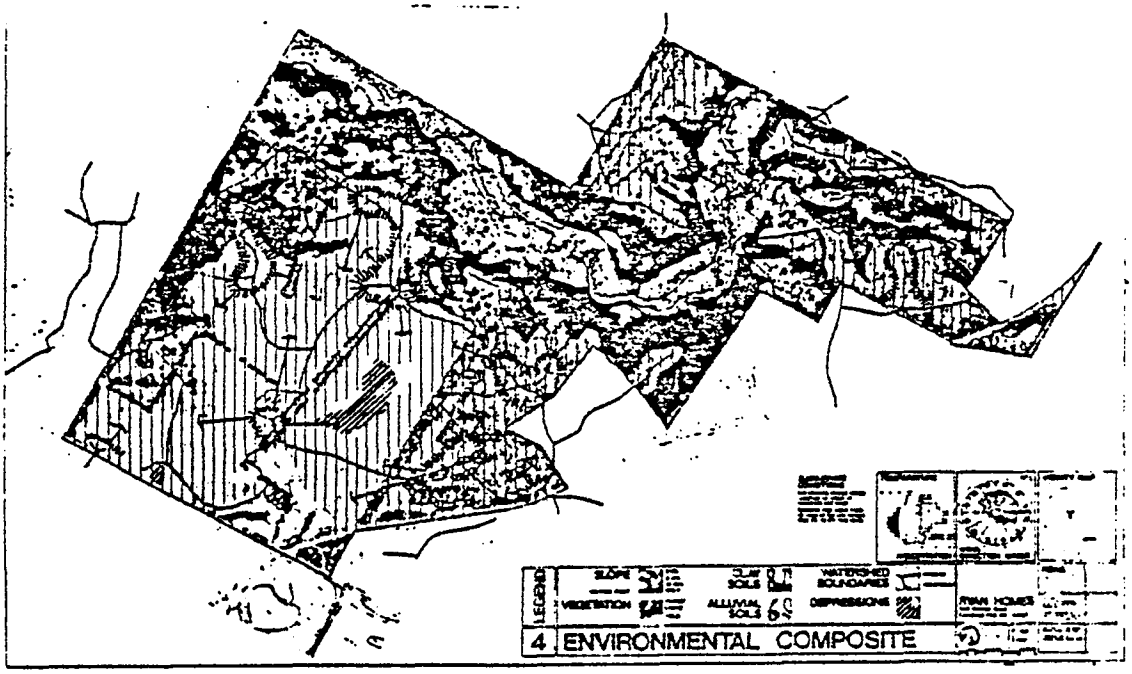



3 PHYSICAL SYSTEMS

# ENVIRONMENTAL ANALYSIS

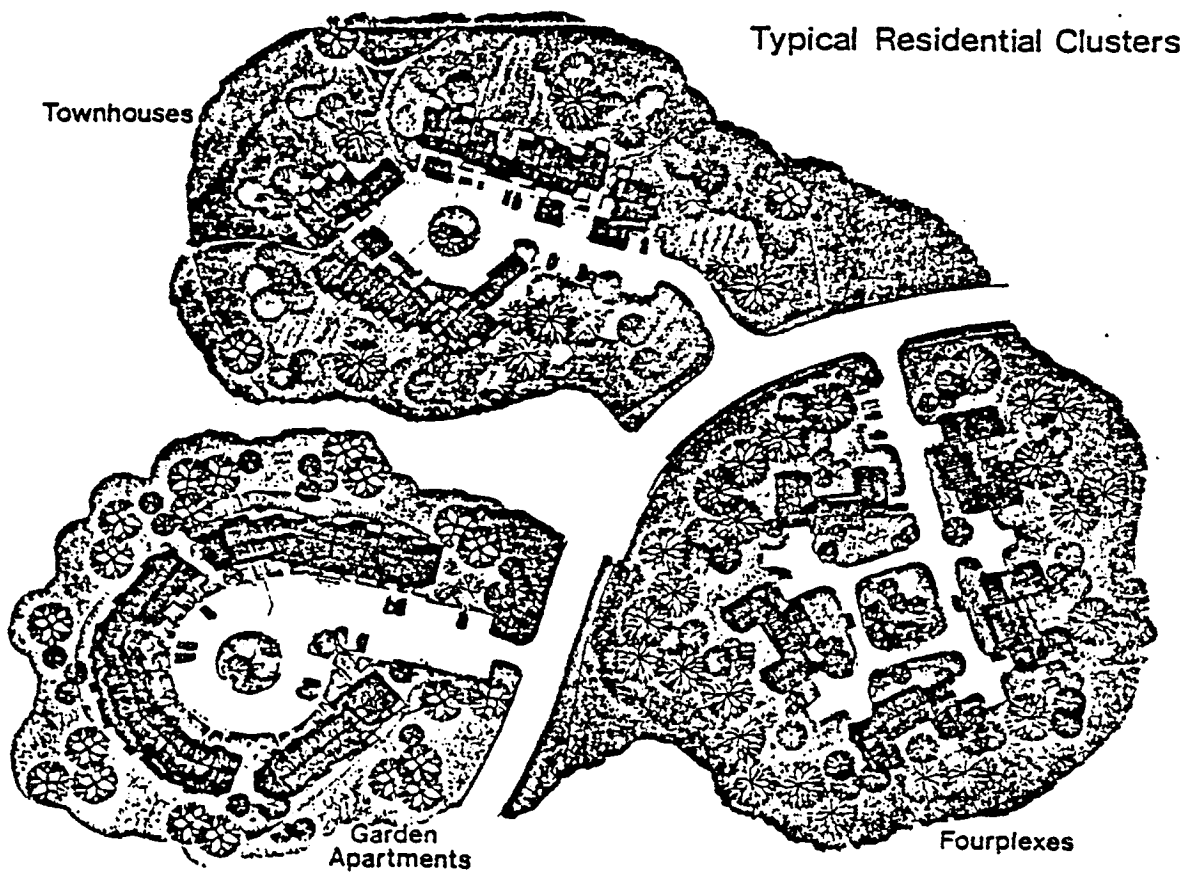
Environmental variables can be identified which materially affect the disposition of land uses if the plan is to be cost effective. Severe slopes, high water tables, and shallow bedrock have obvious cost consequences if not identified. Conserving trees and natural ground covers reduces landscaping costs and helps to prevent excessive erosion. Public health and safety must also be protected by identifying easily polluted soils and underground water supplies. If properly conducted and used, environmental analysis proves it is less costly to work with, rather than against, nature.

As part of the environmental analysis, the visual opportunities and burdens of the site, whether part of a larger neighborhood (if it's a small site) or as a self-contained neighborhood (if a large one) must be identified. Visual attributes include long or intimate views, dense or filtered spatial enclosures, natural features, and water. Burdens that must be mitigated if possible include noise, odors, visual obstructions like high tension lines, and unsightly views. The visual analysis locates these opportunities and burdens so they can be used in developing the land use plan most effectively.



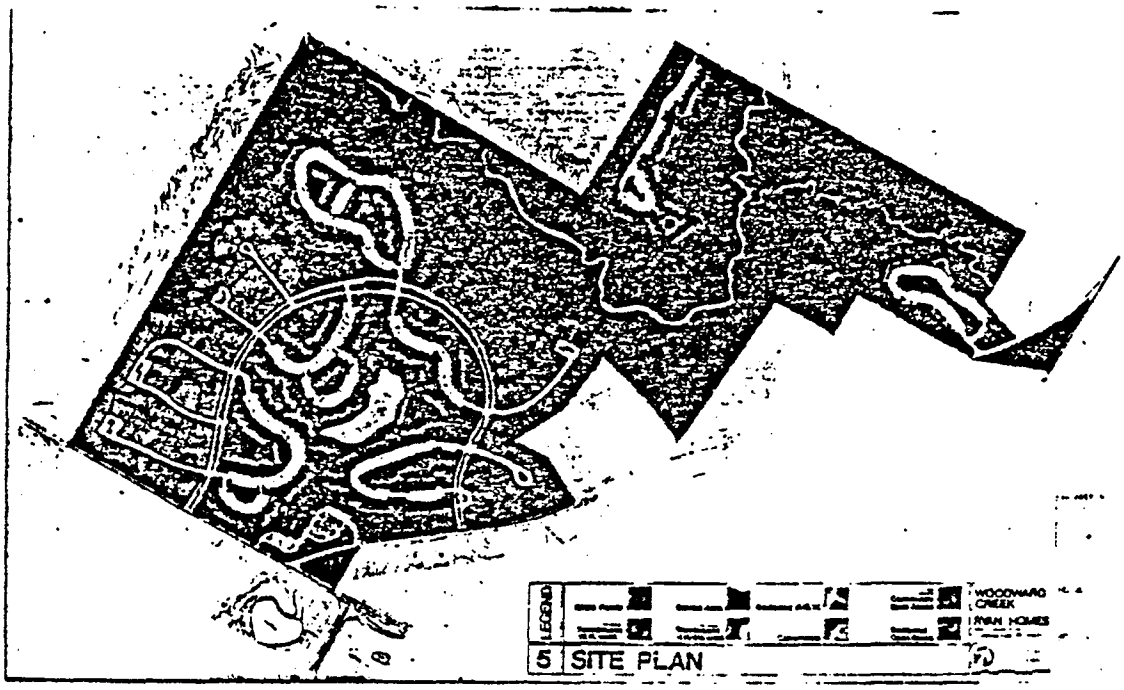
## HOUSING PRODUCTS ANALYSIS

For land use plans to be used as reasonable representations of what can be built and for rough development cost estimates, it is necessary to be realistic about what can be placed on the ground (usually expressed as net densities for each unit type). Typical cluster designs are developed to insure that unit counts can be achieved and that lot improvement costs are accurate.



## LAND USE PLANS

The land use plan must accommodate the market program and respect both visual and other environmental considerations. It must be cost-effectively phased for on and off-site infrastructure and generally enhance the marketability of the site through sensitive design.



# 3

# financial analysis

# DIM DATA INPUT SHEETS

The Development Impact Model (DIM) calculates quickly and accurately the combined consequences of the market, physical and other financial data provided to it. It is used to speed up computation and to organize the output so the project can be conveniently compared to acceptable standards of performance. The general value of the computer program is the ability to make many changes without the labor of endless calculation or the danger of error.

The DIM data sheets facilitate the systematic recording of the specific data requirements of the program. Each section has an appropriate heading covering the following four areas of data:

- Market Data from the market program (modified if necessary after physical planning)
- Physical Data from the land use plan
- Public Impact Data from the political climate and code analysis
- Financial Data from the client concerning sales and overhead costs

In general, the market determines revenues; land use, the costs; and public impacts, the probability of public approval.

Attached to the data sheets are specific definitions of what is included in the number called for in each box. In some cases, checklists are provided for even finer breakdowns. These definitions and checklists provide confidence that nothing has been overlooked and that revisions can be made without disturbing other variables. The data input to DIM is thus highly explicit.

# client data

| | |
|---|---|
| CLIENT NAME | DNAME-1 |
| PROJECT NAME, LOCATION | DNAME-2 |
| DATE | DATE-3 |

# site data

| | | | |
|---|---|---|---|
| SITE AREA<br>COVERAGE ALLOWABLE | A-4 | GSCAP-5 | |
| INDUSTRIAL<br>COMMERCIAL<br>SCHOOL SITE | AI-6 | AC-6 | AS-6 |
| MAJOR ROAD (R.O.W.)<br>OPEN SPACE | AR-6 | AO-6 | |
| RECREATIONAL FACILITY<br>OTHER (SPECIFY) | ARC-6 | AOT-6 | |

# unit data

| | | | | | | |
|---|---|---|---|---|---|---|
| UNIT TYPES DUMNMS-7 | | | | | | |
| NET DENSITIES DD-8 | | | | | | |
| SALE PRICES - RESIDENTIAL ISP-9<br>- INDUSTRIAL SPNRI-10<br>- COMMERCIAL SPNRC-11 | | | | | | |
| MIX MIX-12 | | | | | | |
| NUMBER OF UNITS INU-13 | | | | | | |
| UNIT SIZE AUS-14 | | | | | | |
| NUMBER OF STORIES STORYS-15 | | | | | | |

## demand data

| | | |
|---|---|---|
| ANNUAL REGIONAL RESIDENTIAL DEMAND | | RD-16 |
| ANNUAL REGIONAL INDUSTRIAL DEMAND | | RID-17 |
| ANNUAL REGIONAL COMMERCIAL DEMAND | | RCD-18 |

## school data

| | | |
|---|---|---|
| SCHOOL CAPACITY NSC-19 | | |
| CONSTRUCTION COST SQUARE FOOT REQUIREMENT | CSC-20 | CSC-20 |
| SCHOOL BOND RATE SCHOOL BOND TERM | DS-21 | DS-21 |
| OPER. INC. XOY-22 | | |
| SCHOOL ENROLLMENT MSC-23 | | |

## municipal data

| | | |
|---|---|---|
| REAL ESTATE VALUE MMV-24 | | |
| POPULATION MUNICIPAL COSTS | NR-25 | CCOMOI-26 |

## fiscal data

| | | |
|---|---|---|
| ASSESSMENT FACTOR AF-27 | | |
| SCHOOL TAX MILLAGE MUNICIPAL TAX MILLAGE | STM-28 | MM-29 |

# land and development data

| | | | | | |
|---|---|---|---|---|---|
| LAND COST<br>INTEREST<br>PROFESSIONAL FEES | | | LC-30 | INT-31 | FOP-31 |
| DEVELOPMENT COST<br>OFF-SITE CONTRIBUTION | | | CA-33 | DEVC-34 | |
| ANNUAL LAND EXPENDITURES<br>LAC-35 | 1 | 2 | 3 | 4 | 5 |
| | 6 | 7 | 8 | 9 | 10 |
| ANNUAL SITE-DEVELOPMENT EXPENDITURES<br>XPCPY-36 | 1 | 2 | 3 | 4 | 5 |
| | 6 | 7 | 8 | 9 | 10 |
| ANNUAL OFF-SITE CONTRIBUTION<br>OSC-37 | 1 | 2 | 3 | 4 | 5 |
| | 6 | 7 | 8 | 9 | 10 |

# construction and management data

| | | | | | | |
|---|---|---|---|---|---|---|
| PERCENT LAND PRICE TO SALE PRICE<br>PCT-38 | | | | | | |
| CONSTRUCTION COST/SQ. FT. BY UNIT TYPE<br>ESCF-39 | | | | | | |
| LOT IMPROVEMENT COST/ UNIT TYPE<br>CLI-40 | | | | | | |
| PERCENT SALES COST<br>ESC-41 | | | | | | |
| TECHNICAL FEES<br>INTEREST ON CONSTRUCTION | | | TECH-42 | IOCC-43 | | |
| OVERHEAD EXPENSE | | | POHE-44 | | | |
| ANNUAL RESIDENTIAL CONSTRUCTION<br>ID-45 | 1 | 2 | 3 | 4 | 5 | |
| | 6 | 7 | 8 | 9 | 10 | |
| ANNUAL INDUSTRIAL CONSTRUCTION<br>IID-46 | 1 | 2 | 3 | 4 | 5 | |
| | 6 | 7 | 8 | 9 | 10 | |
| ANNUAL COMMERCIAL CONSTRUCTION<br>CID-47 | 1 | 2 | 3 | 4 | 5 | |
| | 6 | 7 | 8 | 9 | 10 | |

# annual sales/revenue data

| | | | | | |
|---|---|---|---|---|---|
| ANNUAL RESIDENTIAL SALES (UNITS) SDU-48 | 1 | 2 | 3 | 4 | 5 |
| | 6 | 7 | 8 | 9 | 10 |
| ANNUAL INDUSTRIAL SALES (ACRES) SNRAI-49 | 1 | 2 | 3 | 4 | 5 |
| | 6 | 7 | 8 | 9 | 10 |
| ANNUAL COMMERCIAL SALES (ACRES) SNRAC-50 | 1 | 2 | 3 | 4 | 5 |
| | 6 | 7 | 8 | 9 | 10 |
| OTHER REVENUES OR-51 | 1 | 2 | 3 | 4 | 5 |
| | 6 | 7 | 8 | 9 | 10 |
| OTHER EXPENSES OE-52 | 1 | 2 | 3 | 4 | 5 |
| | 6 | 7 | 8 | 9 | 10 |

## NOTES ON INPUT CHECKLIST

| KEY CODE | KEY NUMBER | DESCRIPTION |
|---|---|---|
| **CLIENT DATA** | | |
| DNAME | (1) | CLIENT NAME |
| DNAME | (2) | PROJECT NAME, LOCATION: LOCATION BY MUNICIPALITY, STATE. |
| DATE | (3) | DATE: DATE OF CHECKLIST COMPLETION. |
| **SITE DATA** | | |
| A | (4) | SITE AREA: TOTAL SITE ACREAGE. |
| GSCAP | (5) | COVERAGE ALLOWABLE: TOTAL ALLOWABLE IMPERVIOUS COVER AS DEFINED BY CODE; 30% COVERAGE MAXIMUM. |
| | | NON-RESIDENTIAL ACREAGES |
| AI | (6) | INDUSTRIAL |
| AC | (6) | COMMERCIAL |
| AS | (6) | SCHOOL SITE |
| AR | (6) | MAJOR ROAD (RIGHT-OF-WAY) |
| AO | (6) | OPEN SPACE |
| ARC | (6) | RECREATIONAL FACILITY |
| AOT | (6) | OTHER (SPECIFY) |
| **UNIT DATA** | | |
| DUMNMS | (7) | UNIT TYPES: DEFINED AS SINGLE FAMILY (SF), TOWNHOUSE (TH), GARDEN APARTMENT (GA), MID-RISE (MR), HIGH RISE (HR). |
| DD | (8) | NET DENSITIES: NET DENSITY PER UNIT TYPES, IN DWELLING UNITS PER ACRE. |

SALE PRICES:

| | | |
|---|---|---|
| ISP | (9) | ESTIMATED AVERAGE SALES PRICE BY RESIDENTIAL UNIT TYPE. |
| SDNRI | (10) | ESTIMATED AVERAGE SALES PRICE BY INDUSTRIAL UNIT TYPE. |
| SPNRC | (11) | ESTIMATED AVERAGE SALES PRICE BY COMMERCIAL UNIT TYPE. |
| MIX | (12) | MIX: SUGGESTED RESIDENTIAL UNIT MIX AS A PERCENT OF TOTAL RESIDENTIAL UNITS (100%). SUGGESTED NON-RESIDENTIAL UNIT MIX AS A PERCENT OF TOTAL NON-RESIDENTIAL UNITS (100%). |
| INU | (13) | NUMBER OF UNITS: SUGGESTED NUMBER OF UNITS BY RESIDENTIAL AND NON-RESIDENTIAL TYPES. |
| AUS | (14) | UNIT SIZE: ESTIMATED SQUARE FOOTAGE OF LIVING AREA BY RESIDENTIAL UNIT TYPE. ESTIMATED SQUARE FOOTAGE OF GROSS LEASABLE AREA (GLA) BY NON-RESIDENTIAL UNIT TYPE. |
| STORYS | (15) | NUMBER OF STORIES: ESTIMATED HEIGHT OF BUILDINGS IN NUMBER OF STORIES BY RESIDENTIAL AND NON-RESIDENTIAL UNIT TYPES. |

DEMAND DATA

| | | |
|---|---|---|
| RD | (16) | ANNUAL REGIONAL RESIDENTIAL DEMAND: TOTAL NUMBER OF RESIDENTIAL UNITS DEMANDED ANNUALLY WITHIN THE DEFINED MARKET AREA. |
| RID | (17) | ANNUAL REGIONAL INDUSTRIAL DEMAND: TOTAL NUMBER OF INDUSTRIAL UNITS DEMANDED ANNUALLY WITHIN THE DEFINED MARKET AREA. (1,000 SQ. FT. PER UNIT) |

| | | |
|---|---|---|
| RCD | (18) | ANNUAL REGIONAL COMMERCIAL DEMAND: TOTAL NUMBER OF COMMERCIAL UNITS DEMANDED ANNUALLY WITHIN THE DEFINED MARKET AREA, (1,000 SQ. FT. PER UNIT) |

SCHOOL DATA

| | | |
|---|---|---|
| NSC | (19) | SCHOOL CAPACITY: TOTAL NUMBER OF SPACES AVAILABLE IN THE MUNICIPAL SCHOOL SYSTEM. (TOTAL CAPACITY OF ALL SCHOOLS MINUS CURRENT ENROLLMENT.) |
| CSC | (20) | CONSTRUCTION COST (SCHOOLS): ESTIMATED COST PER SQUARE FOOT FOR SCHOOL CONSTRUCTION. |
| CSC | (20) | SQUARE FOOT REQUIREMENT: THE NUMBER OF SQUARE FEET REQUIRED PER STUDENT BY STATE LAW OR MUNICIPAL RECOMMENDATION. |
| DS | (21) | SCHOOL BOND RATE: THE CURRENT OR PROJECTED INTEREST RATE ON SCHOOL BOND OFFERINGS. |
| DS | (21) | SCHOOL BOND TERM: THE CURRENT OR PROJECTED NUMBER OF YEARS FOR A SCHOOL BOND TO REACH MATURITY FROM ITS INITIAL OFFERING. |
| XOY | (22) | OPER. INC. THE AMOUNT OF REVENUE RAISED THROUGH LOCAL REAL ESTATE TAXES USED IN THE SCHOOL OPERATING BUDGET FOR THE CURRENT ACADEMIC YEAR, (RESIDENTIAL ONLY IF AVAILABLE) |
| MSC | (23) | SCHOOL ENROLLMENT: THE TOTAL NUMBER OF SCHOOL CHILDREN REGISTERED IN THE SCHOOL SYSTEM FOR THE CURRENT ACADEMIC YEAR (DATE). |

## Municipal Data

**MMV** (24)

**Real Estate Value:**
Total value of all real estate BEFORE the assessment ratio is applied. Typically broken down into residential and non-residential uses (Supply breakdown if possible).

**NR** (25)

**Population:**
Current total population defined by the municipality or Census.

**CCOMOI** (26)

**Municipal Costs:**
Any expenditures required BY the municipality due to the demands of project development.

## Fiscal Data

**AF** (27)

**Assessment Factor:**
The ratio of assessed value to market value used by the assessor's office for determining the value of real estate for tax purposes.

**STM** (28)

**School Tax Millage:**
The millage rate set by the municipality for school revenues raised from real estate taxes. (Supply itemized tax bill.)

**MM** (29)

**Municipal Tax Millage:**
The millage rate set by the municipality for municipal revenues raised from real estate taxes. (Supply itemized tax bill.)

## Land and Development Data

**LC** (30)

**Land Cost:**
Gross purchase price of the land net of any interest charges. (The annual distribution of Land and Carry may be supplied in # (35) in lieu of (30) and (31).)

| | | |
|---|---|---|
| INT | (31) | INTEREST:<br>INTEREST RATE AT WHICH LAND FINANCING WAS/WOULD BE OBTAINED. |
| FOP | (32) | PROFESSIONAL FEES:<br>TOTAL FEES TO INCLUDE ALL PLANNING AND LEGAL EXPENSES BEFORE ANY TECHNICAL FEES RELATING TO CONSTRUCTION (DEFINED BELOW). |
| CA | (33) | DEVELOPMENT COST:<br>TOTAL COST OF SITE DEVELOPMENT (SEE EXHIBIT 1 FOR ITEMIZED BREAKDOWN). |
| DEVC | (34) | OFF-SITE CONTRIBUTION:<br>TOTAL OFF-SITE COSTS (SEE EXHIBIT 2 FOR ITEMIZED BREAKDOWN). |
| LAC | (35) | ANNUAL LAND EXPENDITURES ($):<br>ANNUAL DISTRIBUTION OF LAND AND CARRY COSTS THROUGH THE PROJECT PERIOD. (MAY BE SUPPLIED IN LIEU OF ITEMS (30) AND (31).) |
| XPCPY | (36) | ANNUAL SITE-DEVELOPMENT EXPENDITURES<br>ANNUAL PERCENT DISTRIBUTION OF SITE DEVELOPMENT COSTS. THIS WILL BE RELATED TO ESTIMATED CONSTRUCTION OR PHASING PACE. |
| OSC | (37) | ANNUAL OFF-SITE CONTRIBUTION ($):<br>ANNUAL DISTRIBUTION OF OFF-SITE COSTS THROUGH THE PROJECT PERIOD. (THE TOTAL SHOULD AGREE WITH EXHIBIT 2.) |

CONSTRUCTION AND MANAGEMENT DATA

| | | |
|---|---|---|
| PCT | (38) | PERCENT LAND PRICE TO SALE PRICE:<br>THE PERCENT OF TOTAL RESIDENTIAL UNIT SALE PRICE ATTRIBUTABLE TO LAND SALE. |
| ESCF | (39) | CONSTRUCTION COST/SQ. FT. BY UNIT TYPE:<br>ESTIMATED COST PER SQUARE FOOT FOR RESIDENTIAL CONSTRUCTION (BRICKS AND MORTAR) OF LIVING AREA, BASEMENTS, AND GARAGES (SEE EXHIBIT 3 FOR ITEMIZED BREAKDOWN). |

| | | |
|---|---|---|
| CLI | (40) | LOT IMPROVEMENT COST/UNIT TYPE: ESTIMATED COST FOR LOT IMPROVEMENT (WITHIN THE LOT LINE) BY RESIDENTIAL UNIT TYPE (SEE EXHIBIT 4 FOR ITEMIZED BREAKDOWN). |
| ESC | (41) | PERCENT SALES COST: PERCENT OF TOTAL SALE PRICE ATTRIBUTED TO SALES AND CLOSING EXPENSES. |
| TECH | (42) | TECHNICAL FEES: TOTAL FEES PER UNIT TO INCLUDE ARCHITECTURAL, ENGINEERING, HOOK-UP, ETC. (SEE EXHIBIT 5 FOR ITEMIZED BREAKDOWN). |
| IOCC | (43) | INTEREST ON CONSTRUCTION: INTEREST RATE AT WHICH CONSTRUCTION FINANCING WAS/WOULD BE OBTAINED. |
| POHE | (44) | OVERHEAD EXPENSE: PERCENT OF SALE PRICE ATTRIBUTED TO GENERAL OVERHEAD EXPENSES. |
| ID | (45) | ANNUAL RESIDENTIAL CONSTRUCTION: ESTIMATED ANNUAL TOTAL RESIDENTIAL CONSTRUCTION BEGINNING WITH YEAR ONE, RUNNING THROUGH THE TOTAL LENGTH OF THE PROJECT. |
| IID | (46) | ANNUAL INDUSTRIAL CONSTRUCTION: ESTIMATED ANNUAL TOTAL INDUSTRIAL CONSTRUCTION BEGINNING WITH YEAR ONE, RUNNING THROUGH THE TOTAL LENGTH OF THE PROJECT. |
| CID | (47) | ANNUAL COMMERCIAL CONSTRUCTION: ESTIMATED ANNUAL COMMERCIAL CONSTRUCTION BEGINNING WITH YEAR ONE, RUNNING THROUGH THE TOTAL LENGTH OF THE PROJECT. |

## Sales/Revenue Data

| | | |
|---|---|---|
| SDU | (48) | Annual Residential Sales (units): Estimated annual unit sales beginning with year one, running through the total length of the project. |
| SNRAI | (49) | Annual Indistrial Sales (acres): Estimated annual sale of industrial acreage beginning with year one, running through the total length of the project. |
| SNRAC | (50) | Annual Commercial Sales (acres): Estimated annual sale of commercial acreage beginning with year one, running through the total length of the project. |
| OR | (51) | Other Revenues: Additional annual revenues anticipated from the project by year not included previously. |
| OEX | (52) | Other Expenses: Additional annual expenses anticipated from the project not included previously. |

EXHIBIT 1

DEVELOPMENT COST

(INCLUDE ALL DEVELOPMENT/IMPROVEMENTS WITHIN THE PROJECT'S BOUNDARIES EXCLUDING LOT IMPROVEMENTS AND BUILDING CONSTRUCTION COSTS.)

| ITEM | QUANTITY | UNIT COST | ALLOWANCES* | TOTAL COST |
|---|---|---|---|---|
| A. ROADS/STREETS (1) | | | | |
| 1. CLEARING | | | | |
| 2. ROAD GRADING | | | | |
| 3. ROAD SURFACING | | | | |
| 4. CURB AND GUTTER | | | | |
| 5. SIDEWALK | | | | |
| 6. STREET LIGHTING | | | | |
| 7. SEEDING/SODDING (COMMON AREAS, NOT LOTS) | | | | |
| 8. STREET TREES/ PLANTING (COMMON AREAS) | | | | |
| 9. OTHER | | | | |
| SUBTOTAL | | | | |

NOTES:

* ALLOWANCES: ANY CONTINGENCIES ON ALLOWANCES FOR OVERHEAD AND PROFIT NOT INCLUDED IN UNIT OR TOTAL COST.

(1) ROADS/STREETS - INCLUDE ALL NECESSARY IMPROVEMENTS, WITHIN DEDICATED ROAD R.O.W., REQUIRED BY ORDINANCE AND/OR CODE.

| ITEM | QUANTITY | UNIT COST | ALLOW-ANCES | TOTAL COST |
|---|---|---|---|---|
| B. STORM WATER/ SEWER SYSTEM (2) | | | | |
| 1. PIPE | | | | |
| 2. CATCH BASINS | | | | |
| 3. CULVERTS | | | | |
| 4. RETENTION PONDS | | | | |
| 5. OTHER | | | | |
| SUBTOTAL | | | | |
| C. SANITARY SEWER/ SEWAGE DISPOSAL (3) | | | | |
| 1. SEPTIC SYSTEMS | | | | |
| 2. TREATMENT PLANT | | | | |
| 3. PUMP/LIFT STATIONS | | | | |
| 4. FORCE/GRAVITY MAINS | | | | |
| 5. MANHOLES | | | | |
| 6. CONNECTION CHARGES/ ASSESSMENTS | | | | |
| 7. OTHER | | | | |
| SUBTOTAL | | | | |

NOTES:

(2) STORM WATER/SEWER SYSTEM - INCLUDE ALL REQUIRED STORM SEWER/ DRAINAGE NECESSARY TO CONTROL STORM WATER RUNOFF AS REQUIRED BY ORDINANCE AND/OR CODE.

(3) SANITARY SEWER/SEWAGE DISPOSAL - INCLUDE ALL CONSTRUCTION NECESSARY TO PROVIDE COMPLETE SEWAGE FACILITIES. DO NOT INCLUDE ON-SITE LATERAL CONNECTIONS. THESE ARE CONSIDERED ON A LOT BASIS IN EXHIBIT 4.

| ITEM | QUANTITY | UNIT COST | ALLOW-ANCES | TOTAL COST |
|---|---|---|---|---|
| D. WATER SYSTEM (4) | | | | |
| 1. WELL | | | | |
| 2. MAIN | | | | |
| 3. HYDRANTS | | | | |
| 4. CONNECTION CHARGES/ ASSESSMENTS | | | | |
| 5. OTHER | | | | |
| SUBTOTAL | | | | |
| E. OPEN SPACE/ COMMUNITY FACILITIES (5) | | | | |
| 1. CLEARING | | | | |
| 2. PATHS | | | | |
| 3. LIGHTING | | | | |
| 4. PLAY AREAS | | | | |
| 5. TENNIS COURTS OR OTHERS | | | | |
| 6. SWIMMING POOL | | | | |
| 7. COMMUNITY BUILDING | | | | |
| 8. LANDSCAPING | | | | |
| 9. OTHER | | | | |
| SUBTOTAL | | | | |
| F. TOTAL | | | | |

NOTES:

(4) WATER SYSTEM - INCLUDE ALL CONSTRUCTION NECESSARY TO PROVIDE COMPLETE WATER DISTRIBUTION SYSTEM. DO NOT INCLUDE ON-SITE LATERAL CONNECTIONS. THESE ARE CONSIDERED ON A LOT BASIS IN EXHIBIT 4.

(5) OPEN SPACE/COMMUNITY FACILITIES - INCLUDE ALL IMPROVEMENTS NECESSARY TO MEET RECREATIONAL DEMANDS OF PROJECT.

EXHIBIT 2

OFF-SITE CONTRIBUTION

(INCLUDE ALL DEVELOPMENT/IMPROVEMENTS BEYOND THE PROJECT'S BOUNDARIES THAT ARE CONSIDERED TO BE ESSENTIAL OR ATTRIBUTABLE TO THE PROJECT'S DEVELOPMENT.)

| ITEM | QUANTITY | UNIT COST | ALLOWANCES* | TOTAL COST |
|---|---|---|---|---|
| A. ROAD/STREET | | | | |
| 1. SURFACING | | | | |
| 2. CURB AND GUTTER | | | | |
| 3. TRAFFIC CONTROLS | | | | |
| 4. LIGHTING | | | | |
| 5. ASSESSMENTS | | | | |
| 6. OTHER | | | | |
| SUBTOTAL | | | | |
| B. STORM WATER/ SEWER SYSTEM | | | | |
| 1. PIPE | | | | |
| 2. CATCH BASINS | | | | |
| 3. CULVERTS | | | | |
| 4. CONNECTION CHARGES/ ASSESSMENTS | | | | |
| 5. OTHER | | | | |
| SUBTOTAL | | | | |

* ALLOWANCES: ANY CONTINGENCIES ON ALLOWANCES FOR OVERHEAD AND PROFIT NOT INCLUDED IN UNIT OR TOTAL COST.

| ITEM | QUANTITY | UNIT COST | ALLOW-ANCES | TOTAL COST |
|---|---|---|---|---|
| C. SANITARY SEWER/ SEWAGE DISPOSAL | | | | |
| 1. TREATMENT PLANT IMPROVEMENTS | | | | |
| 2. PUMP/LIFT STATIONS | | | | |
| 3. FORCE/GRAVITY MAINS | | | | |
| 4. MANHOLES | | | | |
| 5. CONNECTION CHARGES/ ASSESSMENTS | | | | |
| 6. OTHER | | | | |
| SUBTOTAL | | | | |
| D. WATER SYSTEM | | | | |
| 1. MAIN | | | | |
| 2. HYDRANTS | | | | |
| 3. CONNECTION CHARGES/ ASSESSMENTS | | | | |
| 4. OTHER | | | | |
| SUBTOTAL | | | | |
| E. OTHER COSTS/ COMMUNITY FAC. CONTRIBUTIONS | | | | |
| 1. SCHOOLS | | | | |
| 2. PARKS | | | | |
| 3. OTHER | | | | |
| SUBTOTAL | | | | |
| F. TOTAL | | | | |

EXHIBIT 3

CONSTRUCTION COST/SQ. FT.
(FOR EACH UNIT TYPE)

(INCLUDE ALL CONSTRUCTION COSTS RELATED TO ACTUAL PRODUCTION OF HOUSING/DWELLING UNIT EXCLUDING SITE AND LOT DEVELOPMENT AND ARCHITECTURAL FEES, MARKETING COSTS, ETC.)

| UNIT TYPE | ITEM | SIZE | SQ. FT. COST | TOTAL |
|---|---|---|---|---|
| | LIVING AREA | | | |
| | BASEMENT | | | |
| | GARAGE | | | |
| | OTHER | | | |
| | TOTAL | | | |
| | LIVING AREA | | | |
| | BASEMENT | | | |
| | GARAGE | | | |
| | OTHER | | | |
| | TOTAL | | | |
| | LIVING AREA | | | |
| | BASEMENT | | | |
| | GARAGE | | | |
| | OTHER | | | |
| | TOTAL | | | |
| | LIVING AREA | | | |
| | BASEMENT | | | |
| | GARAGE | | | |
| | OTHER | | | |
| | TOTAL | | | |

EXHIBIT 4

LOT IMPROVEMENT COST
(FOR EACH UNIT TYPE)

A. SINGLE FAMILY DETACHED: INCLUDE ALL DEVELOPMENT/IMPROVEMENTS WITHIN THE LOT AREA EXCLUDING ACTUAL BUILDING CONSTRUCTION.

B. SINGLE FAMILY ATTACHED: INCLUDE ALL DEVELOPMENT/IMPROVEMENTS WITHIN THE SITE AREA OF THE HOUSING CLUSTER/BUILDING TYPE ATTRIBUTED TO EACH INDIVIDUAL DWELLING UNIT.

C. MULTI-FAMILY: INCLUDE ALL DEVELOPMENT/IMPROVEMENTS WITHIN THE SITE AREA OF THE BUILDING "UNIT" ATTRIBUTED TO EACH INDIVIDUAL DWELLING UNIT (TOTAL COST DIVIDED BY NUMBER OF D.U. = COST PER D.U.).

UNIT TYPE:

| ITEM | QUANTITY | UNIT COST | ALLOWANCES | TOTAL COST |
|---|---|---|---|---|
| A. CLEARING (1) | | | | |
| B. GRADING AND DRAINAGE (2) | | | | |
| C. SURFACING (3) | | | | |
| D. SAFETY CONTROLS (4) | | | | |
| E. WATER SERVICE (5) | | | | |
| F. SANITARY SEWER (6) | | | | |
| G. LANDSCAPING (7) | | | | |
| H. FEES AND PERMITS (8) | | | | |
| I. OTHER (9) | | | | |
| TOTAL | | | | |

NOTES:

(1) CLEARING - INCLUDE TOTAL AND SELECTIVE CLEARING NECESSARY TO ACCOMMODATE CONSTRUCTION WITHIN "LOT" AREA.

(2) GRADING AND DRAINAGE - INCLUDE ALL IMPROVEMENTS NECESSARY TO PROVIDE FOR ADEQUATE DRAINAGE AND STORM WATER RUNOFF FROM "LOT."

(3) SURFACING - INCLUDE ALL DRIVES AND PARKING AREAS, WALKS AND TERRACES AND OTHER SURFACING.

(4) SAFETY CONTROLS - INCLUDE BOLLARDS, LIGHTING AND OTHER CONTROLS.

(5) WATER SERVICE - INCLUDE ALL WATER LATERALS FROM MAIN IN ROAD R.O.W. TO BUILDING.

(6) SANITARY SEWER - INCLUDE ALL SEWER LATERALS FROM SEWER MAIN TO BUILDING.

(7) LANDSCAPING - INCLUDE GRADING, TOPSOIL, SEEDING, AND LANDSCAPE CONSTRUCTION AND PLANTING ALLOWANCE.

(8) FEES AND PERMITS - INCLUDE SEWER AND WATER HOOK-UP AND BUILDING PERMITS.

(9) OTHER.

EXHIBIT 5

TECHNICAL FEES

(INCLUDE ALL ARCHITECTURAL, ENGINEERING, LANDSCAPE ARCHITECTURAL, LAND SURVEYING, GRAPHIC AND INTERIOR-DESIGN FEES FOR EACH CATEGORY ON A UNIT BASES AS INDICATED BY THE NOTES.)

| ITEM | TOTAL COST |
|---|---|
| A. ARCHITECTURAL (1) | |
| B. ENGINEERING (2) | |
| C. LANDSCAPE ARCHITECTURAL (3) | |
| D. LAND SURVEYING (4) | |
| E. GRAPHICS (5) | |
| F. INTERIOR DESIGN (6) | |
| TOTAL | |

NOTES:

(1) ARCHITECTURAL

A. BUILDING DESIGN (COMPLETE)
B. CONSTRUCTION SPECIFICATION (BUILDING SYSTEMS)
C. CONSTRUCTION COST ESTIMATES AND PROGRAM ($ AND SCHEDULE)
D. CONSTRUCTION INSPECTION (PERIODIC)

(2) ENGINEERING

A. ROAD/STREET SYSTEMS DESIGN (HORIZONTAL AND VERTICAL CURVE DATA, PROFILES)
B. UTILITY SYSTEMS DESIGN (SEWAGE, WATER, STORM, ETC.)
C. LOT DESIGN (LOT CLOSURE AND PLAT/SURVEY DATA)
D. CONSTRUCTION SPECIFICATIONS (ROAD AND UTILITY SYSTEMS)
E. CONSTRUCTION COST ESTIMATES AND PROGRAM ($ AND SCHEDULE)
F. CONSTRUCTION INSPECTION (PERIODIC)

(3) LANDSCAPE ARCHITECTURAL

A. LANDSCAPE CONSTRUCTION AND PLANTING DESIGN (ALL SITE IMPROVEMENTS NOT COVERED BY ARCHITECTURAL AND ENGINEERING, I.E. GRADING, SURFACING, RETAINMENT, LIGHTING, PLANTING, SPECIAL FEATURES, ETC.)
B. CONSTRUCTION AND PLANTING SPECIFICATIONS (AS NOTED IN 3A.)
C. CONSTRUCTION AND PLANTING COST ESTIMATES AND PROGRAM ($ AND SCHEDULE)
D. CONSTRUCTION AND PLANTING INSPECTION (PERIODIC)

(4) LAND SURVEYING

A. ROAD/STREET SYSTEMS LAYOUT (SEE 2A.)
B. UTILITY SYSTEMS LAYOUT (SEE 2B.)
C. LOT LAYOUT (BOUNDARY SURVEY AND MONUMENTS)
D. BUILDING LAYOUT (STAKEOUT AND SET ELEVATIONS)
E. LANDSCAPE CONSTRUCTION LAYOUT (STAKEOUT DRIVES, PARKING, ETC. AND SET ELEVATIONS)

(5) GRAPHICS

A. SIGNAGE (PROJECT SIGNS, ETC.)
B. P.R. LITERATURE (BROCHURES, ETC.)

(6) INTERIOR DESIGN

A. INTERIORS (SAMPLES/MODELS)
B. MATERIALS/COLORS (TYPICAL UNITS)

EXAMPLE: INPUT CHECKLIST
(Private Developer Data Only)

# client data

| | | |
|---|---|---|
| CLIENT NAME | XYZ Corporation DNAME-1 | |
| PROJECT NAME, LOCATION | A-PUD, Akron, Ohio DNAME-2 | |
| DATE | 9/13/79 DATE-3 | |

# site data

| | | | |
|---|---|---|---|
| .SITE AREA<br>COVERAGE ALLOWABLE | 207.00 A-4 | GSCAP-5 | |
| INDUSTRIAL<br>COMMERCIAL<br>SCHOOL SITE | AI-6 | 4.79 AC-6 | AS-6 |
| MAJOR ROAD (R.O.W.)<br>OPEN SPACE | 7.40 AR-6 | 112.35 AO-6 | |
| RECREATIONAL FACILITY<br>OTHER (SPECIFY) | 3.30 ARC-6 | 7.58 AOT-6 | |

# unit data

| | | | | | | |
|---|---|---|---|---|---|---|
| UNIT TYPES DUMNMS-7 | SFD | TH | GA | | | |
| NET DENSITIES DD-8 | 4.42 | 8.75 | 15.20 | | | |
| SALE PRICES - RESIDENTIAL ISP-9<br>- INDUSTRIAL SPNRI-10<br>- COMMERCIAL SPNRC-11 | 68250. | 52800. | 43700. | | | |
| MIX MIX-12 | 22.1 | 22.5 | 55.5 | | | |
| NUMBER OF UNITS INU-13 | 141 | 143 | 354 | | | |
| UNIT SIZE AUS-14 | 1625 | 1200 | 950 | | | |
| NUMBER OF STORIES STORYS-15 | 2 | 2 | 2 | | | |

# land and development data

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| LAND COST<br>INTEREST<br>PROFESSIONAL FEES | 1,424,665 LC-30 | | 0.00 INT-31 | | 150,000 FOP-31 | | | | |
| DEVELOPMENT COST<br>OFF-SITE CONTRIBUTION | 1,535,714 CA-33 | | 113,000 DEVC-34 | | | | | | |
| ANNUAL LAND EXPENDITURES LAC-35 | 1 250000. | 2 413333. | 3 386666. | 4 374666. | 5 | | | | |
| | 6 | 7 | 8 | 9 | 10 | | | | |
| ANNUAL SITE-DEVELOPMENT EXPENDITURES XPCPY-36 | 1 .417 | 2 .230 | 3 .275 | 4 .078 | 5 | | | | |
| | 6 | 7 | 8 | 9 | 10 | | | | |
| ANNUAL OFF-SITE CONTRIBUTION OSC-37 | 1 113000. | 2 | 3 | 4 | 5 | | | | |
| | 6 | 7 | 8 | 9 | 10 | | | | |

# construction and management data

| | | | | | | |
|---|---|---|---|---|---|---|
| PERCENT LAND PRICE TO SALE PRICE PCT-38 | 14. | 9. | 6. | | | |
| CONSTRUCTION COST/SQ. FT. BY UNIT TYPE ESCF-39 | 25. | 24. | 22. | | | |
| LOT IMPROVEMENT COST/ UNIT TYPE CLI-40 | 3000. | 3100. | 2100. | | | |
| PERCENT SALES COST ESC-41 | 14 | 9 | 6 | | | |
| TECHNICAL FEES<br>INTEREST ON CONSTRUCTION | 350 TECH-42 | | 3.0 IOCC-43 | | | |
| OVERHEAD EXPENSE | 5.0 POHE-44 | | | | | |
| ANNUAL RESIDENTIAL CONSTRUCTION ID-45 | 1 186 | 2 190 | 3 116 | 4 146 | 5 | |
| | 6 | 7 | 8 | 9 | 10 | |
| ANNUAL INDUSTRIAL CONSTRUCTION IID-46 | 1 | 2 | 3 | 4 | 5 | |
| | 6 | 7 | 8 | 9 | 10 | |
| ANNUAL COMMERCIAL CONSTRUCTION CID-47 | 1 | 2 | 3 | 4 4.79 | 5 | |
| | 6 | 7 | 8 | 9 | 10 | |

# annual sales/revenue data

| | | | | | |
|---|---|---|---|---|---|
| ANNUAL RESIDENTIAL SALES (UNITS) SDU-48 | 1 186 | 2 190 | 3 116 | 4 146 | 5 |
| | 6 | 7 | 8 | 9 | 10 |
| ANNUAL INDUSTRIAL SALES (ACRES) SNRAI-49 | 1 | 2 | 3 | 4 | 5 |
| | 6 | 7 | 8 | 9 | 10 |
| ANNUAL COMMERCIAL SALES (ACRES) SNRAC-50 | 1 | 2 | 3 | 4 4.79 | 5 |
| | 6 | 7 | 8 | 9 | 10 |
| OTHER REVENUES OR-51 | 1 | 2 | 3 | 4 | 5 |
| | 6 | 7 | 8 | 9 | 10 |
| OTHER EXPENSES OE-52 | 1 200000. | 2 200000. | 3 | 4 | 5 |
| | 6 | 7 | 8 | 9 | 10 |

# APPENDIX: DEVELOPMENT IMPACT MODEL — OPERATING PROCEDURE

The Development Impact Model is a system for analyzing development proposals to determine their economic feasibility within the constraints imposed by natural determinants, physical delivery systems, public service systems, market factors and legal requirements. The following is an outline of the procedure for using the Development Impact Model.

## DATA COLLECTION

### A. Site Analysis

1. Base map with location of property outbounds and important features from property survey or county tax maps.
2. Municipal zoning map and code and development codes for analysis of legal constraints.
3. Municipal and county master plans for analysis of public intentions and policy.
4. Price of land from the developer or other source for use in the feasibility analysis.
5. Legal fees, interest on land, and other miscellaneous front-end costs from the developer for use in the feasibility analysis.

### B. Natural Determinants and Coverage Analysis

1. County soil survey from Soil Conservation Service for soil series types, shallow to bedrock, seasonal high water table, alluvial soils.
2. Topographic maps of site and surrounding areas from U.S. Geological Survey or site survey for slope analysis.
3. Aerial photographs of site from U.S. Department of Agriculture, Aero Service, etc., for analysis of vegetation and other physical features.
4. Hydrology and floodplain location from the U.S. Army Corps of Engineers or the Soil Conservation Service for floodplain analysis.

### C. Physical Systems Analysis

1. Streets and roads from municipal or county planning department/commission or state highway department, or a traffic study by a consultant.
   a. Right-of-way and cartway dimensions, including intersection approaches.
   b. Existing traffic volumes.
   c. Design capacities. (Intersection capacities are usually critical points.)
2. Water supply information from municipality, county, or private water company(ies).
   a. Location and excess capacity of water lines near the site.
   b. Supply costs and hook-up charges.
   c. If there is no feasible public water supply, determine the ground water supply and delivery costs from the Soil Conservation Service, state department of natural resources or its equivalent, or well drilling companies.
3. Sewer service information from the municipality or county authority.
   a. Location and excess capacity of sewer lines in the area.
   b. Sewer rental rates and hook-up charges.
   c. If there is no public sewer available, contact state department of health for package plant or septic tank requirements and costs.
4. Check location of electrical supply and cost of installing lines underground with the local power company.
5. Check location of telephone lines and cost of installing lines underground with the local telephone company. Determine whether this can be coordinated with electric lines for any savings.
6. Check location and hook-up costs for gas service with the local gas company.

0. Public Services and Revenues Analysis

1. Obtain a copy of the current municipal budget.

2. Check the level of service provided for by the budget for:

   a. Police

   b. Fire

   c. Recreation, parks

   d. Road maintenance

   e. Other

3. Check sources of municipal revenue, tax base, and rate.

   a. Property tax

      (1) Total revenue

      (2) Total assessed value

      (3) Assessment rate

      (4) Tax rate

   b. Income tax

      (1) Total revenue

      (2) Total personal income (average household income times number of households)

      (3) Tax rate

   c. Per capita and other taxes

      (1) Total taxable population

      (2) Tax rate

   d. State and federal subsidy

      (1) Amount of subsidy

      (2) Basis for subsidy

   e. Municipal debt

      (1) Current municipal debt

      (2) Legislative debt limit

4. School data

   a. School taxes - Obtain school budget and supporting data to determine:

      (1) Property tax

         (a) Total revenue

         (b) Total assessed value

         (c) Assessment rate

         (d) Tax rate

      (2) Income tax

         (a) Total revenue

         (b) Total personal income

         (c) Tax rate

(3) Per capita and other taxes

(a) Total taxable population

(b) Tax rate

(4) State and federal subsidy

(a) Amount of subsidy

(b) Basis for subsidy

(5) School debt

(a) Current debt

(b) Legislative debt limit

b. School capacity/enrollment

(1) Current enrollment

(2) Current capacity

c. Plans for school expansion

E. Market Analysis

1. Market comparables

a. Unit types (market mix: percent of each type available).

b. Sale prices and rents.

c. Unit sizes.

d. Special features.

2. Market absorption rates

3. Cyclical construction trends. (Is the market over-built or under-built now?)

4. Neighborhood characteristics

5. Regional location factors:

a. Access to work, shopping, recreation, etc.

b. Special amenities.

c. Major pollution sources, etc.

NATURAL SYSTEMS ANALYSIS

Dollar costs that may be incurred to overcome restrictions or meet performance standards should be particularly noted.

A. Analysis of Natural Restrictions

1. Vegetation

a. Acres in each vegetation classification (wooded, non-wooded).

b. Percentage of the site in each vegetation type.

2. Slopes

a. Acres in each slope classification (0-3%, 3-8%, 8-15%, 15-25%, 25+%).

b. Percentage of the site in each slope classification.

3. Seasonal high water table (SHWT)

a. Acres in each class of SHWT.

b. Percentage of the site in each SHWT class.

4. Shallow to bedrock

   a. Acres in each class of shallow to bedrock.

   b. Percentage of the site in each shallow to bedrock class.

5. Floodplain

   a. Acres of the site in the floodplain.

   b. Percentage of the site in the floodplain.

6. Composite development restrictions.

   a. Acres with development restrictions.

   b. Percentage of site with development restrictions.

B. Coverage Limits Analysis

This involves an analysis of the projected runoff of stormwater and the determination of impervious coverage limits or performance standard requirements.

## LAND USE DESCRIPTION

Determine the types of units, market values, sizes and mix. These will be based on the developer's preferences and the market study.

## SCHEMATIC SITE DESIGN

This is a blob diagram showing land use classifications (single-family, townhouses, garden apartments, commercial, open space, etc.) and the major circulation and utility lines. The amount of land shown in the various blobs should agree with the required unit mix determined in the Land Use Description phase. The schematic design should also respect the natural restrictions from the Natural Systems Analysis phase.

## PHYSICAL DELIVERY SYSTEMS ANALYSIS

A. Roads

1. Length of major access and site circulation.

2. Cost of major access and circulation.

3. Cost of intersection improvements.

B. Water System

1. Length of major water lines on- and off-site.

2. Cost of major water lines.

3. Cost of other water system features if required (wells, pumps, storage tanks, treatment equipment, etc.)

C. Sewer System

1. Length of major sewer lines on- and off-site.

2. Cost of major sewer lines including manholes.

3. Cost of other sewer system features if required (pumping station, package plant, etc.).

D. Other Utilities

1. Length of other utility lines (telephone, electric, gas).

2. Cost of utility lines not paid by the utility companies (placing system underground, etc.).

DENSITY FEASIBILITY ANALYSIS

A. Upper limit of development density can be determined in a number of ways:

1. Maximum density allowable from zoning or PUD code. This is the legal maximum.

2. Maximum density possible within the constraints imposed by the market mix and lot sizes from the Land Use Description phase. This can be calculated using Equation 1.

$$D_m = \frac{100}{\Sigma\ \ell_n m_n} \qquad \text{(Equation 1)}$$

where $D_m$ is the net density based on the market study mix,
$\ell$ is the lot size for the unit type (acres),
m is the mix for the unit type (%), and
n is the total number of unit types.

For instance, if the market study shows that the proposed development should include 80% ($m_1$) single family homes on half acre lots ($\ell_1 = .5$), 10% ($m_2$) townhouses at 10 per acre ($\ell_2 = .1$), and 10% ($m_3$) garden apartments at 14 per acre ($\ell_3 = .07$), then the net density would be calculated as follows:

$$D_m = 100 / \{(.5 \times 80) + (.1 \times 10) + (.07 \times 10)\}$$

$$= 100 / (40 + 1 + .7)$$

$$= 100 / 41.7$$

$$= 2.4 \text{ du/acre}$$

3. Maximum density determined from the coverage analysis in the Natural Systems Analysis phase and the market mix of the Land Use Description phase. Three impervious coverage (C) values are required: (a) the weighted average coverage per unit ($C_X$), (b) the amount of impervious coverage allowed for the site ($C_\alpha$), and (c) the amount of impervious coverage per acre for all major site improvements such as community buildings, major roads, etc. ($C_\delta$).

A weighted average is calculated using the following equation:

$$X = \Sigma\ \frac{v_n\ k_n}{\Sigma\ v_n} \qquad \text{(Equation A)}$$

where v is the number of each variable or element,
k is the constant value of each variable or element, and
n is the number of different variables.

This equation can then be used to calculate the weighted average coverage per unit. For instance, suppose that the following is the recommended mix from the market study:

| Unit Type | Unit Area | Stories | Net Cover | Parking, Patio, etc. | Total/ Unit | Mix |
|---|---|---|---|---|---|---|
| SF | 1700 sf | 1 | 1700 sf | 1000 sf | 2700 sf | 10% |
| TH | 1400 sf | 2 | 700 sf | 600 sf | 1300 sf | 30% |
| GA2 | 1000 sf | 3 | 333 sf | 600 sf | 933 sf | 30% |
| GA1 | 800 sf | 3 | 267 sf | 600 sf | 867 sf | 30% |

Therefore, if the percent mix is the variable value (v) and the total coverage per unit is the constant value (k), then for the four (n) unit types the weighted average coverage per unit ($C_X$) can be calculated as follows:

$$C_X = \frac{v_1k_1 + v_2k_2 + v_3k_3 + v_4k_4}{v_1 + v_2 + v_3 + v_4}$$

$$= \frac{(10 \times 2700) + (30 \times 1300) + (30 \times 933) + (30 \times 867)}{10 + 30 + 30 + 30}$$

$$= \frac{27000 + 39000 + 27990 + 26010}{100}$$

$$= 12000/100 = 1200 \text{ sf/du}$$

The maximum density based on the cover model ($D_I$) can then be calculated using Equation 2 as follows:

$$D_I = \frac{(435.6 \times C\alpha) - C\delta}{Cx} \qquad \text{(Equation 2)}$$

As an example, assume that the allowable impervious coverage for the site based on the cover model ($C\alpha$) is 22%, the coverage per acre of all major site improvements ($C\delta$) is 1500 square feet per acre, and the weighted average coverage per unit is 1200 square feet per unit as above, then the maximum density would be calculated using Equation 2 as follows:

$$D_I = \frac{(435.6 \times 22) - 1500}{1200}$$

$$= \frac{9583.2 - 1500}{1200}$$

$$= 8083.2 / 1200$$

$$= 6.736 \text{ du/acre}$$

8. Break-even Density. This is the minimum project density at which the developer will be able to meet all costs and still make an acceptable profit. This is used to determine the relationships among the total site development cost (both on- and off-site), the average market value per unit, and the density.

   1. The basic break-even density equation is as follows:

$$D_e = \frac{L}{.0826 \times V \times A} \qquad \text{(Equation 3)}$$

   where L is the major site development costs ($),
   V is the average market value per unit ($/du), and
   A is the site area in acres.

   2. Variations of break-even equation.

      a. To find the average market value if the density and development cost is known:

$$V = L / (.0826 \times A \times D_e) \qquad \text{(Equation 3a)}$$

      b. To find the allowable development cost if the density and average market value is known:

$$L = V \times A \times D_e \times .0826 \qquad \text{(Equation 3b)}$$

   3. Determination of site development cost (L). This is the total of all front-end and major improvement costs. It includes:

      a. Cost of land.

      b. Interest on land.

      c. Planning fees.

      d. Legal fees, permits, etc.

      e. Sewer system.

      f. Water system.

      g. Roads and intersection improvements.

      h. Community buildings and recreation facilities.

      i. Other major site improvement costs.

   4. Determination of average unit market value (V). This is the weighted average of the market value of all units.

      a. V can be a one-number estimate for the whole project.

      b. A more accurate method of determining V is to use a weighted average of the project value of each type of unit based on the Land Use Description analysis and the market study.

c. To find the market value for rental apartments, multiply the expected annual rent by 7.28.

d. To find the total construction cost (bricks and boards plus unit share of major site development costs) from the market value, divide the market value by 1.661.

e. To find the unit share of the major site development costs from the market value, multiply the market value by .0826.

f. To find the total construction cost (bricks and boards plus unit share of major site development improvement costs) from the annual rent, multiply the annual rent by 4.3833.

C. Equilibrium break-even density. This analysis is used when the developer and the municipality (or school district) share the cost of major site improvements. The analysis is subject to the constraints that the project must generate a positive tax surplus if the developer pays all major site development costs.

With the equilibrium analysis the municipality invests all tax surplus generated by the project in the major site development costs. When the municipality pays part of the site development cost, the break-even density for the developer is lowered because his costs are lowered. The equilibrium analysis determines the minimum breakdown density where the developer just breaks even and the municipality reinvests all tax surplus. The analysis also determines the respective shares of costs for the developer and the municipality.

The equilibrium break-even density ($D_b$) is calculated using the following equation:

$$D_b = \frac{L}{A\,\{.0826\,V + 15\,((V \times M \times R) + T - S)\}} \qquad \text{(Equation 4)}$$

where L is the major site development costs ($),
V is the average market value per unit ($/du),
A is the site area in acres,
M is the tax millage rate,
R is the assessment factor,
T is all other taxes paid by the occupants per unit, and
S is the unit service cost.

All of the other taxes paid by the occupants of the units would include income taxes, per capita taxes, etc. This value (T) is calculated on a per unit basis for the entire project. The unit service cost (S) is based on the average cost per unit for municipal services to the project. This is based on an analysis of the municipal budget. The same procedure would be used for school budget information if the equilibrium analysis was between the developer and the school district.

For instance, suppose that each of the variables has the following values:

L = $1,500,000
V = $25,000
A = 120 acres
M = .025
R = .6 (60%)
T = $250/unit
S = $600

The equilibrium break-even density would be calculated using Equation 4 as follows:

$$D_b = \frac{1,500,000}{120\,\{(.0826 \times 25,000) + 15\,((25,000 \times .025 \times .6) + 250 - 600)\}}$$

$$= \frac{1,500,000}{120\,\{2065 + 15(375 + 250 - 600)\}}$$

$$= \frac{1,500,000}{120\,\{2065 + (15 \times 25)\}}$$

$$= \frac{1,500,000}{120\,(2065 + 375)}$$

$$= \frac{1,500,000}{120 \times 2440}$$

$$= \frac{1,500,000}{292,800}$$

$$= 5.12 \text{ du/acre}$$

To calculate the developer's share of the site development costs ($L_d$), use Equation 3b by substituting the equilibrium break-even density ($D_b$) for the break-even density ($D_e$) in the equation as follows:

$$L_d = V \times A \times D_b \times .0826 \qquad \text{(Equation 4a)}$$

The municipality's share of the site development costs ($L_m$) is simply calculated by subtracting the developer's share from the total site development costs:

$$L_m = L - L_d \qquad \text{(Equation 4b)}$$

Following through with the above example, the developer's share of the site development costs would be

$L_d$ = \$25,000 x 120 acres x 5.12 du/acre x .0826

= \$1,268,736

and the municipality's share would be

$L_m$ = \$1,500,000 - \$1,268,736

= \$231,264

There are two major practical limitations on the use of the equilibrium analysis:

1. Any investment of public funds in major site development must be politically expedient. The municipality might be able to invest in intersection improvements, off-site sewer lines, and other improvements which ostensibly benefit more of the public than just the residents of the site. If the municipal share of costs at the equilibrium density is \$200,000 but only \$100,000 in off-site public improvements can judiciously be made, then the other \$100,000 will remain as a tax surplus.

2. Separate taxing bodies normally will not and cannot exchange surplus revenues to balance out deficits. If a project is developing a \$100,000 municipal tax surplus, a \$100,000 school tax deficit will not be cancelled out.

## DEVELOPMENT EXTERNALITIES

This section deals with costs (monetary and non-monetary) and revenues generated by a development. A detailed analysis of these externalities is often useful for planning purposes.

A. Traffic Generation

1. Daily or peak hour trip generation rates by unit type are applied to the total number of units contemplated for the project. This gives the total traffic generation.

2. Percentage allocation of the various access routes to the site is derived from origin-destination studies.

3. By combining 1 and 2 above the site-generated traffic load on any access point can be determined.

4. Comparison of existing traffic, design capacity, and site-generated traffic loads indicates the amount of anticipated congestion.

5. If a road or intersection improvement is needed to overcome the anticipated level of congestion, the cost will become part of the major site development cost. Either the municipality or the developer can pay for the improvements.

B. School Children

1. School children generation rates by unit type are applied to the total number of units contemplated to obtain an estimate of the total number of school children generated by the project.

2. The school budget will indicate the cost per student for operation. Multiply that cost by the total number of students generated for the projected school costs.

3. Project market value, property tax rates, and other tax information are used to determine the total school tax generated by the project.

4. Formulas for state and federal school subsidies are used to determine the additional subsidy created by the school children from the project.

5. The sum of items 3 and 4 above is compared to item 2 to determine the net surplus or deficit caused by the project.

C. Municipal Services

The revenue and operations structure must be investigated to find which services are supported by general taxes and which are supported by special user charges.

1. Typically sewer and water operations are separate from the general fund so that a property tax surplus cannot usually be used for sewer construction. The structure of municipal services must be investigated to sort this out.

2. Costs, revenues, and indicators of use on a per capita, per square foot, per linear foot, per dwelling, per acre, etc., basis for all municipal services should be investigated to find out which areas show a favorable balance for the proposed project (or an unfavorable balance as the case may be).

# INTRODUCTION

The residential development process involves "a complex set of decisions over time by a group of key and supporting participants or decision agents. Key decision agents include the landowner, the developer, and the consumer; supporting decision agents include realtors, financiers, and public officials." (1) Once begun, the process only continues through positive decision making by one or more of the actors involved. (2)

The concept design for the development of Monona Woods will focus on three actors in the development process: (1) the developer seeking a profit, (2) the consumer seeking to affordably meet his housing requirements, and (3) the City of Monona seeking to implement the goals for housing development outlined in its Master Plan of 1980. The ideal concept design will reconcile the conflicting goals of these three participants in the development process.

The primary issue in this residential development is how to provide affordable housing to families with children within the City of Monona. Monona has recognized certain demographic changes in the city; namely that young adults and children are a decreasing portion of the population while the elderly comprise an increasing portion. In future years, this trend would lead to under-utilization of existing infrastructure such as schools and could lead to deterioration of existing housing stock as fixed-income elderly are unable to maintain their homes. The Master Plan of 1980, through its goals and objectives for housing development, seeks to reverse this trend by encouraging the development of housing that the average family with children can afford while maintaining the character of the city of primarily single-family, owner-occupied detached residences. The objective is threefold: (1) the development of housing that maintains the character of the City of Monona that (2) meets the needs and budgets of young families with children and (3) provides the developer with enough incentive to tackle

---

(1) Shirley F. Weiss, et al., Residential Developer Decisions, cited by Residential Development Handbook (Washington: Urban Land Institute, 1978), p. 4.

(2) Residential Development Handbook, p. 4.

the job. Reconciliation of the needs of the three participants in the development process will be a trade-off among the density of development, the size of individual dwelling units and amenities such as garages and basements, and construction quality.

The process by which the concept design for the development of Monona Woods evolved is outlined below:

I. City of Monona--Analysis of the impact the city's attitude as expressed explicitly in the 1980 Master Plan on potential residential development and its impact on the Monona Woods site.

II. Buyer Profile--Analysis of the typical buyer's needs and desires in terms of unit size, quality, amenities, and density and his ability to pay expressed as a maximum affordable purchase price.

III. Site Analysis--Analysis of the physical attributes of the site, the constraints these attributes place on development, and identification of site amenities that will enhance the marketability of the development. The form of an ideal design solution begins to emerge.

IV. Initial Design Scenario--The reconciliation of density, unit size and amenities, and quality of construction that takes into account the buyer's purchase budget, Monona's goals, site attributes, and projected absorption rate but is constrained by the developer's need for an acceptable profit.

V. Modified Design Scenario--Again a reconciliation as above but utilizing Tax Incremental Financing to offset some of the development costs to enable the developer to more closely meet the needs and desires of the consumer and the City of Monona and to be more sensitive to the natural amenities of the site while maintaining an acceptable profit.

# SITE ANALYSIS

The site analysis portion of this report is divided into three sections: (1) a detailed analysis of the physical features of the site, (2) analysis of the linkages between the site, the City of Monona, and the greater Madison area, and (3) a summary analysis outlining some of the competitive advantages and disadvantages of the Monona Woods site for residential development and featuresof an ideal development plan suggested by the attributes of the site.

## Physical Features

The physical features of the site were analized using a method similar to one outlined by Ralph Kiefer and Michael Robbins in their article "Computer-Based Land Use Suitability Maps." Briefly summarized, the methodology is to divide the site into small cells, score each cell for features and attributes affecting the design and construction of residential structures and amenities, and then derive a composite score for each cell. Those cells with the best scores will indicate the areas of the site most suitable for development while the cells with the worst scores indicate those areas of the site that should be left as open space.

To impliment this method in Monona Woods, the site wasdivided into 349 cells, each approximately 50' x 50' as shown in Exhibit 1. Each cell is about halfthe size of a residential lot. The eight attributes thought to have a major impact on development were selected and appear as follows:

1. Soil type
2. Suitability for buildings
3. Suitability for roadways
4. Slope
5. Archeological site
6. Mature tree masses
7. View
8. Protection from winter wind and solar orientation

These attributes ascribed to each cell are scored according to Kiefer's classification as described in Exhibit 2.

The soil map, Exhibit 3, shows the location of the four soils present on the site. The St. Charles silt loam is an upland prairie

EXHIBIT 1

SITE DIVIDED INTO CELLS

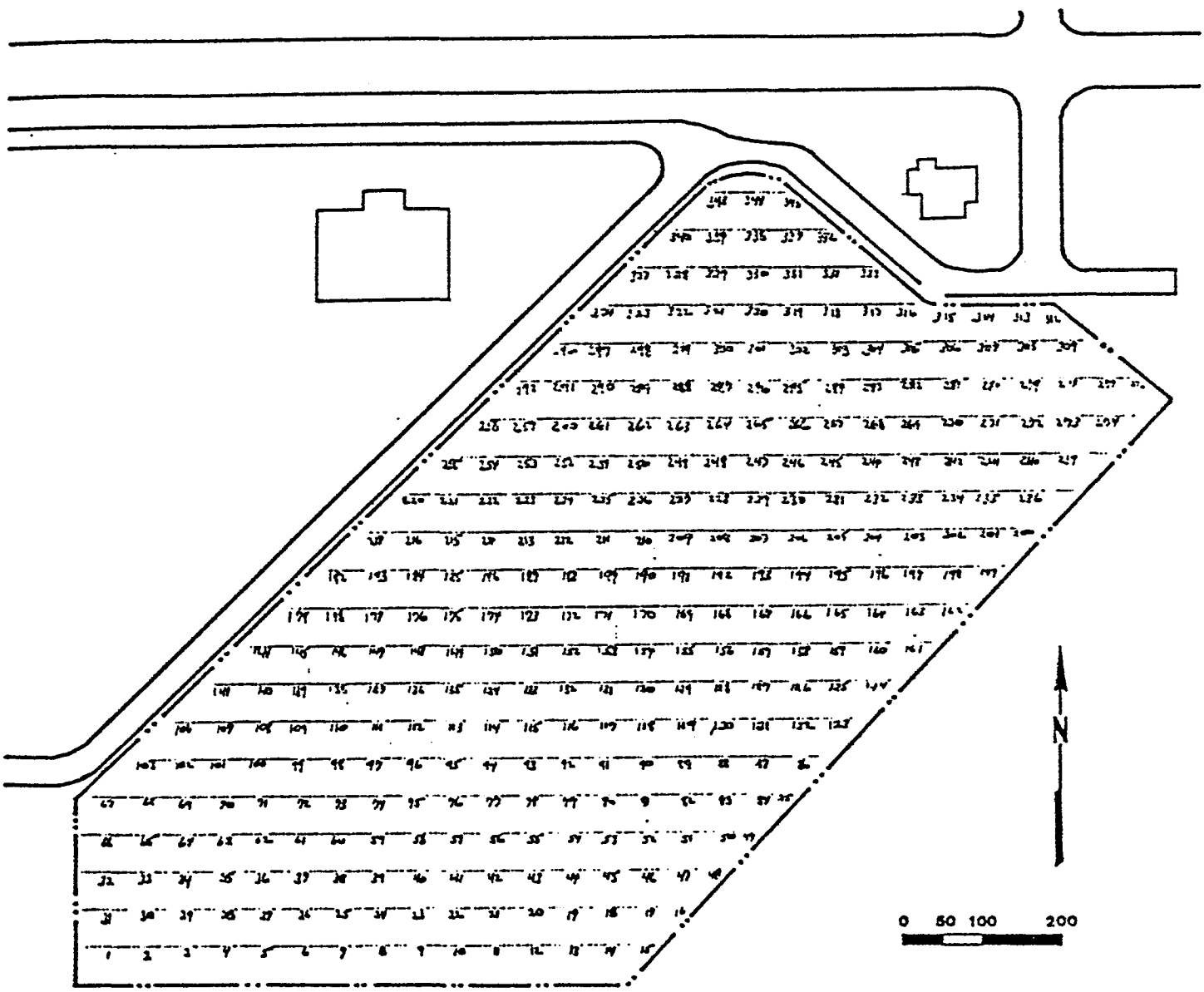


EXHIBIT 2

SCORING SYSTEM

| Point Score | Term | Explanation |
|---|---|---|
| 8 - 9 | Optimum | The site conditions are ideal and present no significant limitations to development. |
| 5 - 7 | Satisfactory | The site conditions are satisfactory and present no serious limitationa to development. Any limitationa presented by the site conditions should be considered, but can be overcome without great difficulty. |
| 2 - 4 | Marginal | The site contains present serious limitations to development. The use of these areas may be feasible in some cases but the limitations will be difficult to correct. If the use of areas rated as "marginal" is required or contemplated, each area should be subjected to further study to determine whether or not the use of the area is feasible. |
| 0 - 1 | Unsatisfactory | The site conditions present severe limitations to development and the use of these areas is undesirable in almost all cases. If these areas are to be developed, the sites selected for use must be subjected to a through engineering site study. |

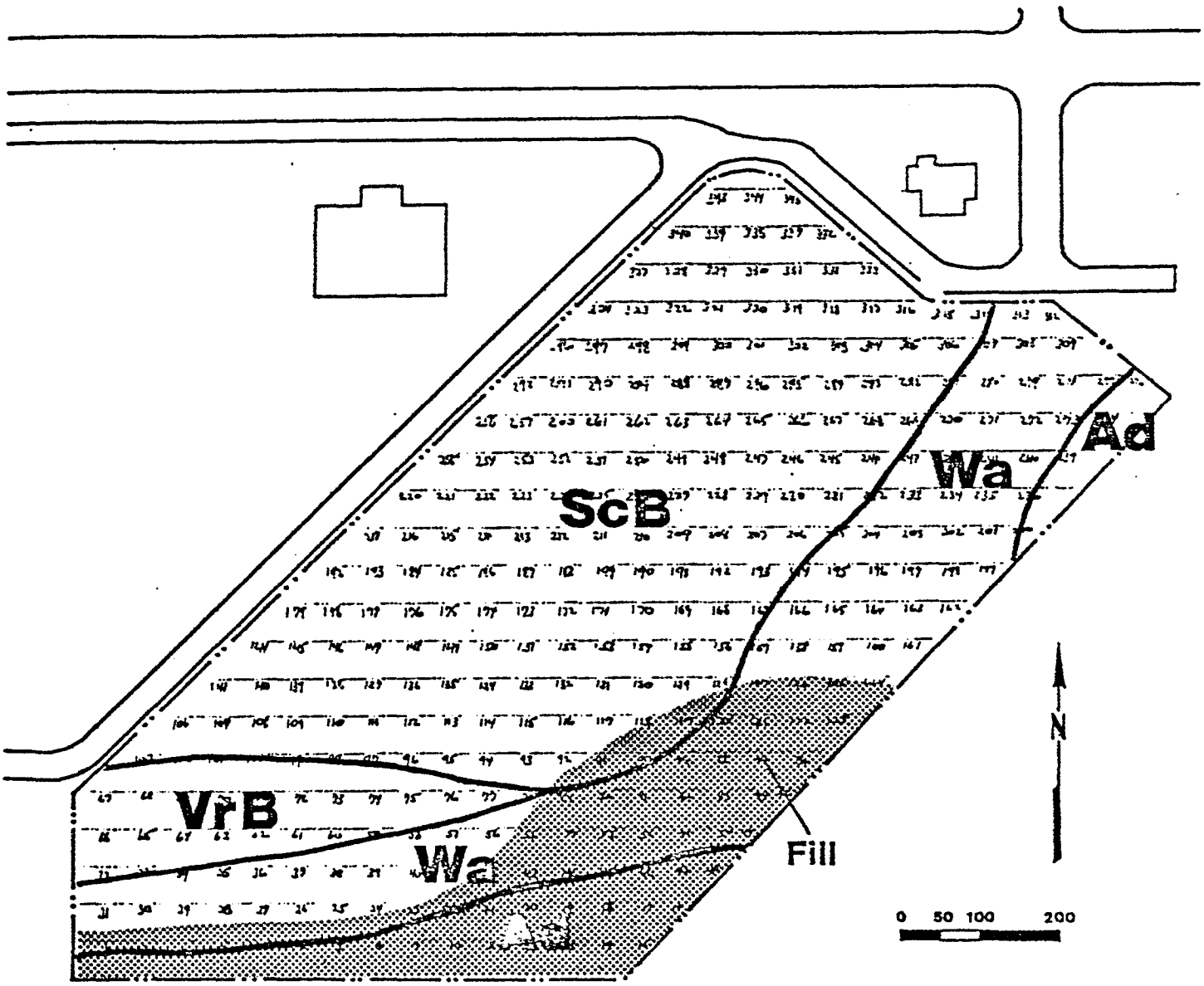
Source: Kiefer and Robbins, "Computer-Based Land Use Suitability Maps"

soil fairly well suited for dwellings and roadways. The other soils are bottomland soils, generally not well drained, and less suitable for dwellings and roadways. The shaded area has been filled, but the nature of the fill is unknown. Three features associated with the soil type were evaluated: (1) soil classification on the Unified Soil Classification System, (2) suitability for buildings, and (3) suitability for roadways. The evaluations appear in Exhibit 4. Each cell was evaluated for each of the three characteristics. The soil class score for those cells in the fill area was reduced 2 points to account for the uncertainty about the nature of the fill.

The site slopes from the northwest toward Upper Mud Lake Marsh. The total elevation change is about 16' from South Towne Drive to the

EXHIBIT 3

SOIL MAP




ScB - St. Charles silt loam
Ad - Adrain muck
Wa - Wacousta silty clay loam
VrB - Virgil silt loam

Source: Dane County Soil Survey

EXHIBIT 4

SCORING OF SOIL ATTRIBUTES

| Soil type | ScB | Wa | Ad | VrB |
|---|---|---|---|---|
| USCS Class | CL,ML-CL | CL,ML,ML-CL | Pt | CL,SM |
| Rating | Satisfactory | Satisfactory | Unsatisfactory | Satisfactory |
| Score | 5 | 5 | 1 | 5 |
| Limitations on dwellings with basements | Slight | Very Severe | Very Severe | Severe |
| Rating | Optimum | Unsatisfactory | Unsatisfactory | Marginal |
| Score | 8 | 1 | 1 | 3 |
| Limitations for streets | Moderate | Very Severe | Severe | Severe |
| Rating | Satisfactory | Unsatisfactory | Marginal | Marginal |
| Score | 6 | 1 | 3 | 3 |

Sources: Dane County Soil Survey
Kiefer and Robbins

eastern boundary of the site. Slopes on the site are mapped in Exhibit 5 and the scoring is summarized in Exhibit 8. The scoring system follows Kiefer and Robbins.

Exhibit 6 shows two special features of the site, the massing of mature trees and the presence of an archeological site. The mature trees, mainly oak, are one of the unique amenities of the site and should be preserved if possible. It is likely Monona would want the trees preserved. Likewise, the archeological site, an old Indian burial ground, should be avoided. Exhibit 8 shows the scoring for these attributes. The scoring for view is also derived from Exhibit 6 and is presented in Exhibit 8.

The last attributes considered concern the orientation of the cell in relation to the tree massing that would provide protection from northerly winter winds and allow for solar orientation. Exhibit 7 shows the areas with protection and solar orientation. The scoring for these attributes appears in Exhibit 8.

A number of important attributes are included in the above list but not explicitly discussed. Depth to bedrock does not restrict development since it is over 10' for the whole site. Flood hazard considerations are incorporated into the suitability for buildings and roads attributes, as are the engineering properties of the soils.

Each cell was scored for each of the eight characteristics. The scoring is tabulated in Appendix A. A weighting was given to each attribute to reflect its relative importance in residential development. A composite score for each cell was then calculated as the Euclidean distance from the given cell to the ideal cell (ie. all characteristics score 9). The formula

$$\text{Euclidean Distance} = \sqrt{\sum (\text{Score} - 9)^2 \times \text{Weight}}$$

is used. These raw composite scores were normalized by dividing by the least score, yeilding a range of normal scores from 1.0 to 3.0. Both the raw and normalized scores are tabulated in Appendix A. Exhibit 9 shows the normalized scores plotted on a map of the site. The site was then divided into four classifications using the normal scores:

| Score | Classification |
|---|---|
| 1.0 - 1.5 | Optimal |
| 1.6 - 2.0 | Satisfactory |
| 2.1 - 2.5 | Marginal |
| 2.6 - 3.0 | Unsatisfactory |

Exhibit 10 shows this division. Overall, there is about 5.0 acres rated Optimal, 5.7 acres rated Satisfactory, 1.3 acres rated Marginal, and 8.0 acres rated Unsatisfactory. The major difference between Optimal and Satisfactory is the tree massing. The Marginal and Unsatisfactory areas are mainly due to the underlying soil conditions.

## Linkages

The site is bounded on the north by the Beltline highway, on the west by South Towne Drive, and on the south and east by Upper Mud Lake Marsh. The Beltline highway and Monona Drive provide quick access to Monona and the greater Madison area. Other developments in the area are primarily strip commercial along the Beltline, Monona's commercial district north on Monona Drive, and the South Towne Shopping Center just west of the site. The Upper Mud Lake Marsh provides a natural barrier and a unique scenic quality to the site.

The public infrastructure, including water, sewer, gas, electricity, and telephone are available adjacent to the site along South Towne Drive. Capacities are adequate to support development of the subject. The 18" sewer line that runs along South Towne Drive, however,

is only about 3' below grade; much too high to serve the site. A lift station will be necessary.

Summary Analysis

The Monona Woods site has many competitive advantages for residential development. It is a site of unique natural beauty with mature tree cover and panoramic views of Upper Mud Lake Marsh but within minutes of downtown Monona and Madison. The vistas to the south open the possibility of solar heating for parts of the development. Proximity of the Beltline highway provides ready access to all parts of Madison. The highway is screened by the trees from most of the site. Monona is particularly interested in promoting single family residential development, so the probability of creating a monopolistic position in concert with he city is high.

Disadvantages of the site fall into two categories, the image of the area and the negative aspects of some of the features discussed above. The area currently does not have an image as a residential neighborhood; it has mostly commercial neighbors. The Beltline highway is associated with noise and conjestion. The marsh produces mosquitos and sometimes unpleasnt smells. Overall, however, the negative aspects are outweighed by their positive counterparts. Aggressive marketing and a desirable product can impact public perception to create a residential image.

The site analysis, and particularly Exhibit 10, begin to suggest features to incorporate into an ideal solution. Some of these are:

- Preserving as many trees as possible and using them as a screen to protect from northerly winter winds and intrusion from the Beltline and surrounding commercial area.

- Utilize the potential for solar orentiation to incorporate passive solar heating into part of the design.

- Orient the dwellings and activity spaces toward the southeast to take advantage of the viev.

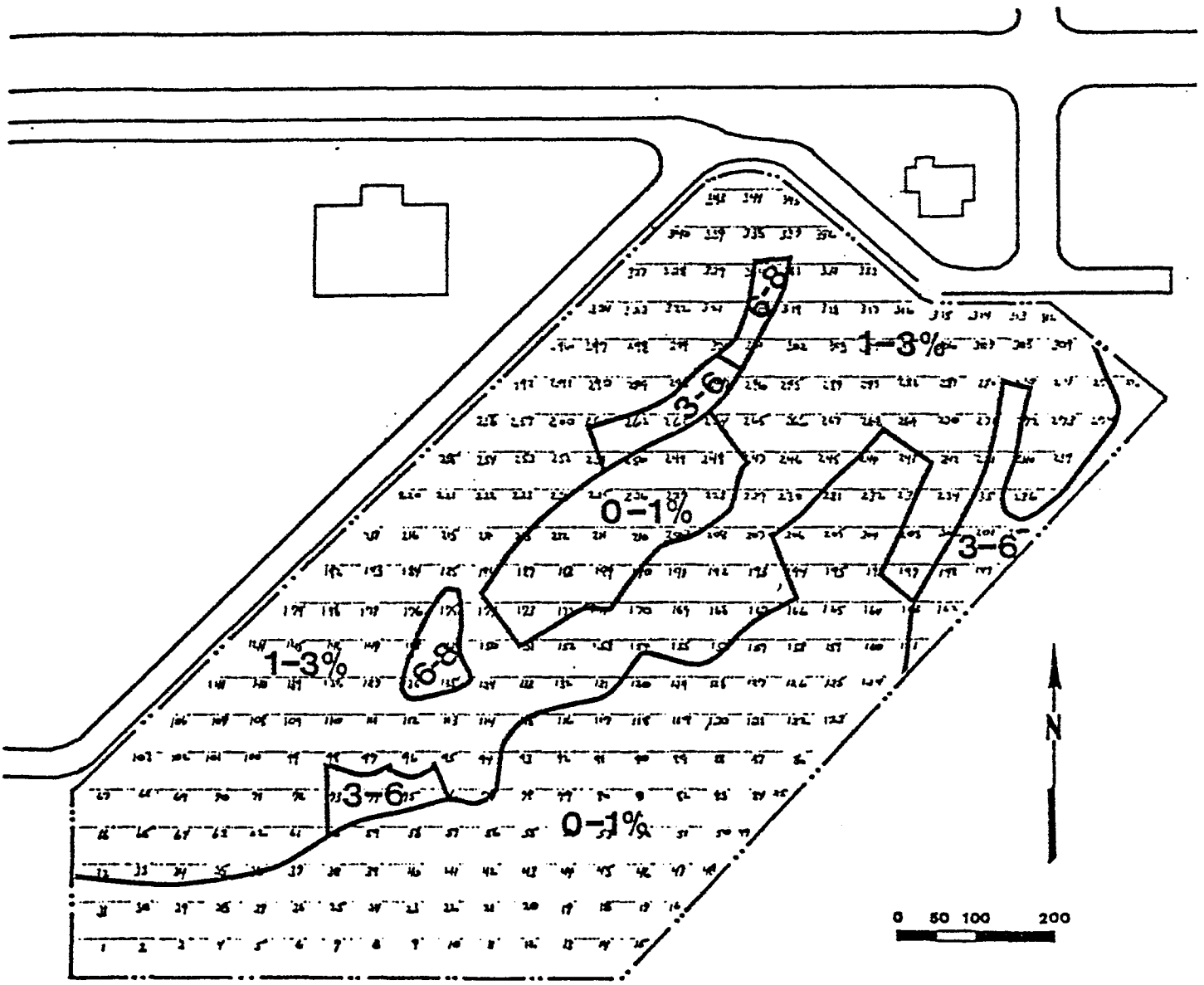
- Use a high density cluster development plan to preserve as much open space as possible, try to maintain the "woodsy" atmosphere.

- Dwellings should utilize rustic materials such as rough sawn siding, again to maintain the "woodsy" setting.

- Dwellings should avoid open porches, etc. due to the mosquito problem; enclosed porches, etc. are prefered.

EXHIBIT 5

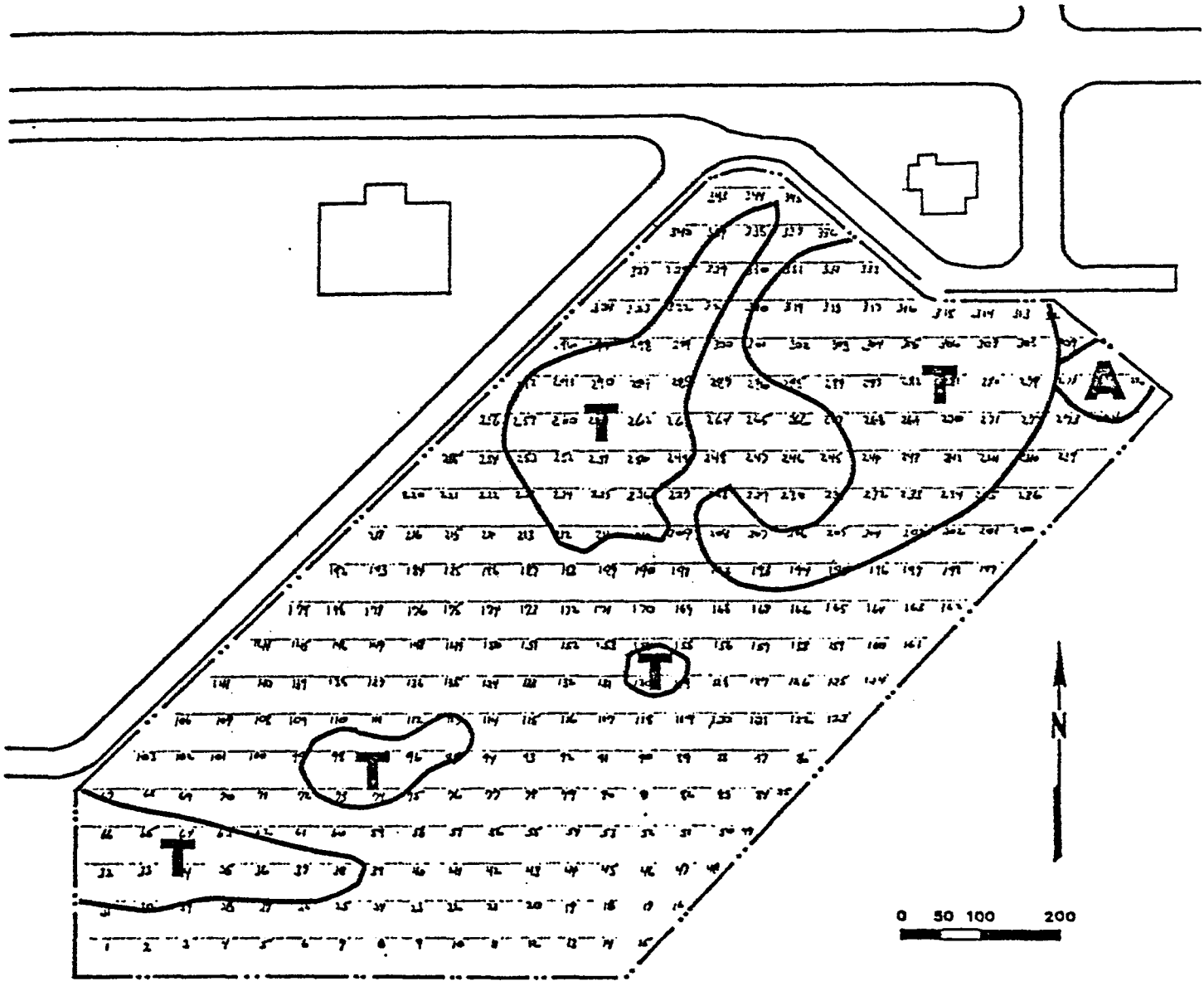
SLOPE MAP




Source: Class handout, topographic map

EXHIBIT 6

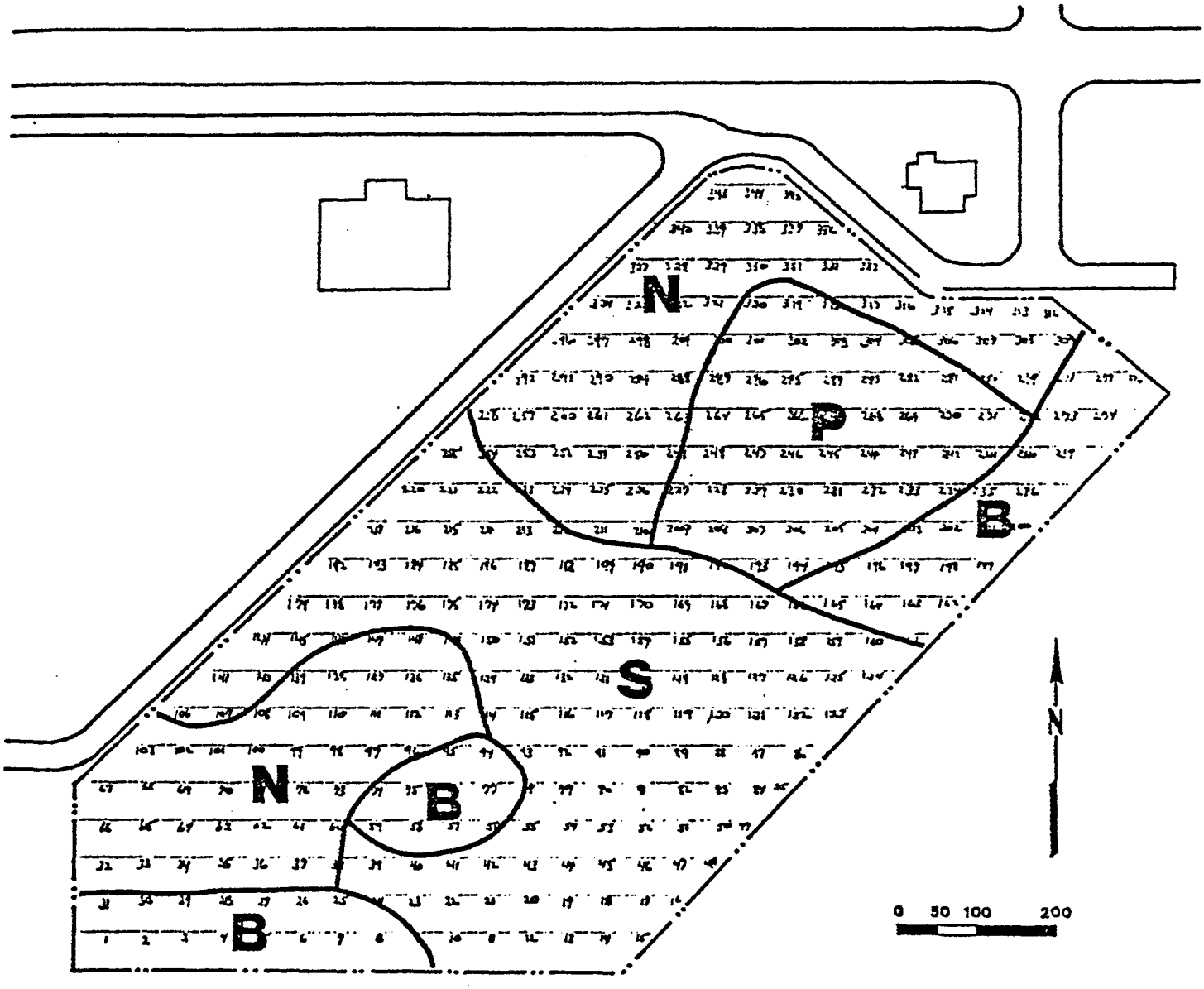
TREE MASSING AND ARCHEOLOGICAL SITE




A - Archeological Site
T - Tree Massings

EXHIBIT 7

AREAS PROTECTED FROM NORTH WIND AND SOLAR ORIENTATION




P - Protection from north wind
S - Solar orientation
B - Both attributes
N - Neither attribute

EXHIBIT 8

SCORING FOR INDIVIDUAL CELLS

| Attribute | Score | Degree of the Attribute |
|---|---|---|
| Slope | 9 | 3 to 6% |
| | 7 | 1 to 3% |
| | 6 | 0 to 1% |
| | 5 | 6 to 8% |
| Archeological Site | 9 | Archeological site not present |
| | 0 | Archeological site present |
| Trees | 8 | Immature trees, bushes, and grass |
| | 3 | Mature tree masses |
| View | 8 | Toward the marsh |
| | 6 | Inward, surrounded by trees |
| | 4 | Toward the Beltline and the commercial area |
| Orientation | 9 | Protected from north winter winds and solar orientation |
| | 7 | Protected from north winter winds only |
| | 7 | Solar orientation only |
| | 5 | Neither protected from north winds nor solar orentiation |

Source: Kiefer and Robbins (slope scoring only)

EXHIBIT 9

NORMALIZED CELL SCORES

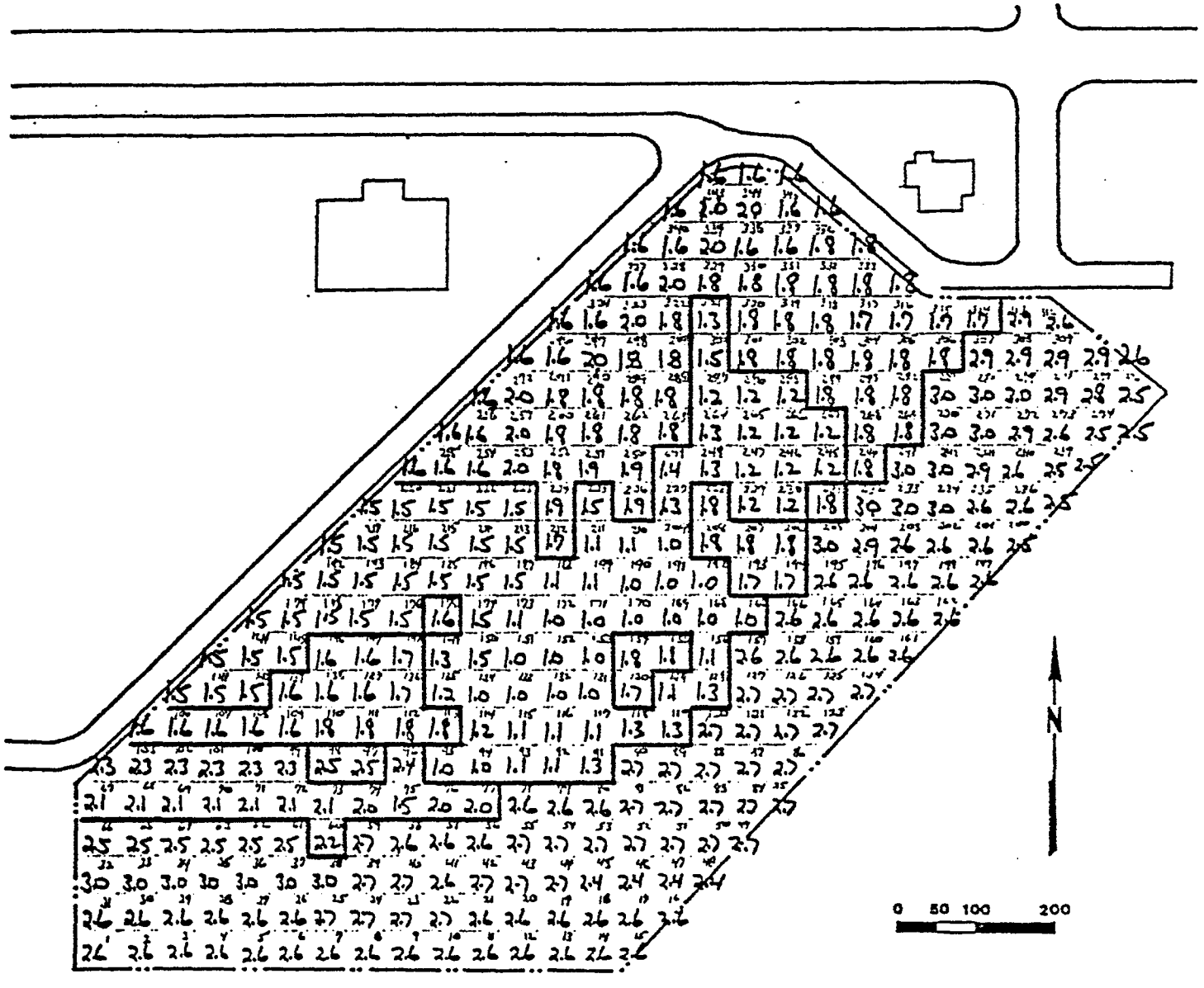
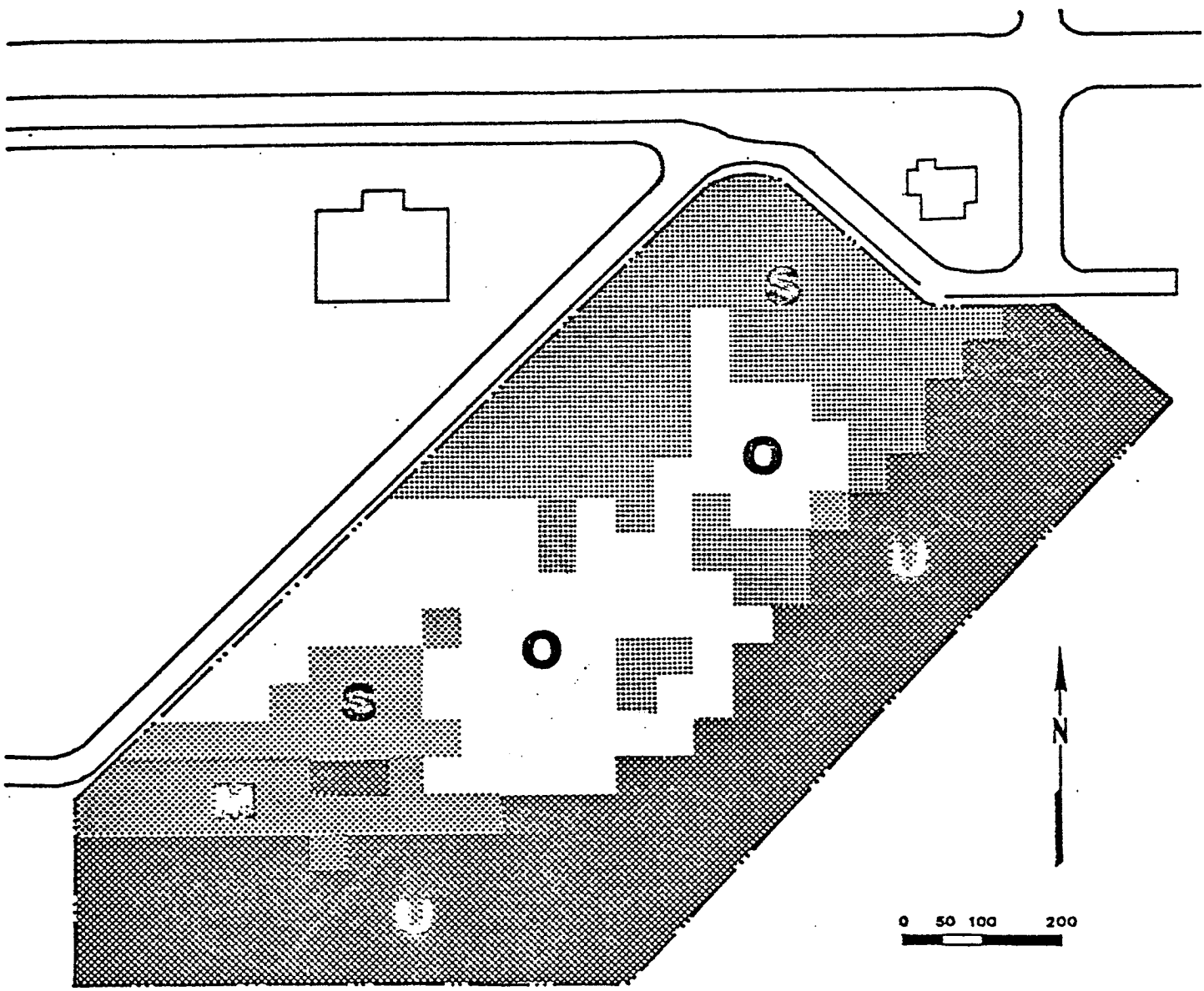


EXHIBIT 10

RELATIVE DEVELOPABILITY




O - Optimum
S - Satisfactory
M - Marginal
U - Unsatisfactory

## LINKAGES

Direct access to the site is obtained from Broadway, directly off Highway 12-18, also known as the Beltline. Three miles east of the site, the Beltline connects with the Interstate, thus providing access to Chicago, Minneapolis and Milwaukee. The subject site is served by one Madison Metro bus. But the limited mass transit connection has the potential for expansion as the area around the subject site expands. Air linkages are provided thru Madison's airport which has frequent connections to Chicago, Milwaukee and other major cities.

The vicinity of the site is characterized by a mixture of strip developments along the Beltline and Monona Drive. These include such large commercial establishments such as Shop-Ko and WPS, as well as a large number of fast food establishments and other service oriented businesses. The subject property has access not only to Monona's educational and recreational facilities but to those of Madison as well. These include the main campus of the University of Wisconsin, Edgewood College, and Madison Area Technical College (MATC).

As for employment linkages, they center mainly on public and service industries. Many area residents are employed by the state government, UW and MATC campuses, and several medical and retail facilities in the Monona and Madison areas. Generally, the area offers white collar and professional type employment opportunities.

## LEGAL, REGULATORY AND POLITICAL ATTRIBUTES

The site is a densely wooded lot of about 20.4 acres. Boundaries of the site include Broadway to the north, South Towne Drive on the west and a marshy wetland area to the east. To the south there is an open and developable area. There are no legal obstacles to the development of the subject site and none can be anticipated. While there is a mortgage by the Gisholt Machine Company, there are no tax or mechanics liens against the site.

Monona's Master Plan calls for family oriented, owner occupied, single family detached units. However, the aging of the population and the high cost of providing housing under today's financial conditions is beginning to change this pattern. Moreover, since the site is in the City of Monona's TIF district, there is an excellent opportunity for public/private cooperation. This can help in achieving many of the goals and objectives of Monona's zoning and master plan, as well as its TIF district. It can be demonstrated that the only way to develop a financially solvent project of reasonably good quality and yet affordable is through some form of partial public funding. This funding can take several forms, such as public funding of the land purchase or

financing of site improvements (infrastructure) at no cost to the developer. The increased taxes paid by the developed vs. the undeveloped site ideally should cover the costs of providing assitance to the site.

## DYNAMIC ATTRIBUTES

The wetlands, trees and the open areas all combine to create a very appealing visual orientation for the site. A portion of the site that is directly overlooking the wetlands has a premier psychological benefit. Other portions of the site that might be overlooking the wooded areas of the site, will enjoy the view of the trees and other vegetation covering the site, to the extent that can be preserved. So, the internal views of the site are excellent, while the external views are outstanding.

While the site has definite visual appeal, it also has some noise pollution problems. The vehicular noise produced by the surrounding roads reaches unpleasant levels in portions of the site, particularly during rush hour periods. The main source of sound pollution, on a 24 hour basis, is the Beltline Highway. South Towne Drive's sound production is disquieting, but diminishes significantly after daily rush hour. In general, the sound pollution intensifies as one moves from the southern part of the site to the northern perimeter.

## ALTERNATIVE DESIGN SCENARIOS

The ultimate objective of analyzing different design scenarios is arriving at the most ideal tradeoff between an economically feasible product that also satisfies as many of the buyer's needs as possible. More specifically, the final design solution for the Monona Woods site attempts to achieve the following objectives.

1. Achieve physical economies of scale through intensive land use and cluster development plan.

2. Minimize the negative externalities of the site.

3. Preserve as many trees as possible and avoid the archaeological site.

4. Maximize solar exposure and views toward the wetlands.

5. Create a differentiated product by exploiting the monopolistic advantages of the site.

In trying to create an economically feasible project we must first determine the buyer's effective demand. This is the maximum

selling price of our units and given this price constraint, we will try to achieve a balance among such variables as quality, size, density, and amenities of the units.

Buyer Profile

Status: Married
Monthly Income: $2,100; growing at .09
Downpayment Amount: $15,000
Debt limit of 30% of adjusted monthly income
Adjustment .30

Debt Structure for Home Buyer

Term: 40 years
Rate: .155
Monthly Payment:
Justified Purchase Price:

2100 x .30 x (1-.30) = $441 monthly mortgage payment
441 x 77.25587 = 34,070 maximum mortgage
+ Downpayment 15,000
= Purchase Price $49,070

This purchase price is the most critical limiting factor in determiing the density of the design solution and the overall quality of the units. To begin our analysis we consider the following three design solutions which offer different densities.

1. Duplex/private court, 22 units on 3.23 acres, gross density of 6.81 DU/AC.

2. Quadplex/public cul-de-sac, 24 units on 3.05 acres, gross denisty of 7.87 DU/AC.

3. Quadplex/private court, 44 units on 4.66 acres, gross density of 9.44 DU/AC.

As we move from design one to three, denser development is possible as follows:

Plan 1: $\frac{20.4 \text{ AC}}{3.23} = 6.32 \approx 6$ modules x 22 = 132 total units

Plan 2: $\frac{20.4 \text{ AC}}{3.05} = 6.69 \approx 6$ modules x 24 = 144 total units

Plan 3: $\frac{20.4 \text{ AC}}{4.66} = 4.38 \approx 4$ modules x 44 = 176 total units

Source: Cost Effective Site Planning

Also, we use a denser design, the site development costs per unit drop as follows:

Plan 1: $5176/DU x 1.51 = $6306/DU
Plan 2: $3138/DU x 1.51 = $4738/DU
Plan 3: $2918/DU x 1.51 = $4406/DU

Source: Cost Effective Site Planning

To obtain the maximum construction budget per unit under each design solution, we subtract land and site improvement costs from the justified purchase price.

$$\text{land cost/DU} = \frac{\text{land price + initial site improvements}}{\text{\# of units in the design}}$$

$$= \frac{20.4 \text{ AC x } \$39{,}000/\text{AC} + \$25{,}400}{\text{\# of units}}$$

$$\text{Plan 1 land cost/DU} = \frac{821{,}000}{132} = \$6{,}220$$

$$\text{Plan 2 land cost/DU} = \frac{821{,}000}{144} = \$5{,}701$$

$$\text{Plan 3 land cost/DU} = \frac{821{,}000}{176} = \$4{,}666$$

| | Private Court Duplex 6.8 DU/AC | Quadplex Cul-de-Sac 7.87 DU/AC | Quadplex Private Court 9.44 DU/AC |
|---|---|---|---|
| Price | $49,070 | $49,070 | $49,070 |
| - land cost/DU | $ 6,220 | $ 5,701 | $ 4,666 |
| - site improvement/DU | $ 6,306 | $ 4,738 | $ 4,406 |
| Construction budget | $36,544 | $38,631 | $40,000 |

Given the construction budget under each scenario, we can use the Marshall & Swift cost program to explore the tradeoffs of size, quality and amenities. The results are summarized in Exhibit 11.

## Exhibit 11

### Living Area in Square Feet

| Private Court Duplex - 6.8 DU/AC | | | Construction Budget | $36,544 |
|---|---|---|---|---|
| Quality of Construction | W/G&B | W/B Only | W/G Only | WO/G&B |
| Fair | 1011 | 1076 | 1235 | 1315 |
| Average | 859 | 922 | 1037 | 1114 |
| Good | 694 | 753 | 821 | 891 |
| Very Good | 604 | 664 | 712 | 782 |
| Quadplex Cul-De-Sac - 7.87 DU/AC | | | Construction Budget | $38,631 |
| Fair | 1244 | 1310 | 1389 | 1462 |
| Average | 1067 | 1132 | 1186 | 1258 |
| Good | 866 | 926 | 952 | 1018 |
| Very Good | 755 | 815 | 827 | 893 |
| Quadplex - Private Court - 9.44 DU/AC | | | Construction Budget | $40,000 |
| Fair | 1290 | 1356 | 1441 | 1514 |
| Average | 1108 | 1172 | 1231 | 1303 |
| Good | 899 | 958 | 988 | 1054 |
| Very Good | 784 | 844 | 859 | 925 |

Notes to Exhibit 11

1. W = with, WO = without, B = basement, G = garage
2. For method of calculation refer to Appendix E.

The numbers in Exhibit11 are arrived at under a static analysis. The "real" numbers will be somewhat lower due to holding costs in the project and also an allowance for development profit. These "static" figures are meant as an approximate indication of the magnitude of effect as we change variables. In other words, as we change the quality of construction from fair to very good, we are forced to reduce the size of the units. Otherwise, the cost of construction will rise above budget. Also, adding a basement and a garage would mean either a reduction in the size of the unit or in the quality of its construction.

Design solution 3 will provide for the largest units given the same quality of construction and such things as garage and basement. Given the buyer profile (married and 3 children), his need for living space is probably greater than the need to live in a less dense development. So, of the three alternative designs the 3rd one seems to be the most desirable one for our purposes.

Before proceeding with a detailed cash solvency test, the exact number of units to be built must be determined. This is primarily a function of five factors.

1. The shape of the site
2. The dimension of the site
3. The dimensions of the design modules
4. The necessity to avoid the archeological site located on the northwest corner of the site.
5. The necessity to avoid the southwest corner of the site because of its highly unsuitable soil.

Since the width of each module is 382 feet and the length of the site is about 1200 feet (on the South Towne Drive side), the best "fit" will allow for just 3 modules as shown in Figure A. However, the width of the site allows for a longer than standard module, such that instead of having 44 units (11 quadplexes) we can build 52 units.. This is done by adding a quadplex to each side of the module as shown. So, 2 modules (clusters) contain 52 units each. But, since the site is not a perfect rectangle, we need to modify the number of units in the third cluster by eliminating 2 quadplexes and thus making it a 44 unit module. Therefore, the total number of units is 148 (52 + 52 + 48). This particular "fit" accommodates all five factors mentioned above.

A more systematic way of arriving at the number of units to be built is as follows:

| | |
|---|---|
| Purchase price (sales) | $49,070 |
| Land cost & improvement (%) | .2 |
| | $ 9,814 |
| Less site improvement/unit | $ 4,606 |
| Equals land cost/unit | $ 5,408 |

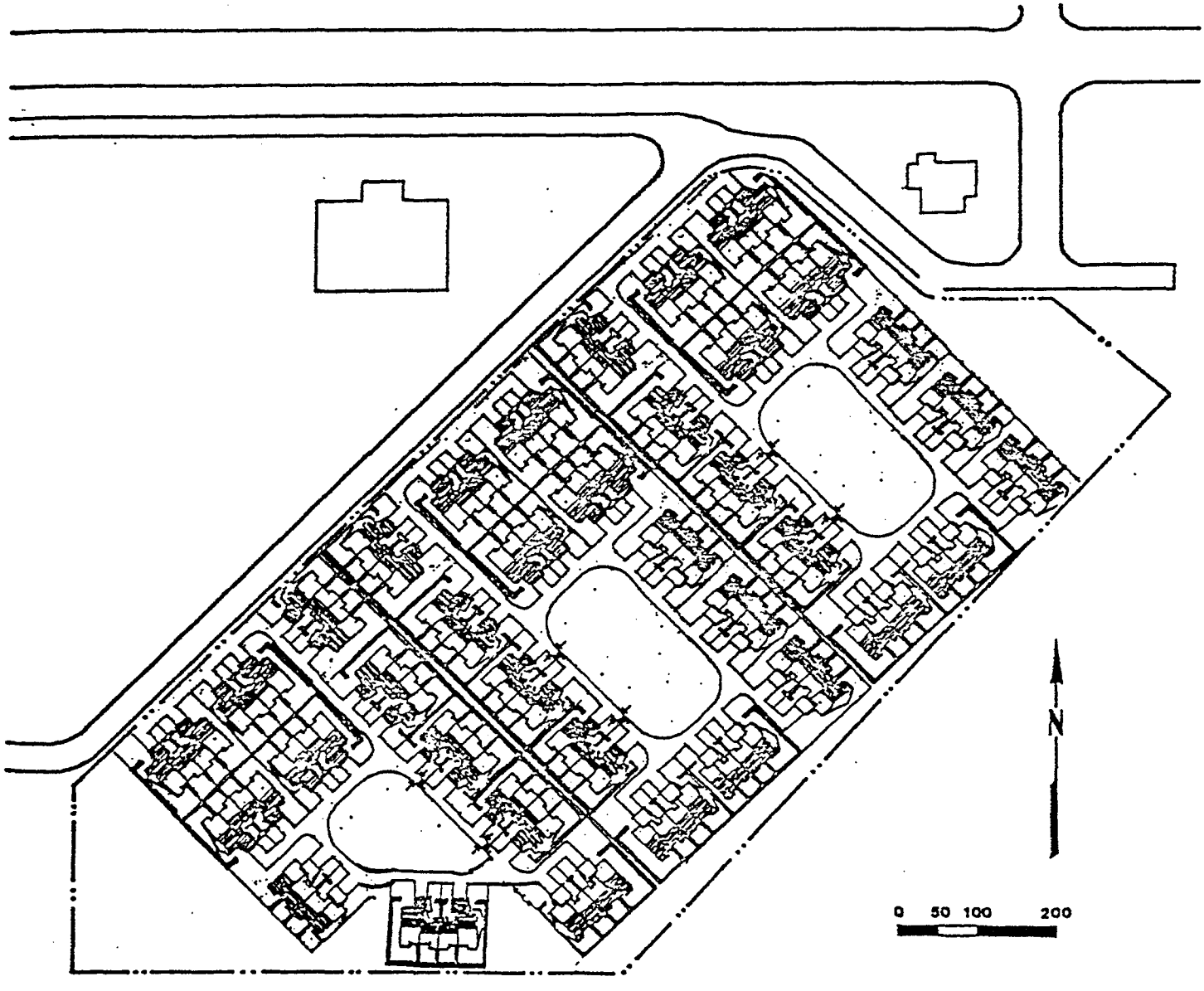
$$\frac{\text{total land cost}}{\text{land cost/unit}} = \frac{\$795,600}{\$\ 5,408} = 148 \text{ units to develop}$$

## CASH SOLVENCY TEST

The Land Development Cash Flow Model (CMF 554 Version 1.10) is used for the solvency test. To create the input for the model we need to decide on a staging strategy and also on a schedule of construction costs, site improvement costs and sales prices. Site improvement cost (infrastructure)/module = $4406 x 52 units = $229,112

Figure A

FINAL DESIGN SOLUTION WITHOUT TIF MONEY



| | | |
|---|---|---|
| | justified sales price | $49,070 |
| less | land cost/unit ($\frac{821,000}{148}$) | $ 5,547 |
| less | site improvement cost/unit | $ 4,406 |
| | | $39,117 |
| less | profit & holding costs (20%) | $ 1,823 |
| = | construction budget | $31,200 |

Exhibit 12 shows the quarterly change in construction costs and sales prices per unit. It also includes the cost of putting in the site improvements per module.

Exhibit 12

| Year | Quarter | Construction Cost Per Unit | Site Improvement Cost/Module | Sales/Price Unit |
|---|---|---|---|---|
| 1 | 1 | $31,200 | $229,112 | $49,070 |
| | 2 | 31,902 | 234,840 | 50,297 |
| | 3 | 32,620 | 240,710 | 51,554 |
| | 4 | 33,354 | 246,729 | 52,843 |
| 2 | 1 | 34,104 | 252,897 | 54,164 |
| | 2 | 34,872 | 259,219 | 55,518 |
| | 3 | 35,656 | 265,700 | 56,906 |
| | 4 | 36,458 | 272,342 | 58,329 |
| 3 | 1 | 37,279 | 279,151 | 59,787 |
| | 2 | 38,118 | 286,129 | 61,282 |
| | 3 | 38,975 | 293,283 | 62,814 |
| | 4 | 39,852 | 300,615 | 64,384 |
| 4 | 1 | 40,749 | 308,130 | 65,994 |
| | 2 | 41,666 | 315,833 | 67,644 |
| | 3 | 42,603 | 323,729 | 69,335 |
| | 4 | 43,562 | 331,822 | 71,068 |
| 5 | 1 | 44,542 | 340,118 | 72,845 |
| | 2 | 45,544 | 348,621 | 74,666 |
| | 3 | 46,569 | 357,337 | 76,532 |
| | 4 | 47,617 | 366,270 | 78,446 |

Note: At the end of year 5, the buyer can still afford the units. See Appendix F.

Note: Construction cost, cost of site improvement, and sales prices are all going up at 9% a year or 2.25% per quarter.

Using the figures from Exhibit 12, we can prepare the input for the cash flow model. The staging of the development project is such that there are no site improvement costs during the first year. The reasoning behind such staging is that since there are 9 quadplexes located along the South Towne Drive and thus have the needed infrastructure already in place, this is where the development should begin. This decision saves a substantial sum due to reduced holding costs.

Exhibit 13 contains the data for our first run of the cash flow model.

Exhibit 13

| Year | Quarter | Site Improvement Costs $ | Construction Costs $ | Units Built | Sales Amount | Units Sold |
|---|---|---|---|---|---|---|
| 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| | 2 | 0 | 511,680 | 16 | 0 | 0 |
| | 3 | 0 | 262,234 | 8 | 721,756 | 14 |
| | 4 | 0 | 268,794 | 8 | 422,744 | 8 |
| 2 | 1 | 0 | 0 | 0 | 216,656 | 4 |
| | 2 | 259,219 | 423,600 | 12 | 333,108 | 6 |
| | 3 | 0 | 0 | 0 | 569,060 | 10 |
| | 4 | 0 | 296,698 | 8 | 116,658 | 2 |
| 3 | 1 | 0 | 304,115 | 8 | 298,835 | 5 |
| | 2 | 0 | 155,859 | 4 | 612,820 | 10 |
| | 3 | 293,283 | 479,261 | 12 | 314,070 | 5 |
| | 4 | 0 | 163,747 | 4 | 643,840 | 10 |
| 4 | 1 | 0 | 503,530 | 12 | 329,970 | 5 |
| | 2 | 0 | 516,115 | 12 | 676,440 | 10 |
| | 3 | 0 | 176,339 | 4 | 693,350 | 10 |
| | 4 | 0 | 0 | 0 | 355,340 | 5 |
| 5 | 1 | 0 | 555,802 | 12 | 145,690 | 2 |
| | 2 | 348,621 | 949,488 | 20 | 746,660 | 10 |
| | 3 | 0 | 389,293 | 8 | 1,913,300 | 25 |
| | 4 | 0 | 0 | 0 | 549,122 | 7 |

Note: Absorption period of 5 years with sales percent per years of .15, .15, .20, .20, .30.

Starting with a construction cost/unit budget of $31,200 and then increasing it by 5% and then again by 2%, we get the following results.

Results of Cash Flow Model Solvency Tests

| Construction Cost/Unit $ | Yield % |
|---|---|
| $31,200 | 67 |
| $32,840 | 50 |
| $33,497 | 39 |

To compare the potential trade-offs under alternative yield scenarios, we use the Marshall & Swift Cost Program. The sensitivity analysis involves the use of such variables as quality of construction, existence or lack of basement, existence or lack of garage, existence or lack of both garage and basement. The results are in Exhibit 14.

Exhibit 14

Living Area (Square Feet)

| Quality of Construction | W/G&B | W/B Only | W/G Only | WO/G&B |
|---|---|---|---|---|
| **$31,200 and 67% Yield** | | | | |
| Fair | 992 | 1058 | 1108 | 1181 |
| Average | 850 | 914 | 944 | 1016 |
| Good | 688 | 748 | 756 | 822 |
| Very Good | 594 | 658 | 655 | 721 |
| **$32,840 and 50% Yield** | | | | |
| Fair | 1046 | 1112 | 1168 | 1241 |
| Average | 897 | 961 | 997 | 1068 |
| Good | 727 | 787 | 799 | 865 |
| Very Good | 632 | 693 | 693 | 759 |
| **$33,497 and 39% Yield** | | | | |
| Fair | 1070 | 1135 | 1195 | 1268 |
| Average | 917 | 982 | 1019 | 1091 |
| Good | 743 | 803 | 816 | 882 |
| Very Good | 646 | 706 | 709 | 774 |

Choosing 50% as a desirable rate of return, we proceed to make the appropriate trade off of the variables in Exhibit 14.

Comparison to the Target Market

The target market is a family with 2 adults and 3 children. So, space requirement would most likely have priority over quality of construction and existence of basement or garage. Although basement would be desirable for storage and/or conversion to family rooms, it is not essential. Garage too, is not a critical requirement.

Criteria for Trade-Offs

A living area of at least 1100 square feet is desired for a family of 5. Looking at Exhibit 14(50% yield) this can only be achieved

with fair quality construction. Furthermore, either the basement or the garage must be sacrificed. Ideally, market forces should determine which of the two is in more demand. However, from a design point of view, eliminating the basement would be best for a number of reasons.

1. Since some of the soil is poor and wet, we might have problems of wet or flooded basements.

2. Visual appeal of the project would be improved if automobiles could be taken out of site.

3. The garages can be enlarged to allow for extra storage while still being able to build at least 1100 square feet of living area.

Final Proposal

The units to be built are of fair quality of construction with a living area 1150 square feet, no basement, but a garage of 360 square feet (12 x 30). The cost of construction would be as follows:

| | | |
|---|---|---|
| Fair quality construction | 1150 x $26.42/SF | = $30,383 |
| No basement | | -- |
| Garage (360 SF x 7.32/ SF | | = 2,635 |
| | Total cost/unit | $33,018 |

Note: Cost figures/SF from Marshall & Swift.

Thus, the construction costs would be spread throughout the phasing of the project as in Exhibit 15. The yield would be an acceptable 46.8%.

Exhibit 15

Construction Cost

| Year | Quarter | | | |
|---|---|---|---|---|
| | 1 | 2 | 3 | 4 |
| 1 | 0 | 541,495 | 277,514 | 284,456 |
| 2 | 0 | 448,282 | 0 | 313,982 |
| 3 | 321,836 | 164,941 | 507,187 | 173,288 |
| 4 | 532,870 | 546,189 | 186,614 | 0 |
| 5 | 588,188 | 1,004,814 | 411,977 | 0 |

Note: The above costs don't include the additional cost of building on unsuitable soil. So, the actual costs of construction may be higher thus lowering the projected profit. (Part of the additional cost may be recovered thru the sale of lumber on the site.)

## TIF FUNDING

The availability of $1,000,000 in TIF money will allow for drastic alterations in the development of the site. The bulk of this money will be used for land acquisition. The developer will only contribute $6,000 towards land cost. So, the TIF money will be utilized as follows:

| | | |
|---|---|---|
| Total TIF funding | | $1,000,000 |
| Land cost | $795,600 | |
| Less developer's contribution | $ 6,000 | |
| TIF contribution | $789,600 | - $ 789,600 |
| Available TIF for other uses | | $ 210,400 |

The $210,400 in TIF money will be used to cover the site improvement costs as will be explained later.

Under TIF funding, there is almost no land cost, so the developer is not hard pressed to build a very high density project. Although profitability remains a major concern, achieving economies of scale becomes less critical. The TIF money will make the achievement of the following possible:

1. Reducing the overall density of the development project
2. Preserving the majority of trees
3. Avoiding construction on the undesirable areas
4. Improving the quality of construction of the units
5. Minimizing the negative externalities of the site e.g., northern winds and noise pollution.
6. Improving the solar orientation of the design.

As for selecting the right design, the following factors are to be considered.

1. While the number of units to be built is somewhat arbitrary, the general guidelines of the Master Plan and the physical limitations of the site will prevent us from building either a very low or a very high density project..

2. The modules must have a relatively high net density, such that minimum clearing of trees would be needed.

3. Site development costs/DU must be kept low, to allow for a good quality of construction of the units.

Taking the above 3 criteria into account and following a somewhat subjective thought process, we chose a quadplex design with public

cul-de-sac, and a net density of 8.25 DU/AC. Each module contains 24 units on 2.91 acres. Thus, by building 3 modules we will have 72 units on about 9 acres. This leaves about 11 acres (over 55%) of the site as open space.

To test the solvency and profitability of the design solution, we use the data in Exhibit 17 and run the cash flow program (actual run in Appendix F). The result is that by allowing $37,168 for construction cost/unit, we will have a return on equity of 1.44, which is acceptable. The site improvement costs were calculated as follows.

Site development cost/unit ($3138) x (1.51) = $4738.38 SI/unit
Site improvement costs/module = $4738.38 x 24 (units/module)
= $113,721
Plus pump station $ 45,000
SI cost of 1st module $158,721

| | |
|---|---|
| Leftover TIF funds after land purchase | $210,400 |
| Less TIF use for 1st module SI costs | 158,721 |
| TIF available for 2nd module SI costs | $ 51,679 |

| | |
|---|---|
| SI cost of 2nd module (4738.38 x 24 x 1.1685) = | $132,883 |
| Less TIF funds | 51,679 |
| SI cost 2nd module in CF model | $ 81,204 |

SI cost of 3rd module (4738.38 x 24 x 1.3354) = $151,863

Exhibit 16

Cost Increase Factors

| Year | Quarter | Cost Increase Factor |
|---|---|---|
| 1 | 1 | 1 |
| | 2 | 1.0225 |
| | 3 | 1.0455 |
| | 4 | 1.0690 |
| 2 | 1 | 1.0931 |
| | 2 | 1.1177 |
| | 3 | 1.1428 |
| | 4 | 1.1685 |
| 3 | 1 | 1.1948 |
| | 2 | 1.2217 |
| | 3 | 1.2492 |
| | 4 | 1.2773 |
| 4 | 1 | 1.3061 |
| | 2 | 1.3354 |
| | 3 | 1.3655 |
| | 4 | 1.3962 |
| 5 | 1 | 1.4276 |
| | 2 | 1.4597 |
| | 3 | 1.4926 |
| | 4 | 1.5262 |

Exhibit 17

Data For CF Model with TIF

| Year | Quarter | SI Cost | Construction Cost | Units Built | Sold Units | Sales Amount |
|---|---|---|---|---|---|---|
| 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| | 2 | 0 | 327,200 | 8 | 0 | 0 |
| | 3 | 0 | 334,560 | 8 | 8 | 410,421 |
| | 4 | 0 | 171,040 | 4 | 4 | 209,823 |
| 2 | 1 | 0 | 0 | 0 | 2 | 107,277 |
| | 2 | 0 | 0 | 0 | 2 | 109,691 |
| | 3 | 0 | 182,848 | 4 | 4 | 224,309 |
| | 4 | 81,204 | 186,960 | 4 | 4 | 229,353 |
| 3 | 1 | 0 | 0 | 0 | 2 | 117,258 |
| | 2 | 0 | 195,472 | 4 | 4 | 239,295 |
| | 3 | 0 | 199,872 | 4 | 5 | 306,491 |
| | 4 | 0 | 408,738 | 8 | 5 | 313,386 |
| 4 | 1 | 0 | 0 | 0 | 2 | 128,181 |
| | 2 | 151,863 | 213,664 | 4 | 2 | 131,056 |
| | 3 | 0 | 218,480 | 4 | 4 | 268,020 |
| | 4 | 0 | 446,784 | 8 | 4 | 274,046 |
| 5 | 1 | 0 | 0 | 0 | 4 | 280,209 |
| | 2 | 0 | 467,104 | 8 | 6 | 429,765 |
| | 3 | 0 | 238,816 | 4 | 4 | 292,968 |
| | 4 | 0 | 0 | 0 | 6 | 449,344 |

Note: Sales % per year, .15, .15, .20, .20, .30.

Given the construction budget fund of $47,168, we can build units of average quality construction, with garage, but no basement. Cost data are from Appendix E.

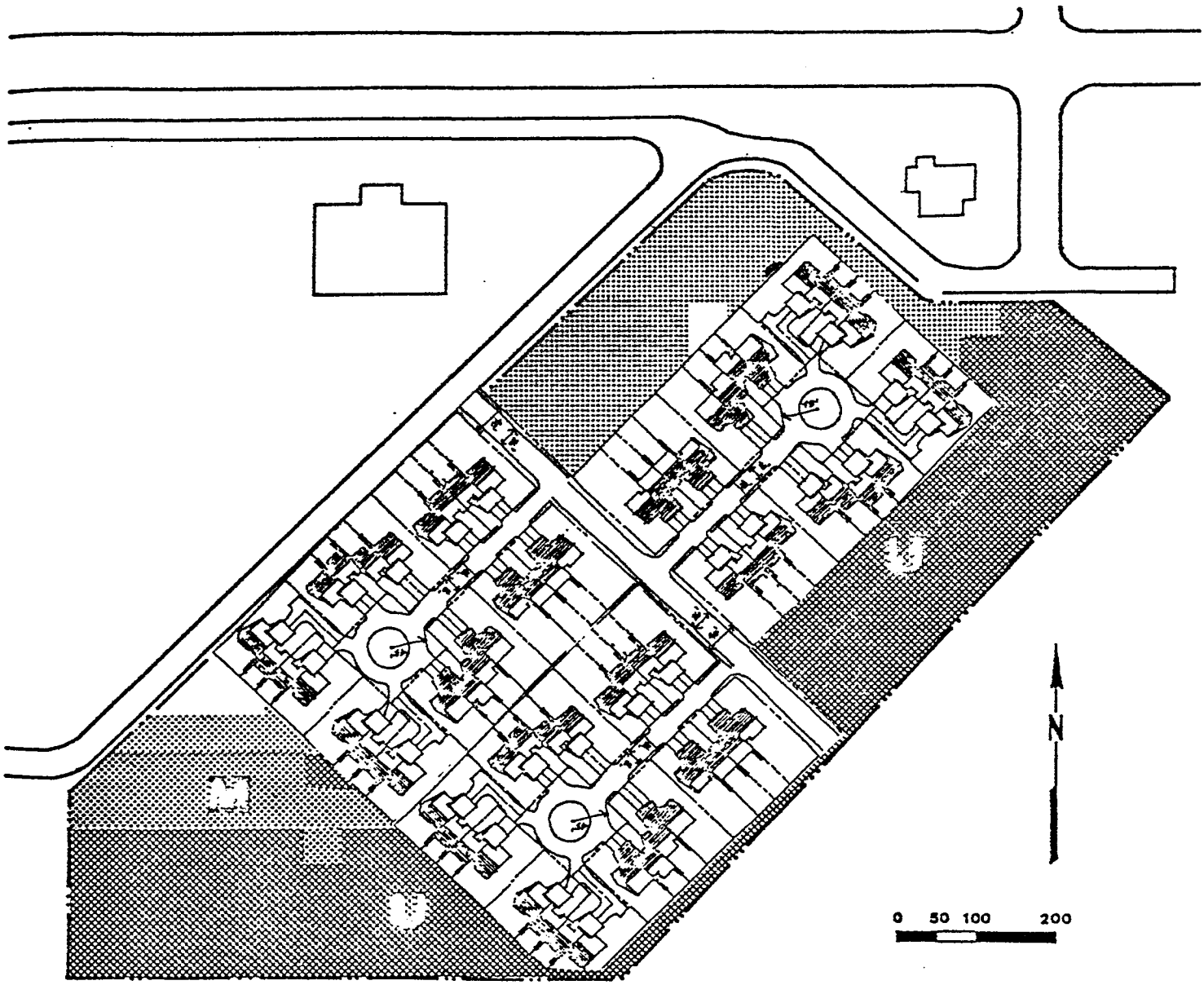
| | |
|---|---|
| Construction budget/unit | $37,168 |
| Garage cost/units (average quality) | $ 2,197 |
| Equals - per unit cost - garage | $34,971 |
| Cost/SF of average quality construction | + 30.71 |
| SF of living area possible | 1,139 SF |

Final Proposal with TIF Funding

The final decision is to build 72 units of average quality construction, living area of 1,139 square feet, with garage and without basement. Exhibit 18 shows the fit of the 3 modules on the site.

EXHIBIT 18

FINAL DESIGN WITH TIF AVAILABILITY




O - Optimum
S - Satisfactory
M - Marginal
U - Unsatisfactory

Page 31 not found



APPENDIX A

SCORING OF INDIVIDUAL CELLS

| Cell Number | Soil Type | Build. Suit. | Road Suit. | Slope | Arch. Site | Trees | View | P. & O. | Euc. Dist. | N. Euc. Dist. |
|---|---|---|---|---|---|---|---|---|---|---|
| Weight | 10% | 15% | 15% | 10% | 10% | 15% | 15% | 10% | | |
| 1 | 0 | 1 | 3 | 6 | 9 | 8 | 8 | 9 | 1.8 | 2.6 |
| 2 | 0 | 1 | 3 | 6 | 9 | 8 | 8 | 9 | 1.8 | 2.6 |
| 3 | 0 | 1 | 3 | 6 | 9 | 8 | 8 | 9 | 1.8 | 2.6 |
| 4 | 0 | 1 | 3 | 6 | 9 | 8 | 8 | 9 | 1.8 | 2.6 |
| 5 | 0 | 1 | 3 | 6 | 9 | 8 | 8 | 9 | 1.8 | 2.6 |
| 6 | 0 | 1 | 3 | 6 | 9 | 8 | 8 | 9 | 1.8 | 2.6 |
| 7 | 0 | 1 | 3 | 6 | 9 | 8 | 8 | 9 | 1.8 | 2.6 |
| 8 | 0 | 1 | 3 | 6 | 9 | 8 | 8 | 9 | 1.8 | 2.6 |
| 9 | 0 | 1 | 3 | 6 | 9 | 8 | 8 | 9 | 1.8 | 2.6 |
| 10 | 0 | 1 | 3 | 6 | 9 | 8 | 8 | 7 | 1.8 | 2.6 |
| 11 | 0 | 1 | 3 | 6 | 9 | 8 | 8 | 7 | 1.8 | 2.6 |
| 12 | 0 | 1 | 3 | 6 | 9 | 8 | 8 | 7 | 1.8 | 2.6 |
| 13 | 0 | 1 | 3 | 6 | 9 | 8 | 8 | 7 | 1.8 | 2.6 |
| 14 | 0 | 1 | 3 | 6 | 9 | 8 | 8 | 7 | 1.8 | 2.6 |
| 15 | 0 | 1 | 3 | 6 | 9 | 8 | 8 | 7 | 1.8 | 2.6 |
| 16 | 0 | 1 | 3 | 6 | 9 | 8 | 8 | 7 | 1.8 | 2.6 |
| 17 | 0 | 1 | 3 | 6 | 9 | 8 | 8 | 7 | 1.8 | 2.6 |
| 18 | 0 | 1 | 3 | 6 | 9 | 8 | 8 | 7 | 1.8 | 2.6 |
| 19 | 0 | 1 | 3 | 6 | 9 | 8 | 8 | 7 | 1.8 | 2.6 |
| 20 | 0 | 1 | 3 | 6 | 9 | 8 | 8 | 7 | 1.8 | 2.6 |
| 21 | 0 | 1 | 3 | 6 | 9 | 8 | 8 | 7 | 1.8 | 2.6 |
| 22 | 3 | 1 | 1 | 6 | 9 | 8 | 8 | 7 | 1.8 | 2.7 |
| 23 | 3 | 1 | 1 | 6 | 9 | 8 | 8 | 7 | 1.8 | 2.7 |
| 24 | 3 | 1 | 1 | 6 | 9 | 8 | 8 | 9 | 1.8 | 2.7 |
| 25 | 3 | 1 | 1 | 6 | 9 | 8 | 8 | 9 | 1.8 | 2.7 |
| 26 | 5 | 1 | 1 | 6 | 9 | 8 | 8 | 9 | 1.8 | 2.6 |
| 27 | 5 | 1 | 1 | 6 | 9 | 8 | 8 | 9 | 1.8 | 2.6 |
| 28 | 5 | 1 | 1 | 6 | 9 | 8 | 8 | 9 | 1.8 | 2.6 |

Column Headings:

- Cell Number
- Soil Type
- Build. Suit. = Suitability of the soils for buildings.
- Road Suit. = Suitability of the soils for roads.
- Slope
- Arch. Site = Archeological site.
- Trees
- View
- P. & O. = Protection from winter wind and solar orientation.
- Euc. Dist. = Euclidean distance of cell scores from ideal.
- N. Euc. Dist = Normalized Euclidean distance.

Pages 33-40 not found



APPENDIX B

MARSHALL & SWIFT COST PROGRAM

---

```
USER NAME:WI125
PASSWORD :
WI125 LOGGED IN AT 22:06 TUE, JAN 25 1983
 JOBNAME ABH0877
PROGRAM NAME OR LOG:>RE2

MARSHALL & SWIFT RESIDENTIAL COST PROGRAM 01/83

C>INPUT
 1:>4,000 SQUARE FOOT QUADPLEX
 2:>MONONA WOODS PROJECT
 3:>MONONA, WI
 4:>ABAJELO & HILLIARD
 5:>1/83
 6:>53713
 7:>0
 8:>4
 9:>3
10:>2
11:>4
12:>4000
13:>2
14:>1
15:>1
16:>24
17:>0
18:>3 1056 44
19:>2000 0
20:>240
21:>0
```

APPENDIX B--Continued

MARSHALL & SWIFT COST PROGRAM

C>REPORT

SURVEY FOR: 4,000 SQUARE FOOT QUADPLEX
PROPERTY OWNER: MONONA WOODS PROJECT
ADDRESS: MONONA, WI
SURVEYED BY: ABAJELO & HILLIARD
TYPE: TOWN HOUSE-DUPLEX
QUALITY: 2.0 FAIR
EFFECTIVE AGE: 0 YEARS
STYLE: END ROW TWO STORY
FLOOR AREA: 4,000 SQUARE FEET
EXTERIOR WALLS: SIDING
CONDITION: GOOD
DATE OF SURVEY: 1/83
COST AS OF: 01/83

| BASIC STRUCTURE COST | UNITS | COST OR ADJUSTMENT | |
|---|---|---|---|
| BASIC SQUARE FOOT COST..... | 4,000 | $19.24 | $76,960 |
| INCLUDING 24 PLUMBING FIXTURES | | | |
| SQUARE FOOT ADJUSTMENTS: | | | |
| ASPHALT SHINGLE ROOFING..... | 4,000 | 0.37 | 1,480 |
| FORCED AIR HEATING..... | 4,000 | 1.44 | 5,773 |
| FLOOR COVER..... | 4,000 | 1.39 | 5,552 |
| WOOD SUBFLOOR..... | 4,000 | 3.18 | 12,720 |
| LUMP SUM ADJUSTMENTS: | | | |
| APPLIANCE ALLOWANCE..... | 4,000 | 0.69 | 2,760 |
| SUBTOTAL BASIC STRUCTURE COST..... | 4,000 | 26.31 | 105,245 |
| PORCH OPEN SLAB..... | 240 | 1.80 | 432 |
| SUBTOTAL RESIDENTIAL COST..... | 4,000 | 26.42 | 105,677 |
| BASEMENT: | | | |
| UNFINISHED AREA..... | 2,000 | 6.16 | 12,320 |
| SUBTOTAL BASEMENT COST..... | 2,000 | 6.16 | 12,320 |
| GARAGE: | | | |
| ATTACHED GARAGE..... | 1,056 | 9.09 | 9,599 |
| DEDUCT FOR COMMON WALL..... | 44 | -42.48 | -1,868 |
| SUBTOTAL GARAGE..... | 1,056 | 7.32 | 7,731 |
| BUILDING IMPROVEMENTS NEW..... | 4,000 | 31.43 | 125,728 |
| TOTAL DEPRECIATION.....( 0.0%).... | | | 0 |
| TOTAL..... | | | 125,728 |

COST DATA BY MARSHALL AND SWIFT

APPENDIX B--Continued

MARSHALL & SWIFT COST PROGRAM

C>10:3
C>REPORT

SURVEY FOR: 4,000 SQUARE FOOT QUADPLEX
PROPERTY OWNER: MONONA WOODS PROJECT
ADDRESS: MONONA, WI
SURVEYED BY: ABAJELO & HILLIARD
TYPE: TOWN HOUSE-DUPLEX
QUALITY: 3.0 AVERAGE
EFFECTIVE AGE: 0 YEARS
STYLE: END ROW TWO STORY
FLOOR AREA: 4,000 SQUARE FEET
EXTERIOR WALLS: SIDING
CONDITION: GOOD
DATE OF SURVEY: 1/83
COST AS OF: 01/83

| BASIC STRUCTURE COST | UNITS | COST OR ADJUSTMENT | |
|---|---|---|---|
| BASIC SQUARE FOOT COST..... | 4,000 | $22.57 | $90,280 |
| INCLUDING 24 PLUMBING FIXTURES | | | |
| SQUARE FOOT ADJUSTMENTS: | | | |
| ASPHALT SHINGLE ROOFING..... | 4,000 | 0.39 | 1,560 |
| FORCED AIR HEATING..... | 4,000 | 1.60 | 6,381 |
| FLOOR COVER..... | 4,000 | 1.75 | 7,016 |
| WOOD SUBFLOOR..... | 4,000 | 3.47 | 13,880 |
| LUMP SUM ADJUSTMENTS: | | | |
| APPLIANCE ALLOWANCE..... | 4,000 | 0.81 | 3,254 |
| SUBTOTAL BASIC STRUCTURE COST..... | 4,000 | 30.59 | 122,371 |
| PORCH OPEN SLAB..... | 240 | 1.94 | 466 |
| SUBTOTAL RESIDENTIAL COST..... | 4,000 | 30.71 | 122,837 |
| BASEMENT: | | | |
| UNFINISHED AREA..... | 2,000 | 6.81 | 13,620 |
| SUBTOTAL BASEMENT COST..... | 2,000 | 6.81 | 13,620 |
| GARAGE: | | | |
| ATTACHED GARAGE..... | 1,056 | 10.34 | 10,919 |
| DEDUCT FOR COMMON WALL..... | 44 | -48.46 | -2,131 |
| SUBTOTAL GARAGE..... | 1,056 | 8.32 | 8,788 |
| BUILDING IMPROVEMENTS NEW..... | 4,000 | 36.31 | 145,245 |
| TOTAL DEPRECIATION.....( 0.0%).... | | | 0 |
| TOTAL..... | | | 145,245 |

COST DATA BY MARSHALL AND SWIFT

APPENDIX B—Continued

MARSHALL & SWIFT COST PROGRAM

C>10:4
C>REPORT

SURVEY FOR: 4,000 SQUARE FOOT QUADPLEX
PROPERTY OWNER: MONONA WOODS PROJECT
ADDRESS: MONONA, WI
SURVEYED BY: ABAJELO & HILLIARD
TYPE: TOWN HOUSE-DUPLEX — FLOOR AREA: 4,000 SQUARE FEET
QUALITY: 4.0 GOOD — EXTERIOR WALLS: SIDING
EFFECTIVE AGE: 0 YEARS — CONDITION: GOOD
STYLE: END ROW TWO STORY — DATE OF SURVEY: 1/83
COST AS OF: 01/83

| BASIC STRUCTURE COST | UNITS | COST OR ADJUSTMENT | |
|---|---|---|---|
| BASIC SQUARE FOOT COST..... | 4,000 | $28.55 | $114,200 |
| INCLUDING 24 PLUMBING FIXTURES | | | |
| SQUARE FOOT ADJUSTMENTS: | | | |
| ASPHALT SHINGLE ROOFING..... | 4,000 | 0.42 | 1,680 |
| FORCED AIR HEATING..... | 4,000 | 1.76 | 7,039 |
| FLOOR COVER..... | 4,000 | 2.21 | 8,832 |
| WOOD SUBFLOOR..... | 4,000 | 3.78 | 15,120 |
| LUMP SUM ADJUSTMENTS: | | | |
| APPLIANCE ALLOWANCE..... | 4,000 | 1.11 | 4,448 |
| SUBTOTAL BASIC STRUCTURE COST..... | 4,000 | 37.83 | 151,319 |
| PORCH OPEN SLAB..... | 240 | 2.10 | 504 |
| SUBTOTAL RESIDENTIAL COST..... | 4,000 | 37.96 | 151,823 |
| BASEMENT: | | | |
| UNFINISHED AREA..... | 2,000 | 7.53 | 15,060 |
| SUBTOTAL BASEMENT COST..... | 2,000 | 7.53 | 15,060 |
| GARAGE: | | | |
| ATTACHED GARAGE..... | 1,056 | 11.77 | 12,429 |
| DEDUCT FOR COMMON WALL..... | 44 | -55.27 | -2,431 |
| SUBTOTAL GARAGE..... | 1,056 | 9.47 | 9,998 |
| BUILDING IMPROVEMENTS NEW..... | 4,000 | 44.22 | 176,881 |
| TOTAL DEPRECIATION.....( 0.0%).... | | | 0 |
| TOTAL..... | | | 176,881 |

COST DATA BY MARSHALL AND SWIFT

APPENDIX B--Continued

MARSHALL & SWIFT COST PROGRAM

C>10:5
C>REPORT

SURVEY FOR: 4,000 SQUARE FOOT QUADPLEX
PROPERTY OWNER: MONONA WOODS PROJECT
ADDRESS: MONONA, WI
SURVEYED BY: ABAJELO & HILLIARD
TYPE: TOWN HOUSE-DUPLEX
QUALITY: 5.0 VERY GOOD
EFFECTIVE AGE: 0 YEARS
STYLE: END ROW TWO STORY
FLOOR AREA: 4,000 SQUARE FEET
EXTERIOR WALLS: SIDING
CONDITION: GOOD
DATE OF SURVEY: 1/83
COST AS OF: 01/83

| BASIC STRUCTURE COST | UNITS | COST OR ADJUSTMENT | |
|---|---|---|---|
| BASIC SQUARE FOOT COST..... | 4,000 | $32.51 | $130,040 |
| INCLUDING 24 PLUMBING FIXTURES | | | |
| SQUARE FOOT ADJUSTMENTS: | | | |
| ASPHALT SHINGLE ROOFING..... | 4,000 | 0.44 | 1,760 |
| FORCED AIR HEATING..... | 4,000 | 1.95 | 7,799 |
| FLOOR COVER..... | 4,000 | 2.80 | 11,192 |
| WOOD SUBFLOOR..... | 4,000 | 4.12 | 16,480 |
| LUMP SUM ADJUSTMENTS: | | | |
| APPLIANCE ALLOWANCE..... | 4,000 | 1.31 | 5,231 |
| SUBTOTAL BASIC STRUCTURE COST..... | 4,000 | 43.13 | 172,502 |
| PORCH OPEN SLAB..... | 240 | 2.26 | 542 |
| SUBTOTAL RESIDENTIAL COST..... | 4,000 | 43.26 | 173,044 |
| BASEMENT: | | | |
| UNFINISHED AREA..... | 2,000 | 8.32 | 16,640 |
| SUBTOTAL BASEMENT COST..... | 2,000 | 8.32 | 16,640 |
| GARAGE: | | | |
| ATTACHED GARAGE..... | 1,056 | 13.40 | 14,150 |
| DEDUCT FOR COMMON WALL..... | 44 | -63.05 | -2,773 |
| SUBTOTAL GARAGE..... | 1,056 | 10.77 | 11,377 |
| BUILDING IMPROVEMENTS NEW..... | 4,000 | 50.27 | 201,061 |
| TOTAL DEPRECIATION.....( 0.0%).... | | | 0 |
| TOTAL..... | | | 201,061 |

COST DATA BY MARSHALL AND SWIFT

APPENDIX B--Continued

MARSHALL & SWIFT COST PROGRAM

```
C>1:2,000 SQUARE FOOT DUPLEX
C>10:2
C>12:2000
C>13:1
C>16:12
C>18:3 528 22
C>20:120
C>REPORT
```

SURVEY FOR: 2,000 SQUARE FOOT DUPLEX
PROPERTY OWNER: MONONA WOODS PROJECT
ADDRESS: MONONA, WI
SURVEYED BY: ABAJELO & HILLIARD
TYPE: TOWN HOUSE-DUPLEX
QUALITY: 2.0 FAIR
EFFECTIVE AGE: 0 YEARS
STYLE: END ROW ONE STORY
FLOOR AREA: 2,000 SQUARE FEET
EXTERIOR WALLS: SIDING
CONDITION: GOOD
DATE OF SURVEY: 1/83
COST AS OF: 01/83

| BASIC STRUCTURE COST | UNITS | COST OR ADJUSTMENT | |
|---|---|---|---|
| BASIC SQUARE FOOT COST..... | 2,000 | $20.20 | $40,400 |
| INCLUDING 12 PLUMBING FIXTURES | | | |
| SQUARE FOOT ADJUSTMENTS: | | | |
| ASPHALT SHINGLE ROOFING..... | 2,000 | 0.78 | 1,560 |
| FORCED AIR HEATING..... | 2,000 | 1.44 | 2,886 |
| FLOOR COVER..... | 2,000 | 1.39 | 2,776 |
| WOOD SUBFLOOR..... | 2,000 | 3.18 | 6,360 |
| LUMP SUM ADJUSTMENTS: | | | |
| APPLIANCE ALLOWANCE..... | 2,000 | 0.69 | 1,380 |
| SUBTOTAL BASIC STRUCTURE COST..... | 2,000 | 27.68 | 55,362 |
| PORCH OPEN SLAB..... | 120 | 2.02 | 242 |
| SUBTOTAL RESIDENTIAL COST..... | 2,000 | 27.80 | 55,604 |
| BASEMENT: | | | |
| UNFINISHED AREA..... | 2,000 | 6.16 | 12,320 |
| SUBTOTAL BASEMENT COST..... | 2,000 | 6.16 | 12,320 |
| GARAGE: | | | |
| ATTACHED GARAGE..... | 528 | 10.16 | 5,365 |
| DEDUCT FOR COMMON WALL..... | 22 | -42.48 | -934 |
| SUBTOTAL GARAGE..... | 528 | 8.39 | 4,431 |
| BUILDING IMPROVEMENTS NEW..... | 2,000 | 36.18 | 72,355 |
| TOTAL DEPRECIATION.....( 0.0%).... | | | 0 |
| TOTAL..... | | | 72,355 |

COST DATA BY MARSHALL AND SWIFT

APPENDIX B--Continued

MARSHALL & SWIFT COST PROGRAM

C>10:3
C>REPORT

SURVEY FOR: 2,000 SQUARE FOOT DUPLEX
PROPERTY OWNER: MONONA WOODS PROJECT
ADDRESS: MONONA, WI
SURVEYED BY: ABAJELO & HILLIARD
TYPE: TOWN HOUSE-DUPLEX
QUALITY: 3.0 AVERAGE
EFFECTIVE AGE: 0 YEARS
STYLE: END ROW ONE STORY
FLOOR AREA: 2,000 SQUARE FEET
EXTERIOR WALLS: SIDING
CONDITION: GOOD
DATE OF SURVEY: 1/83
COST AS OF: 01/83

| BASIC STRUCTURE COST | UNITS | COST OR ADJUSTMENT | |
|---|---|---|---|
| BASIC SQUARE FOOT COST..... | 2,000 | $24.22 | $48,440 |
| INCLUDING 12 PLUMBING FIXTURES | | | |
| SQUARE FOOT ADJUSTMENTS: | | | |
| ASPHALT SHINGLE ROOFING..... | 2,000 | 0.83 | 1,660 |
| FORCED AIR HEATING..... | 2,000 | 1.60 | 3,190 |
| FLOOR COVER..... | 2,000 | 1.75 | 3,508 |
| WOOD SUBFLOOR..... | 2,000 | 3.47 | 6,940 |
| LUMP SUM ADJUSTMENTS: | | | |
| APPLIANCE ALLOWANCE..... | 2,000 | 0.81 | 1,627 |
| SUBTOTAL BASIC STRUCTURE COST..... | 2,000 | 32.68 | 65,365 |
| PORCH OPEN SLAB..... | 120 | 2.18 | 262 |
| SUBTOTAL RESIDENTIAL COST..... | 2,000 | 32.81 | 65,627 |
| BASEMENT: | | | |
| UNFINISHED AREA..... | 2,000 | 6.81 | 13,620 |
| SUBTOTAL BASEMENT COST..... | 2,000 | 6.81 | 13,620 |
| GARAGE: | | | |
| ATTACHED GARAGE..... | 528 | 11.57 | 6,109 |
| DEDUCT FOR COMMON WALL..... | 22 | -48.46 | -1,065 |
| SUBTOTAL GARAGE..... | 528 | 9.55 | 5,044 |
| BUILDING IMPROVEMENTS NEW..... | 2,000 | 42.15 | 84,291 |
| TOTAL DEPRECIATION.....( 0.0%).... | | | 0 |
| TOTAL..... | | | 84,291 |

COST DATA BY MARSHALL AND SWIFT

APPENDIX B--Continued

MARSHALL & SWIFT COST PROGRAM

C>10:4
C>REPORT

SURVEY FOR: 2,000 SQUARE FOOT DUPLEX
PROPERTY OWNER: MONONA WOODS PROJECT
ADDRESS: MONONA, WI
SURVEYED BY: ABAJELO & HILLIARD
TYPE: TOWN HOUSE-DUPLEX — FLOOR AREA: 2,000 SQUARE FEET
QUALITY: 4.0 GOOD — EXTERIOR WALLS: SIDING
EFFECTIVE AGE: 0 YEARS — CONDITION: GOOD
STYLE: END ROW ONE STORY — DATE OF SURVEY: 1/83
COST AS OF: 01/83

| BASIC STRUCTURE COST | UNITS | COST OR ADJUSTMENT | |
|---|---|---|---|
| BASIC SQUARE FOOT COST..... | 2,000 | $31.14 | $62,280 |
| INCLUDING 12 PLUMBING FIXTURES | | | |
| SQUARE FOOT ADJUSTMENTS: | | | |
| ASPHALT SHINGLE ROOFING..... | 2,000 | 0.88 | 1,760 |
| FORCED AIR HEATING..... | 2,000 | 1.76 | 3,519 |
| FLOOR COVER..... | 2,000 | 2.21 | 4,416 |
| WOOD SUBFLOOR..... | 2,000 | 3.78 | 7,560 |
| LUMP SUM ADJUSTMENTS: | | | |
| APPLIANCE ALLOWANCE..... | 2,000 | 1.11 | 2,224 |
| SUBTOTAL BASIC STRUCTURE COST..... | 2,000 | 40.88 | 81,759 |
| PORCH OPEN SLAB..... | 120 | 2.36 | 283 |
| SUBTOTAL RESIDENTIAL COST..... | 2,000 | 41.02 | 82,042 |
| BASEMENT: | | | |
| UNFINISHED AREA..... | 2,000 | 7.53 | 15,060 |
| SUBTOTAL BASEMENT COST..... | 2,000 | 7.53 | 15,060 |
| GARAGE: | | | |
| ATTACHED GARAGE..... | 528 | 13.18 | 6,959 |
| DEDUCT FOR COMMON WALL..... | 22 | -55.27 | -1,215 |
| SUBTOTAL GARAGE..... | 528 | 10.88 | 5,744 |
| BUILDING IMPROVEMENTS NEW..... | 2,000 | 51.42 | 102,846 |
| TOTAL DEPRECIATION.....( 0.0%).... | | | 0 |
| TOTAL..... | | | 102,846 |

COST DATA BY MARSHALL AND SWIFT

APPENDIX B--Continued

MARSHALL & SWIFT COST PROGRAM

C>10:5
C>REPORT

SURVEY FOR: 2,000 SQUARE FOOT DUPLEX
PROPERTY OWNER: MONONA WOODS PROJECT
ADDRESS: MONONA, WI
SURVEYED BY: ABAJELO & HILLIARD
TYPE: TOWN HOUSE-DUPLEX — FLOOR AREA: 2,000 SQUARE FEET
QUALITY: 5.0 VERY GOOD — EXTERIOR WALLS: SIDING
EFFECTIVE AGE: 0 YEARS — CONDITION: GOOD
STYLE: END ROW ONE STORY — DATE OF SURVEY: 1/83
COST AS OF: 01/83

| BASIC STRUCTURE COST | UNITS | COST OR ADJUSTMENT | |
|---|---|---|---|
| BASIC SQUARE FOOT COST..... | 2,000 | $35.49 | $70,980 |
| INCLUDING 12 PLUMBING FIXTURES | | | |
| SQUARE FOOT ADJUSTMENTS: | | | |
| ASPHALT SHINGLE ROOFING..... | 2,000 | 0.93 | 1,860 |
| FORCED AIR HEATING..... | 2,000 | 1.95 | 3,899 |
| FLOOR COVER..... | 2,000 | 2.80 | 5,596 |
| WOOD SUBFLOOR..... | 2,000 | 4.12 | 8,240 |
| LUMP SUM ADJUSTMENTS: | | | |
| APPLIANCE ALLOWANCE..... | 2,000 | 1.31 | 2,616 |
| SUBTOTAL BASIC STRUCTURE COST..... | 2,000 | 46.60 | 93,190 |
| PORCH OPEN SLAB..... | 120 | 2.54 | 305 |
| SUBTOTAL RESIDENTIAL COST..... | 2,000 | 46.75 | 93,495 |
| BASEMENT: | | | |
| UNFINISHED AREA..... | 2,000 | 8.32 | 16,640 |
| SUBTOTAL BASEMENT COST..... | 2,000 | 8.32 | 16,640 |
| GARAGE: | | | |
| ATTACHED GARAGE..... | 528 | 15.02 | 7,931 |
| DEDUCT FOR COMMON WALL..... | 22 | -63.05 | -1,386 |
| SUBTOTAL GARAGE..... | 528 | 12.40 | 6,545 |
| BUILDING IMPROVEMENTS NEW..... | 2,000 | 58.34 | 116,680 |
| TOTAL DEPRECIATION.....( 0.0%).... | | | 0 |
| TOTAL..... | | | 116,680 |

COST DATA BY MARSHALL AND SWIFT
C>LOG
WI125 LOGGED OFF AT 22:26 TUE, JAN 25 1983
CONNECT HOURS= 0.333
8 RES Reports
$12.98 Estimated session charge for job ABH0877
Please hangup.

# APPENDIX C

## INITIAL SCENARIO -- FIRST CASH FLOW RUN

```
RUN CFM554.BAS

CFM554     VERSION 1.10
LAND DEVELOPMENT CASH FLOW MODEL
BUSINESS 554

1.  ABSORPTION TERM IN YEARS? 5
2.  LAND COST, DOWN PAYMENT, LAND CONTRACT INTEREST RATE
? 795600,79560,.115
3.  DEVELOPMENT LOAN INTEREST RATE? .22
4.  INITIAL SITE IMPROVEMENTS? 25400
5.  TOTAL UNITS IN PROJECT? 148
6.  REAL ESTATE TAX RATE? .01837
7.  ENTER SITE IMPROVEMENTS PER QUARTER ($)
    1ST Q, 2AND Q, 3RD Q, 4TH Q
YEAR   1 ? 0,0,0,0
YEAR   2 ? 0,259219,0,0
YEAR   3 ? 0,0,293283,0
YEAR   4 ? 0,0,0,0
YEAR   5 ? 0,348621,0,0
8.  ENTER CONSTRUCTION COST PER QUARTER ($)
    1ST Q, 2AND Q, 3RD Q, 4TH Q
YEAR   1 ? 0,511680,262234,268794
YEAR   2 ? 0,423600,0,296698
YEAR   3 ? 304115,155859,479261,163747
YEAR   4 ? 503530,516115,176339,0
YEAR   5 ? 555802,949488,389293,0
9.  ENTER UNITS BUILT PER QUARTER
    1ST Q, 2AND Q, 3RD Q, 4TH Q
YEAR    1 ? 0,16,8,8
YEAR    2 ? 0,12,0,8
YEAR    3 ? 8,4,12,4
YEAR    4 ? 12,12,4,0
YEAR    5 ? 12,20,8,0
10. ENTER SALES PER QUARTER ($)
    1ST Q, 2AND Q, 3RD Q, 4TH Q
YEAR    1 ? 0,0,721756,422744
YEAR    2 ? 216656,333108,569060,116658
YEAR    3 ? 298935,612820,314070,643840
YEAR    4 ? 329970,676440,693350,355340
YEAR    5 ? 145690,746660,1913300,549122
11. ENTER UNITS SOLD PER QUARTER
    1ST Q, 2AND Q, 3RD Q, 4TH Q
YEAR    1 ? 0,0,14,8
YEAR    2 ? 4,6,10,2
YEAR    3 ? 5,10,5,10
YEAR    4 ? 5,10,10,5
YEAR    5 ? 2,10,25,7
ENTER 0 TO SKIP OUTPUT DETAIL
ENTER 1 TO PRINT OUTPUT DETAIL
? 1

CHANGE DATA (Y OR N)? N
```

APPENDIX C--Continued

DATA SUMMARY

| | |
|---|---|
| ABSORPTION TERM: | 5 YEARS |
| LAND COST: | $795600 |
| DOWN PAYMENT ON LAND: | $79560 |
| LAND CONTRACT INTEREST RATE: | 0.1150 |
| DEVELOPMENT LOAN INTEREST RATE: | 0.2200 |
| INITIAL SITE IMPROVEMENTS: | $25400 |
| TOTAL UNITS IN PROJECT: | 148 |
| REAL ESTATE TAX RATE: | 0.0184 |

CASH FLOWS IN YEAR 1

| | 1ST QTR | 2ND QTR | 3RD QTR | 4TH QTR |
|---|---|---|---|---|
| 1. SALES (DOLLARS) | $0 | $0 | $721756 | $422744 |
| 2. SALES (UNIT) | 0 | 0 | 14 | 8 |
| 3. CUM SALES (UNIT) | 0 | 0 | 14 | 22 |
| 4. SITE IMPS. | $0 | $0 | $0 | $0 |
| 5. CONST. COSTS | $0 | $511680 | $262234 | $268794 |
| 6. UNITS BUILT | 0 | 16 | 8 | 8 |
| 7. CUM UNITS BUILT | 0 | 16 | 24 | 32 |
| 8. LAND - INT. | $20586 | $20586 | $20586 | $18639 |
| 9. LAND - PRIN. | $0 | $0 | $67734 | $38705 |
| 10. LAND - BAL. DUE | $716040 | $716040 | $648307 | $609602 |
| 11. DEV. LOAN - INT. | $1598 | $31297 | $48844 | $31737 |
| 12. DEV. LOAN - BAL. | $51238 | $620921 | $303482 | $243366 |
| 13. RE TAX | $3654 | $6120 | $4919 | $4753 |
| 14. RES FOR NXT PART | $0 | $0 | $0 | $0 |
| 15. CASH THROW OFF | $0 | $0 | $0 | $0 |
| 16. CURRENT VALUE | $821000 | $1332680 | $1071130 | $1034950 |
| 17. D LOAN:VAL RATIO | 0.062409 | 0.465919 | 0.283329 | 0.235147 |
| 18. % SOLD IN QTR | 0.000000 | 0.000000 | 0.094595 | 0.054054 |
| 19. % SOLD - TOTAL | 0.000000 | 0.000000 | 0.094595 | 0.148649 |

APPENDIX C--Continued

CASH FLOWS IN YEAR 2

| | 1ST QTR | 2ND QTR | 3RD QTR | 4TH QTR |
|---|---|---|---|---|
| 1. SALES (DOLLARS) | $216656 | $333108 | $569060 | $116658 |
| 2. SALES (UNIT) | 4 | 6 | 10 | 2 |
| 3. CUM SALES (UNIT) | 26 | 32 | 42 | 44 |
| 4. SITE IMPS. | $0 | $259219 | $0 | $0 |
| 5. CONST. COSTS | $0 | $423600 | $0 | $296698 |
| 6. UNITS BUILT | 0 | 12 | 0 | 8 |
| 7. CUM UNITS BUILT | 32 | 44 | 44 | 52 |
| 8. LAND - INT. | $17526 | $16970 | $16135 | $14744 |
| 9. LAND - PRIN. | $19352 | $29029 | $48381 | $9676 |
| 10. LAND - BAL. DUE | $590249 | $561221 | $512839 | $503163 |
| 11. DEV. LOAN - INT. | $13607 | $42292 | $28994 | $19377 |
| 12. DEV. LOAN - BAL. | $81229 | $524131 | $51606 | $279455 |
| 13. RE TAX | $4034 | $4901 | $3025 | $4012 |
| 14. RES FOR NXT PART | $0 | $0 | $0 | $0 |
| 15. CASH THROW OFF | $0 | $0 | $0 | $0 |
| 16. CURRENT VALUE | $878366 | $1067090 | $658614 | $873617 |
| 17. D LOAN:VAL RATIO | 0.092478 | 0.491180 | 0.078355 | 0.319883 |
| 18. % SOLD IN QTR | 0.027027 | 0.040541 | 0.067568 | 0.013514 |
| 19. % SOLD - TOTAL | 0.175676 | 0.216216 | 0.283784 | 0.297297 |

CASH FLOWS IN YEAR 3

| | 1ST QTR | 2ND QTR | 3RD QTR | 4TH QTR |
|---|---|---|---|---|
| 1. SALES (DOLLARS) | $298935 | $612820 | $314070 | $643840 |
| 2. SALES (UNIT) | 5 | 10 | 5 | 10 |
| 3. CUM SALES (UNIT) | 49 | 59 | 64 | 74 |
| 4. SITE IMPS. | $0 | $0 | $293283 | $0 |
| 5. CONST. COSTS | $304115 | $155859 | $479261 | $163747 |
| 6. UNITS BUILT | 8 | 4 | 12 | 4 |
| 7. CUM UNITS BUILT | 60 | 64 | 76 | 80 |
| 8. LAND - INT. | $14466 | $13771 | $12380 | $11684 |
| 9. LAND - PRIN. | $24191 | $48381 | $24191 | $48381 |
| 10. LAND - BAL. DUE | $478973 | $430592 | $406401 | $358020 |
| 11. DEV. LOAN - INT. | $32341 | $28550 | $42729 | $38988 |
| 12. DEV. LOAN - BAL. | $360075 | $0 | $542114 | $164087 |
| 13. RE TAX | $4443 | $3162 | $4341 | $3013 |
| 14. RES FOR NXT PART | $0 | $3022 | $0 | $0 |
| 15. CASH THROW OFF | $0 | $0 | $0 | $0 |
| 16. CURRENT VALUE | $967341 | $691555 | $945234 | $656120 |
| 17. D LOAN:VAL RATIO | 0.372232 | 0.000000 | 0.573523 | 0.250087 |
| 18. % SOLD IN QTR | 0.033784 | 0.067568 | 0.033784 | 0.067568 |
| 19. % SOLD - TOTAL | 0.331081 | 0.398649 | 0.432432 | 0.500000 |

APPENDIX C--Continued

CASH FLOWS IN YEAR 4

| | 1ST QTR | 2ND QTR | 3RD QTR | 4TH QTR |
|---|---|---|---|---|
| 1. SALES (DOLLARS) | $329970 | $676440 | $693350 | $355340 |
| 2. SALES (UNIT) | 5 | 10 | 10 | 5 |
| 3. CUM SALES (UNIT) | 79 | 89 | 99 | 104 |
| 4. SITE IMPS. | $0 | $0 | $0 | $0 |
| 5. CONST. COSTS | $503530 | $516115 | $176339 | $0 |
| 6. UNITS BUILT | 12 | 12 | 4 | 0 |
| 7. CUM UNITS BUILT | 92 | 104 | 108 | 108 |
| 8. LAND - INT. | $10293 | $9598 | $8207 | $6816 |
| 9. LAND - PRIN. | $24191 | $48381 | $48381 | $24191 |
| 10. LAND - BAL. DUE | $333830 | $285449 | $237067 | $212877 |
| 11. DEV. LOAN - INT. | $36953 | $51366 | $30043 | $106 |
| 12. DEV. LOAN - BAL. | $413347 | $366833 | $0 | $0 |
| 13. RE TAX | $4263 | $4466 | $3070 | $1931 |
| 14. RES FOR NXT PART | $0 | $0 | $60477 | $322297 |
| 15. CASH THROW OFF | $0 | $0 | $0 | $0 |
| 16. CURRENT VALUE | $928254 | $972434 | $729057 | $742717 |
| 17. D LOAN:VAL RATIO | 0.445295 | 0.377232 | 0.000000 | 0.000000 |
| 18. % SOLD IN QTR | 0.033784 | 0.067568 | 0.067568 | 0.033784 |
| 19. % SOLD - TOTAL | 0.533784 | 0.601351 | 0.668919 | 0.702703 |

CASH FLOWS IN YEAR 5

| | 1ST QTR | 2ND QTR | 3RD QTR | 4TH QTR |
|---|---|---|---|---|
| 1. SALES (DOLLARS) | $145690 | $746660 | $1913300 | $549122 |
| 2. SALES (UNIT) | 2 | 10 | 25 | 7 |
| 3. CUM SALES (UNIT) | 106 | 116 | 141 | 148 |
| 4. SITE IMPS. | $0 | $348621 | $0 | $0 |
| 5. CONST. COSTS | $555802 | $949488 | $389293 | $0 |
| 6. UNITS BUILT | 12 | 20 | 8 | 0 |
| 7. CUM UNITS BUILT | 120 | 140 | 148 | 148 |
| 8. LAND - INT. | $6120 | $5842 | $4451 | $974 |
| 9. LAND - PRIN. | $9676 | $48381 | $120953 | $33867 |
| 10. LAND - BAL. DUE | $203201 | $154820 | $33867 | $0 |
| 11. DEV. LOAN - INT. | $30792 | $97070 | $85832 | $0 |
| 12. DEV. LOAN - BAL. | $460748 | $1169540 | $0 | $0 |
| 13. RE TAX | $4048 | $6048 | $1743 | $0 |
| 14. RES FOR NXT PART | $0 | $0 | $141491 | $0 |
| 15. CASH THROW OFF | $0 | $0 | $0 | $514282 |
| 16. CURRENT VALUE | $881422 | $1316900 | $520954 | $0 |
| 17. D LOAN:VAL RATIO | 0.522733 | 0.888100 | 0.000000 | 10.000000 |
| 18. % SOLD IN QTR | 0.013514 | 0.067568 | 0.168919 | 0.047297 |
| 19. % SOLD - TOTAL | 0.716216 | 0.783784 | 0.952703 | 1.000000 |

APPENDIX C--Continued

SUMMARY

| | TOTAL | PER UNIT |
|---|---|---|
| REVENUE | | |
| LAND DOWN PMT: | $79,560 | $538 |
| SALES: | $9,659,520 | $65,267 |
| TOTAL REVENUE: | $9,739,080 | $65,805 |
| EXPENSES | | |
| LAND COST: | $795,600 | $5,376 |
| INTL SITE IMPRV: | $25,400 | $172 |
| SITE IMPROVEMENTS: | $901,123 | $6,089 |
| CONSTRUCTION: | $5,956,550 | $40,247 |
| LAND INTEREST: | $250,372 | $1,692 |
| DEV LN INTEREST: | $692,516 | $4,679 |
| RE TAXES: | $75,945 | $513 |
| TOTAL EXPENSES: | $8,697,510 | $58,767 |
| CASH THROW OFF: | $1,041,570 | $7,038 |
| RETURN ON EQUITY: | 1.6726 | |

```
ENTER 'C' TO CHANGE DATA AND RERUN
ENTER 'Q' TO QUIT
ENTER '1' TO ALTER SITE IMPROVEMENT COSTS
ENTER '2' TO ALTER CONSTRUCTION COSTS
ENTER '3' TO ALTER SALES AMOUNT
? 2
ENTER PERCENT ALTERATION   ? .05
```

DATA SUMMARY

| | |
|---|---|
| ABSORPTION TERM: | 5 YEARS |
| LAND COST: | $795600 |
| DOWN PAYMENT ON LAND: | $79560 |
| LAND CONTRACT INTEREST RATE: | 0.1150 |
| DEVELOPMENT LOAN INTEREST RATE: | 0.2200 |
| INITIAL SITE IMPROVEMENTS: | $25400 |
| TOTAL UNITS IN PROJECT: | 148 |
| REAL ESTATE TAX RATE: | 0.0184 |