

JAMES A. GRAASKAMP COLLECTION OF TEACHING MATERIALS

V. INDUSTRY SEMINARS AND SPEECHES - SHORT TERM

A. Appraisal Organizations

18. Dates and/or Groups Unknown

- e. "Real Estate Feasibility", A Joint
Seminar of AIA and AIREA (Incomplete)

REAL ESTATE FEASIBILITY

A Joint Seminar of AIA and AIREA

Instructor: Professor James A. Graaskamp
University of Wisconsin School of Business

FIRST MORNING — *Incomplete*
9:00 A.M.-10:15 A.M.

I. Basic Concepts and Definitions

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

II. What Does Feasibility Mean?

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

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

- B. The problem of defining objectives and measuring success depends almost entirely on correctly defining the problem and values of the client. The majority of enterprises are not solely interested in rate of return on investment or lowest cost. Most decisions must fit a combination of success "measures" with each decision maker weighting the overall importance of each item differently. Examples of such measures would be:

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

- C. The definition also implies uncertainty - a reasonable likelihood of succeeding. That statement is deliberately short of a statistical probability statement. However, analytical judgements can produce some verbal probability statements (that horse is a nag while the black stallion is an odds on favorite) so that the measures of success should lend themselves to explicit recognition of the degree of uncertainty with which success might be achieved.

- D. The general theory of the management process for any enterprise can be converted to real estate semantics for feasibility: (see Exhibit 2)

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

1. Physical factors of the environment.
 - a. Soil stability and water tables beyond the site boundaries.
 - b. Eutrophication of lakes and streams.
 - c. Disruption of environmental edges, plant, and wildlife areas.
 - d. Impact on energy resources.
 - e. Contribution to social disintegration.
 - f. Aesthetic and urban design.
2. Social factors of the environment.
 - a. Displacement of existing residents and neighborhood units.
 - b. Contribution to social integration or mobility barriers.
 - c. Contribution to land use heterogeneity.
 - d. Contribution to regional and community master plans.
3. Economic factors of the environment.
 - a. Direct impact on real estate tax revenues.
 - b. Direct impact on other governmental revenue.
 - c. Direct impact on incremental government.
 - d. Secondary contributions to local government revenues.
 - e. Secondary cost burdens created for local communities.
4. Real estate business ethic environment.
 - a. Impact on supply equilibrium.
 - b. Impact on associated contractors.
 - c. Impact on families of project sponsor.
 - d. Legitimacy of financing structure.
5. Silhouette of proposed project in terms of public perception of impact.
6. Relationship of impact assessment to:
 - a. Scale of project.
 - b. Vulnerability of project sponsor to secondary consequences of political discretion.
 - c. Stamina of project sponsor in the face of public pressure.

IV. Preliminary Financial Parameter Definition

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

- A. This technique is not unlike the residual approach, has the same potential for misleading, but when combined with a sensitivity approach, does identify the conditions critical for financial solvency. (See Exhibit 3)
- B. Exhibit 4 shows the "back door" approach applied to a hypothetical apartment unit for downtown Madison, Wisconsin.
- C. Exhibit 5 shows the traditional "front door" approach of allowing the construction budget to determine required rents. Of course the required rent may be greatly in excess of what the market is willing to pay.
- D. A sensitivity analysis of the proposed one unit apartment is then demonstrated in Exhibit 6, one of a family of design analysis programs available from EDUCARE, an agency of the American Institute of Real Estate Appraisers, Society of Real Estate Appraisers, and American Society of Real Estate Counselors.
- E. Since the back door approach drives off the consumer expenditure, it is then necessary to do primary research to discover who can afford what is proposed, how many are there, and what incentives will be necessary to overcome their present inertia given a present location and habit pattern.
 1. The key to successful urban redevelopment is primary merchandising data, as will be seen in several case examples. This data must be collected and analyzed before the physical planner is allowed to draw any plans.
 2. As will be discussed tomorrow morning, the primary research will require the designer or the appraiser to name the prospect who is expected to sign the rental check for purchase contract and to name the institutions who are expected to finance the transaction.
- F. Only after a preliminary first year proforma income statement and capital budget can be estimated on a before tax basis, is it worthwhile to analyze after tax cash flow projections for the first 5-10 years of the project.
 1. The worksheet in Exhibit 7 shows improvements are expected to cost \$324,000. The original mortgage is \$284,400 at 10% interest per year, annual payment mortgage so that calculations can be made with ease. The property is ultimately sold for \$436,080 and the investor wanted to receive 13% per annum before taxes.
 2. The computer terminal input and output in Exhibit 8 is typical of that available for architects. One model which provides considerable financial analysis is MR. CAP (Exhibit 8), available on GE timesharing in the EDUCARE library. It combines a front door and back door model with a sensitivity model, partnership tax model, and financial ratio analysis model.

SENSITIVITY APT. DEMO

U. W. REAL ESTATE DEPT.

EXHIBIT 6

DATE: 2/14/1977

BLDG: 1

RUN : 1

GROSS SQUARE FEET IN BUILDING: 700.
 BUILDING EFFICIENCY : 85.0 PCT
 NET LEASEABLE SQUARE FOOTAGE : 595.

LAND AND CONSTRUCTION COST : \$ 19500.
 LOAN TO COST RATIO : 75.0 PCT
 ORIGINAL LOAN AMOUNT : \$ 14625.

EQUITY REQUIREMENT : \$ 4875.

PERMANENT INTEREST RATE : 9.000 PCT
 TERM OF LOAN 30. YEARS

ANNUAL DEBT SERVICE : \$ 1412.

ANNUAL DOLLARS

GROSS INCOME : 595. SQ FT AT \$ 6.00 3570.

LESS: VACANCY OF 5.00 PCT 179.

GROSS ADJUSTED INCOME 3392.

PLUS: PARKING INCOME 150.

PLUS: OTHER INCOME 24.

GROSS EFFECTIVE INCOME 3566.

LAND LEASE EXPENSE 100.

OPERATING EXPENSES: 595. SQ FT AT \$ 2.76 1642.

NET OPERATING INCOME 1823.

DEBT SERVICE (9.66 PCT CONSTANT) 1412.

PRO FORMA CASH FLOW 411.

RETURN ON EQUITY 8.43 PERCENT

DEBT SERVICE COVERAGE: 1.291

DEFAULT RATIO : 83.48 PERCENT

LOAN DATA FOR EACH SET OF FINANCIAL CONDITIONS

AMOUNT FINANCED \$ 14625. EQUITY \$ 4875.

LOAN RATIO 75.00 PCT

INTEREST	TERM	CONSTANT	DEBT SERVICE		
			ANNUAL	PER SQ FT	PER UNIT
9.000	30.0	9.6555	1412.	2.3733	
9.250	30.0	9.8721	1444.	2.4265	
9.500	30.0	10.0903	1476.	2.4802	
8.500	30.0	9.2270	1349.	2.2680	
8.000	30.0	8.8052	1288.	2.1643	

AMOUNT FINANCED \$ 15600. EQUITY \$ 3900.

LOAN RATIO 80.00 PCT

INTEREST	TERM	CONSTANT	DEBT SERVICE		
			ANNUAL	PER SQ FT	PER UNIT
9.000	30.0	9.6555	1506.	2.5315	
9.250	30.0	9.8721	1540.	2.5883	
9.500	30.0	10.0903	1574.	2.6455	
8.500	30.0	9.2270	1439.	2.4192	
8.000	30.0	8.8052	1374.	2.3086	

AMOUNT FINANCED \$ 16575. EQUITY \$ 2925.

LOAN RATIO 85.00 PCT

INTEREST	TERM	CONSTANT	DEBT SERVICE		
			ANNUAL	PER SQ FT	PER UNIT
9.000	30.0	9.6555	1600.	2.6897	
9.250	30.0	9.8721	1636.	2.7501	
9.500	30.0	10.0903	1672.	2.8109	
8.500	30.0	9.2270	1529.	2.5704	
8.000	30.0	8.8052	1459.	2.4529	

AMOUNT FINANCED \$ 17550. EQUITY \$ 1950.

LOAN RATIO 90.00 PCT

INTEREST	TERM	CONSTANT	DEBT SERVICE		
			ANNUAL	PER SQ FT	PER UNIT
9.000	30.0	9.6555	1695.	2.8480	
9.250	30.0	9.8721	1733.	2.9119	
9.500	30.0	10.0903	1771.	2.9762	
8.500	30.0	9.2270	1619.	2.7216	
8.000	30.0	8.8052	1545.	2.5972	

AMOUNT FINANCED \$ 18525. EQUITY \$ 975.

LOAN RATIO 95.00 PCT

INTEREST	TERM	CONSTANT	DEBT SERVICE		
			ANNUAL	PER SQ FT	PER UNIT
9.000	30.0	9.6555	1789.	3.0062	
9.250	30.0	9.8721	1829.	3.0736	
9.500	30.0	10.0903	1869.	3.1415	
8.500	30.0	9.2270	1709.	2.8728	
8.000	30.0	8.8052	1631.	2.7414	

PRØ FØRMA CASH FLØW TABLE

SENSITIVITY APT. DEMØ

U. W. REAL ESTATE DEPT.

FIXED PARAMETERS	PAGE	1 OF 12
SITE : 2000. SQUARE FEET	DATE	2-14-1977
BUILDING : 700. SQUARE FEET	BLDG	1
EFFICIENCY: 85.00 PCT(595. SQ FT)		
LØAN RATIO: 75.00 PCT ØF \$ 19500.		
LØAN : \$ 14625.		
EQUITY : \$ 4875.		
FINANCING : 30. YEARS 9.000 PCT		
ØTR INCOME: \$ 174. ANNUALLY	RUN	1
EXPENSES : \$ 2.76 PER SQ FT		
LAND LEASE: \$ 100.		

ANNUAL CASH FLØWS

VACANCY ALLOWANCE

	3.00 PCT	4.00 PCT	5.00 PCT	7.00 PCT	10.00 PCT
RENTAL RATES ANNUAL \$/SQ FT	-----	-----	-----	-----	-----
\$ 4.80	-210.	-239.	-267.	-324.	-410.
\$ 5.40	136.	104.	72.	8.	-89.
\$ 6.00	483.	447.	411.	340.	233.
\$ 6.60	829.	790.	750.	672.	554.
\$ 7.20	1175.	1132.	1089.	1004.	875.

BREAKEVEN RENTAL RATES

VACANCY ALLOWANCE

	3.00 PCT	4.00 PCT	5.00 PCT	7.00 PCT	10.00 PCT
RENTAL RATES ANNUAL \$/SQ FT	-----	-----	-----	-----	-----
	5.16	5.22	5.27	5.39	5.57

PRØ FORMA CASH FLØW TABLE

SENSITIVITY APT. DEMØ

U. W. REAL ESTATE DEPT.

FIXED PARAMETERS	PAGE	2 OF 12
SITE : 2000. SQUARE FEET	DATE	2-14-1977
BUILDING : 700. SQUARE FEET	BLDG	1
EFFICIENCY: 85.00 PCT(595. SQ FT)		
LØAN RATIO: 75.00 PCT ØF \$ 19500.		
LØAN : \$ 14625.		
EQUITY : \$ 4875.		
FINANCING : 30. YEARS 9.000 PCT		
VACANCY : 5.00 PCT ØF LEASEABLE		
ØTR INCØME: \$ 174. ANNUALLY	RUN	1
LAND LEASE: \$ 100.		

ANNUAL CASH FLØWS

ANNUAL EXPENSE RATES PER SQ FT

\$ 2.40	\$ 2.64	\$ 2.76	\$ 3.00	\$ 3.36
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RENTAL RATES ANNUAL \$/SQ FT

\$ 4.80	-53.	-196.	-267.	-410.	-624.
\$ 5.40	286.	143.	72.	-71.	-285.
\$ 6.00	625.	483.	411.	268.	54.
\$ 6.60	965.	822.	750.	608.	393.
\$ 7.20	1304.	1161.	1089.	947.	732.

BREAKEVEN RENTAL RATES

ANNUAL EXPENSE RATES PER SQ FT

\$ 2.40	\$ 2.64	\$ 2.76	\$ 3.00	\$ 3.36
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RENTAL RATES ANNUAL \$/SQ FT

4.89	5.15	5.27	5.53	5.90
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PRØ FORMA CASH FLOW TABLE

SENSITIVITY APT. DEMØ

U. W. REAL ESTATE DEPT.

FIXED PARAMETERS

PAGE 3 OF 12

SITE :	2000. SQUARE FEET	DATE	2-14-1977
BUILDING :	700. SQUARE FEET	BLDG	1
EFFICIENCY:	85.00 PCT(595. SQ FT)		
LOAN RATIO:	75.00 PCT ØF \$ 19500.		
LOAN :	\$ 14625.		
EQUITY :	\$ 4875.		
VACANCY :	5.00 PCT ØF LEASEABLE		
ØTR INCØME:	\$ 174. ANNUALLY	RUN	1
EXPENSES :	\$ 2.76 PER SQ FT		
LAND LEASE:	\$ 100.		

ANNUAL CASH FLOWS

FINANCING PARAMETERS

S
T

30. YEARS	30. YEARS	30. YEARS	30. YEARS	30. YEA
	R			
9.00 PCT	9.25 PCT	9.50 PCT	8.50 PCT	8.00 P
	C			

RENTAL RATES ANNUAL \$/SQ FT

\$ 4.80	-267.	-299.	-331.	-204.	-143.
\$ 5.40	72.	40.	8.	135.	196.
\$ 6.00	411.	380.	348.	474.	536.
\$ 6.60	750.	719.	687.	813.	875.
\$ 7.20	1089.	1058.	1026.	1152.	1214.

BREAKEVEN RENTAL RATES

FINANCING PARAMETERS

S
T

30. YEARS	30. YEARS	30. YEARS	30. YEARS	30. YEA
	R			
9.00 PCT	9.25 PCT	9.50 PCT	8.50 PCT	8.00 P
	C			

RENTAL RATES ANNUAL \$/SQ FT

5.27	5.33	5.39	5.16	5.05
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PRØ FØRMA CASH FLØW TABLE

SENSITIVITY APT. DEMØ

U. W. REAL ESTATE DEPT.

FIXED PARAMETERS	PAGE	4 OF 12
SITE : 2000. SQUARE FEET	DATE	2-14-1977
BUILDING : 700. SQUARE FEET	BLDG	1
LØAN RATIO: 75.00 PCT ØF \$ 19500.		
LØAN : \$ 14625.		
EQUITY : \$ 4875.		
FINANCING : 30. YEARS 9.000 PCT		
VACANCY : 5.00 PCT ØF LEASEABLE		
ØTR INCOME: \$ 174. ANNUALLY	RUN	1
EXPENSES : \$ 2.76 PER SQ FT		
LAND LEASE: \$ 100.		

ANNUAL CASH FLØWS

BUILDING EFFICIENCY (PCT ØF GRØSS)

75.00 PCT 78.00 PCT 80.00 PCT 82.00 PCT 85.00 PCT
LØAN TØ CØST RATIO

75.00 PCT 80.00 PCT 85.00 PCT 90.00 PCT 95.00 PCT

RENTAL RATES
ANNUAL \$/SQ FT

\$ 4.80	-393.	-355.	-330.	-305.	-267.
\$ 5.40	-94.	-44.	-11.	22.	72.
\$ 6.00	205.	267.	308.	349.	411.
\$ 6.60	505.	578.	627.	677.	750.
\$ 7.20	804.	890.	947.	1004.	1089.

BREAKEVEN RENTAL RATES

BUILDING EFFICIENCY (PCT ØF GRØSS)

75.00 PCT 78.00 PCT 80.00 PCT 82.00 PCT 85.00 PCT
LØAN TØ CØST RATIO

75.00 PCT 80.00 PCT 85.00 PCT 90.00 PCT 95.00 PCT

RENTAL RATES
ANNUAL \$/SQ FT

5.59	5.49	5.42	5.36	5.27
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PR0 F0RMA CASH FL0W TABLE

SENSITIVITY APT. DEM0

U. W. REAL ESTATE DEPT.

FIXED PARAMETERS

PAGE 5 OF 12

SITE :	2000. SQUARE FEET	DATE	2-14-1977
BUILDING :	700. SQUARE FEET	BLDG	1
EFFICIENCY:	85.00 PCT(595. SQ FT)		
FINANCING :	30. YEARS 9.000 PCT		
VACANCY :	5.00 PCT 0F LEASEABLE		
0TR INCOME:	\$ 174. ANNUALLY	RUN	1
EXPENSES :	\$ 2.76 PER SQ FT		
LAND LEASE:	\$ 100.		

ANNUAL CASH FL0WS

LOAN T0 C0ST RATIO

75.00 PCT	80.00 PCT	85.00 PCT	90.00 PCT	95.00 PCT
-----	-----	-----	-----	-----

RENTAL RATES
ANNUAL \$/SQ FT

\$ 4.80	-267.	-361.	-455.	-550.	-644.
\$ 5.40	72.	-22.	-116.	-210.	-305.
\$ 6.00	411.	317.	223.	129.	35.
\$ 6.60	750.	656.	562.	468.	374.
\$ 7.20	1089.	995.	901.	807.	713.

BREAKEVEN RENTAL RATES

LOAN T0 C0ST RATIO

75.00 PCT	80.00 PCT	85.00 PCT	90.00 PCT	95.00 PCT
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RENTAL RATES
ANNUAL \$/SQ FT

5.27	5.44	5.61	5.77	5.94
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PRO FORMA CASH FLOW TABLE

SENSITIVITY APT. DEMO

U. W. REAL ESTATE DEPT.

FIXED PARAMETERS	PAGE	6 OF 12
SITE : 2000. SQUARE FEET	DATE	2-14-1977
BUILDING : 700. SQUARE FEET	BLDG	1
EFFICIENCY: 85.00 PCT(595. SQ FT)		
LOAN RATIO: 75.00 PCT OF \$ 19500.		
LOAN : \$ 14625.		
EQUITY : \$ 4875.		
FINANCING : 30. YEARS 9.000 PCT		
REVENUE : \$ 6.00 PER SQ FT		
QTR INCOME: \$ 174. ANNUALLY	RUN	1
LAND LEASE: \$ 100.		

ANNUAL CASH FLOWS

ANNUAL EXPENSE RATES PER SQ FT

\$ 2.40	\$ 2.64	\$ 2.76	\$ 3.00	\$ 3.36
-----	-----	-----	-----	-----

VACANCY RATES

3.00 PCT	697.	554.	483.	340.	126.
4.00 PCT	661.	518.	447.	304.	90.
5.00 PCT	625.	483.	411.	268.	54.
7.00 PCT	554.	411.	340.	197.	-17.
10.00 PCT	447.	304.	233.	90.	-124.

BREAKEVEN RENTAL RATES

ANNUAL EXPENSE RATES PER SQ FT

\$ 2.40	\$ 2.64	\$ 2.76	\$ 3.00	\$ 3.36
-----	-----	-----	-----	-----

VACANCY RATES

3.00 PCT	4.79	5.04	5.16	5.41	5.78
4.00 PCT	4.84	5.09	5.22	5.47	5.84
5.00 PCT	4.89	5.15	5.27	5.53	5.90
7.00 PCT	5.00	5.26	5.39	5.64	6.03
10.00 PCT	5.17	5.43	5.57	5.83	6.23

PRØ FORMA CASH FLØW TABLE

SENSITIVITY APT. DEMØ

U. W. REAL ESTATE DEPT.

FIXED PARAMETERS

PAGE 7 OF 12

SITE :	2000. SQUARE FEET	DATE	2-14-1977
BUILDING :	700. SQUARE FEET	BLDG	1
EFFICIENCY:	85.00 PCT(595. SQ FT)		
LOAN RATIO:	75.00 PCT ØF \$ 19500.		
LOAN :	\$ 14625.		
EQUITY :	\$ 4875.		
REVENUE :	\$ 6.00 PER SQ FT		
ØTR INCØME:	\$ 174. ANNUALLY	RUN	1
EXPENSES :	\$ 2.76 PER SQ FT		
LAND LEASE:	\$ 100.		

ANNUAL CASH FLØWS

FINANCING PARAMETERS

	30. YEARS	30. YEARS	30. YEARS	30. YEARS	30. YEA
		R			
	9.00 PCT	9.25 PCT	9.50 PCT	8.50 PCT	8.00 P
		C			

VACANCY RATES

3.00 PCT	483.	451.	419.	545.	607.
4.00 PCT	447.	415.	383.	510.	571.
5.00 PCT	411.	380.	348.	474.	536.
7.00 PCT	340.	308.	276.	402.	464.
10.00 PCT	233.	201.	169.	295.	357.

BREAKEVEN RENTAL RATES

FINANCING PARAMETERS

	30. YEARS	30. YEARS	30. YEARS	30. YEARS	30. YEA
		R			
	9.00 PCT	9.25 PCT	9.50 PCT	8.50 PCT	8.00 P
		C			

VACANCY RATES

3.00 PCT	5.16	5.22	5.27	5.06	4.95
4.00 PCT	5.22	5.27	5.33	5.11	5.00
5.00 PCT	5.27	5.33	5.39	5.16	5.05
7.00 PCT	5.39	5.44	5.50	5.27	5.16
10.00 PCT	5.57	5.62	5.68	5.45	5.33

PRØ FØRMA CASH FLOW TABLE

SENSITIVITY APT. DEMØ

U. W. REAL ESTATE DEPT.

FIXED PARAMETERS

PAGE 8 OF 12

SITE :	2000. SQUARE FEET	DATE	2-14-1977
BUILDING :	700. SQUARE FEET	BLDG	1
LOAN RATIO:	75.00 PCT ØF \$ 19500.		
LOAN :	\$ 14625.		
EQUITY :	\$ 4875.		
FINANCING :	30. YEARS 9.000 PCT		
REVENUE :	\$ 6.00 PER SQ FT		
VACANCY :	5.00 PCT ØF LEASEABLE		
ØTR INCØME:	\$ 174. ANNUALLY	RUN	1
LAND LEASE:	\$ 100.		

ANNUAL CASH FLOWS

BUILDING EFFICIENCY (PCT ØF GRØSS)

75.00 PCT 78.00 PCT 80.00 PCT 82.00 PCT 85.00 PCT
LOAN TØ CØST RATIO

75.00 PCT 80.00 PCT 85.00 PCT 90.00 PCT 95.00 PCT

EXPENSE RATES ANNUAL \$/SQ FT

\$ 2.40	394.	464.	510.	556.	625.
\$ 2.64	268.	333.	375.	418.	483.
\$ 2.76	205.	267.	308.	349.	411.
\$ 3.00	79.	136.	174.	212.	268.
\$ 3.36	-110.	-60.	-28.	5.	54.

BREAKEVEN RENTAL RATES

BUILDING EFFICIENCY (PCT ØF GRØSS)

75.00 PCT 78.00 PCT 80.00 PCT 82.00 PCT 85.00 PCT
LOAN TØ CØST RATIO

75.00 PCT 80.00 PCT 85.00 PCT 90.00 PCT 95.00 PCT

EXPENSE RATES ANNUAL \$/SQ FT

\$ 2.40	5.21	5.11	5.04	4.98	4.89
\$ 2.64	5.46	5.36	5.29	5.23	5.15
\$ 2.76	5.59	5.49	5.42	5.36	5.27
\$ 3.00	5.84	5.74	5.67	5.61	5.53
\$ 3.36	6.22	6.12	6.05	5.99	5.90

PRØ FORMA CASH FLØW TABLE

SENSITIVITY APT. DEMØ

U. W. REAL ESTATE DEPT.

FIXED PARAMETERS

PAGE 9 OF 12

SITE :	2000. SQUARE FEET	DATE	2-14-1977
BUILDING :	700. SQUARE FEET	BLDG	1
LØAN RATIO:	75.00 PCT ØF \$ 19500.		
LØAN :	\$ 14625.		
EQUITY :	\$ 4875.		
REVENUE :	\$ 6.00 PER SQ FT		
VACANCY :	5.00 PCT ØF LEASEABLE		
ØTR INCOME:	\$ 174. ANNUALLY	RUN	1
EXPENSES :	\$ 2.76 PER SQ FT		
LAND LEASE:	\$ 100.		

ANNUAL CASH FLØWS

BUILDING EFFICIENCY (PCT ØF GRØSS)

75.00 PCT 78.00 PCT 80.00 PCT 82.00 PCT 85.00 PCT
LØAN TØ CØST RATIO

75.00 PCT 80.00 PCT 85.00 PCT 90.00 PCT 95.00 PCT

FINANCING

30.YR	9.00PCT	205.	267.	308.	349.	411.
30.YR	9.25PCT	174.	235.	277.	318.	380.
30.YR	9.50PCT	142.	204.	245.	286.	348.
30.YR	8.50PCT	268.	330.	371.	412.	474.
30.YR	8.00PCT	330.	391.	433.	474.	536.

BREAKEVEN RENTAL RATES

BUILDING EFFICIENCY (PCT ØF GRØSS)

75.00 PCT 78.00 PCT 80.00 PCT 82.00 PCT 85.00 PCT
LØAN TØ CØST RATIO

75.00 PCT 80.00 PCT 85.00 PCT 90.00 PCT 95.00 PCT

FINANCING

30.YR	9.00 PCT	5.59	5.49	5.42	5.36	5.27
30.YR	9.25 PCT	5.65	5.55	5.48	5.42	5.33
30.YR	9.50 PCT	5.72	5.61	5.54	5.48	5.39
30.YR	8.50 PCT	5.46	5.36	5.30	5.24	5.16
30.YR	8.00 PCT	5.34	5.25	5.19	5.13	5.05

PRO FORMA CASH FLOW TABLE

SENSITIVITY APT. DEMO

U. W. REAL ESTATE DEPT.

FIXED PARAMETERS

PAGE 10 OF 12

SITE :	2000. SQUARE FEET	DATE	2-14-1977
BUILDING :	700. SQUARE FEET	BLDG	1
EFFICIENCY:	85.00 PCT(595. SQ FT)		
LOAN RATIO:	75.00 PCT OF \$ 19500.		
LOAN :	\$ 14625.		
EQUITY :	\$ 4875.		
FINANCING :	30. YEARS 9.000 PCT		
VACANCY :	5.00 PCT OF LEASEABLE		
GTR INCOME:	\$ 174. ANNUALLY	RUN	1
EXPENSES :	\$ 2.76 PER SQ FT		

ANNUAL CASH FLOWS

LAND LEASE COST

\$	100.	\$	150.	\$	200.	\$	250.	\$	300.

RENTAL RATES ANNUAL \$/SQ FT

\$	4.80	-267.	-317.	-367.	-417.	-467.
\$	5.40	72.	22.	-28.	-78.	-128.
\$	6.00	411.	361.	311.	261.	211.
\$	6.60	750.	700.	650.	600.	550.
\$	7.20	1089.	1039.	989.	939.	889.

BREAKEVEN RENTAL RATES

LAND LEASE COST

\$	100.	\$	150.	\$	200.	\$	250.	\$	300.

RENTAL RATES ANNUAL \$/SQ FT

5.27	5.36	5.45	5.54	5.63
------	------	------	------	------

PRO FORMA CASH FLOW TABLE

SENSITIVITY APT. DEMO

U. W. REAL ESTATE DEPT.

FIXED PARAMETERS

PAGE 11 OF 12

SITE :	2000. SQUARE FEET	DATE	2-14-1977
BUILDING :	700. SQUARE FEET	BLDG	1
EFFICIENCY:	85.00 PCT(595. SQ FT)		
LOAN RATIO:	75.00 PCT OF \$ 19500.		
LOAN :	\$ 14625.		
EQUITY :	\$ 4875.		
FINANCING :	30. YEARS 9.000 PCT		
REVENUE :	\$ 6.00 PER SQ FT		
VACANCY :	5.00 PCT OF LEASEABLE		
OTR INCOME:	\$ 174. ANNUALLY	RUN	1

ANNUAL CASH FLOWS

LAND LEASE COST

\$ 100.	\$ 150.	\$ 200.	\$ 250.	\$ 300.
-----	-----	-----	-----	-----

EXPENSE RATES ANNUAL \$/SQ FT

\$ 2.40	625.	575.	525.	475.	425.
\$ 2.64	483.	433.	383.	333.	283.
\$ 2.76	411.	361.	311.	261.	211.
\$ 3.00	268.	218.	168.	118.	68.
\$ 3.36	54.	4.	-46.	-96.	-146.

BREAKEVEN RENTAL RATES

LAND LEASE COST

\$ 100.	\$ 150.	\$ 200.	\$ 250.	\$ 300.
-----	-----	-----	-----	-----

EXPENSE RATES ANNUAL \$/SQ FT

\$ 2.40	4.89	4.98	5.07	5.16	5.25
\$ 2.64	5.15	5.23	5.32	5.41	5.50
\$ 2.76	5.27	5.36	5.45	5.54	5.63
\$ 3.00	5.53	5.61	5.70	5.79	5.88
\$ 3.36	5.90	5.99	6.08	6.17	6.26

SENSITIVITY TABLE

SENSITIVITY APT. DEMO

U. W. REAL ESTATE DEPT.

FIXED PARAMETERS	PAGE	12 OF 12
SITE : 2000. SQUARE FEET	DATE	2-14-1977
BUILDING : 700. SQUARE FEET	BLDG	1
EFFICIENCY: 85.00 PCT OF GROSS		
LOAN RATIO: 75.00 PCT OF \$ 19500.		
EQUITY : \$ 4875.		
FINANCING : 30. YEARS 9.000 PCT		
REVENUE : \$ 6.00 PER SQ FT		
VACANCY : 5.00 PCT OF LEASEABLE		
PARK/OTHER: \$ 174. ANNUALLY	RUN	1
EXPENSES : \$ 2.76 PER SQ FT		
LAND LEASE: \$ 100. ANNUALLY		
CONSTRUCTION AND LAND COST 19500.		

EFFECT OF SELECTED CHANGES IN PARAMETERS PARAMETER CHANGE INCREASE IN CASH FLOW

INCREASE BUILDING EFFICIENCY 1 PCT	21.
INCREASE RENTAL RATE \$.10 PER SQ FT	57.
DECREASE VACANCY RATE 1PCT	36.
DECREASE OPERATING RATE \$.10 PER SQ FT	60.
DECREASE PERMANENT RATE .25PCT	31.
DECREASE PERMANENT LOAN TERM BY 1 YEAR	-10.
DECREASE PERMANENT LOAN TERM BY 5 YEARS	-61.
DECREASE THE LOAN RATIO BY 5 PERCENT	94.
DECREASE LAND LEASE BY 10% 100.	

EQUIVALENT EFFECT TO YIELD A \$ 100. INCREASE IN ANNUAL CASH FLOW

INCREASE BUILDING EFFICIENCY BY	4.86 PCT
INCREASE RENT RATE BY \$	0.18 PER SQ FT
DECREASE VACANCY BY	2.80 PCT
DECREASE EXPENSE RATE BY \$	0.17 PER SQ FT
DECREASE PERMANENT RATE BY	0.79 PCT
INCREASE PERMANENT LOAN TERM BY	8.2 YEARS
DECREASE LOAN RATIO BY	5.3 PERCENT
DECREASE LAND LEASE BY \$	100.

REAL ESTATE PROJECT ONE WORK SHEET

NAME----- SECTION-----

	1	2	3	4	5	6	7	8	9	10
GROSS RENT	51840	54950	58060	61170	64280	67390	70500	73610	76720	79830
LESS VACANCY ALLOWANCE	2592	2747	2903	3058	3214	3369	3525	3680	3836	3991
EFFECTIVE GROSS INCOME	49248	52203	55157	58112	61066	64021	66975	69930	72884	75839
LESS REAL ESTATE TAXES 295	9850	10145	10440	10735	11030	11325	11620	11915	12210	12505
LESS EXPENSES 622	10368	10990	11612	12234	12856	13478	14100	14722	15344	15966
NET INCOME	29030	31068	33105	35143	37180	39218	41255	43293	45330	47368
LESS DEPRECIATION	16200	15390	14620	13889	13195	12535	11908	11313	10747	10210
LESS INTEREST	28440	27884	27272	26500	25860	25045	24150	23165	22082	20890
TAXABLE INCOME	-15610	-12206	-8787	-5346	-1875	1638	5197	8815	12501	16268
PLUS DEPRECIATION	16200	15390	14620	13889	13195	12535	11908	11313	10747	10210
LESS PRINCIPAL PAYMENTS	5560	6116	6728	7400	8140	8955	9850	10835	11918	13110
CASH THROW-OFF	-4970	-2932	-895	1143	3180	5218	7255	9293	11330	13368
LESS TAXES	0	0	0	0	0	-819	-2598	-4407	-6250	-8134
CASH FROM OPERATIONS	-4970	-2932	-895	1143	3180	4399	4657	4886	5080	5234
WORKING CAPITAL LOAN(CUM BALANCE)	4970	7903	9904	10148	8389	5164	1230	0	0	0
SPENDABLE CASH AFTER TAXES	0	0	0	0	0	0	0	3483	5080	5234
TAX SAVINGS ON OTHER INCOME	7805	6103	4393	2623	937	0	0	0	0	0
SPENDABLE CASH AFTER TAXES PLUS TAX SAVINGS ON OTHER INCOME	7805	6103	4398	2623	937	0	0	3483	5080	5234
PRESENT VALUE FACTOR AT 12%	88496	78315	69305	61332	54226	48031	42506	37616	33288	29458
P. V. OF SPENDABLE CASH AFTER TAXES PLUS TAX SAVINGS ON OTHER INCOME	6907	4779	3048	29	508	0	0	1310	1691	2
CUMULATIVE AMOUNT	6907	11686	14734	16343	16851	16851	16851	18161	19852	21394

DEPRECIATION

STRAIGHT LINE

324000	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
8100	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
8100	16200	24300	32400	40500	48600	56700	64800	72900	81000	-----

ACCELERATED

324000	307800	292410	277289	263899	250704	238169	226260	214947	204199	-----
16200	15390	14630	13889	13195	12535	11908	11313	10747	10210	-----

CUMULATIVE ACCELERATED

16200	31590	46210	60099	73294	85829	97737	109050	119797	130007	-----
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MORTGAGE

BALANCE

284,400	278,840	272,724	265,996	258,596	250,456	241,501	231,651	220,816	208,898	<u>195,788</u>
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INTEREST RATE

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TOTAL PAYMENT

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INTEREST PAYMENT

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PRINCIPAL PAYMENT

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MARKET VALUE

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436,080

WORKING CAPITAL LOAN

LOAN BGN YR

0	-4971	-9009	-11291	-11569	-9563	-5887	-1403	-----	-----	-----
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SPENDABLE CASH ADJUSTMENT

-4970	-2932	-895	+1143	+3180	+4329	+4657	+4886	-----	-----	-----
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ADJUSTED BALANCE

-4970	-7903	-9904	-10148	-8389	-5164	-1230	0	-----	-----	-----
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INTEREST RATE

.14	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
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INTEREST DUE

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NEW LOAN BALANCE

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TAXES DUE AT TIME OF SALE

TOTAL INVESTMENT VALUE

HOLDING PERIOD	<u>10 yrs.</u>	* TOTAL P. V. CF AFTER TAX CASH PLUS TAX SAVINGS	<u>21,394</u>
TAXABLE BASIS	<u>249,193</u>	* TOTAL SALES PRICE	<u>436,080</u>
SELLING PRICE	<u>436,080</u>	* LESS	
DEPRECIATION TAKEN ON IMPROV.	<u>130,007</u>	* TAXES ON SALE OF PROPERTY	
DEPRECIATION BY STRAIGHT LINE	<u>81,000</u>	* CAPITAL GAINS TAX	<u>36,920</u>
TAXPAYERS INCOME TAX RATE	<u>50%</u>	* INCOME TAX	<u>19,603</u>
DETERMINATION OF TAXES DUE		* TOTAL TAXES DUE	<u>56,523</u>
TOTAL GAIN SUBJECT TO TAX	<u>186,891</u>	* MORTGAGE BALANCE	<u>197,603</u>
CAPITAL GAIN TAXES DUE		* TOTAL DEDUCTIONS	<u>254,126</u>
INCREASE IN PROPERTY VALUE	<u>56,880</u>	* CASH RECEIVED AT TIME OF SALE	<u>181,954</u>
STRAIGHT LINE DEPRECIATION GIVEN	<u>81,000</u>	* PRESENT VALUE OF FACTOR AT	<u>29,459</u>
		PRESENT VALUE OF REVERSION	<u>53,602</u>
ALLOWABLE ACCELERATED DEPRECIATION	<u>9801</u>	* TOTAL PRESENT VALUE OF EQUITY INVESTMENT	<u>72,036</u>
TOTAL GAIN TAXED AT CAPITAL GAIN RATE	<u>147,681</u>	* ORIGINAL MORTGAGE BALANCE	<u>284,400</u>
PORTION SUBJECT TO ORDINARY INCOME RATE		* TOTAL PROJECT VALUE	<u>356,436</u>
NON-ALLOWABLE ACCELERATED DEP.	<u>39,206</u>		
TAXES DUE COMPUTATION			
CAPITAL GAIN TAX = <u>147,681</u> * <u>.25</u> =	<u>36,920</u>	<u>356,436</u> = P.V. of Project.	
ORDINARY INCOME = <u>39,206</u> * <u>.50</u> =	<u>19,603</u>	<u>-324,000</u> = Building Cost	
	<u>56,523</u>	<u>32,436</u> = Justified land Cost	

REAL ESTATE FEASIBILITY

A Joint Seminar of AIA and AIREA

Instructor: Professor James A. Graaskamp
University of Wisconsin School of Business

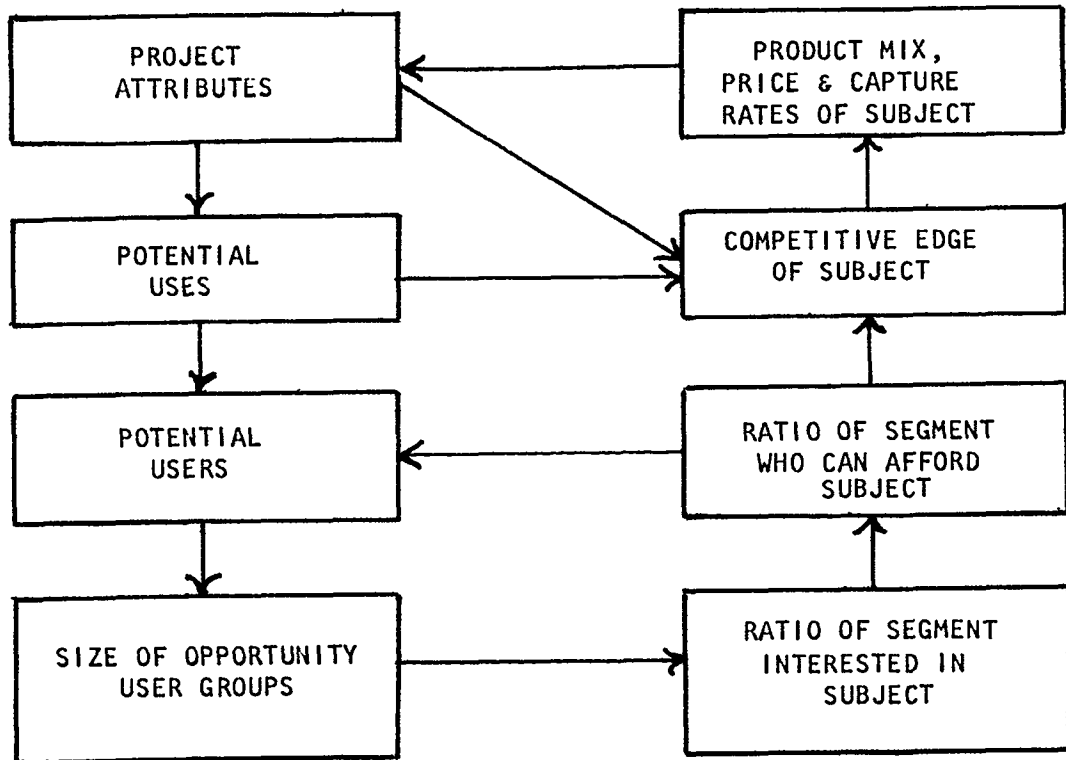
SECOND MORNING
9:00 A.M.-10:15 A.M.

- I. Consumers - The Drive Wheel of the Urban Redevelopment Process
 - A. The real estate process described yesterday morning is driven by discretionary consumer expenditures for real estate and services but that consumer is not an aggregate group; rather it is a very large number of very small segments in a price system designed to give the consumer democratic choice.
 1. Jaquelin Robertson, former director of master planning for the City of New York under Lindsay and now a private planner with Llewelyn-Davies International states that one must build to the strength to the system, and not its weaknesses. "What carries a system forward - build around that."
 2. Viable redevelopment is carried forward when its product is what certain consumer groups want and are willing to pay for and that is different from what planners want and think people should pay for it.
 3. Redevelopment begins with hard headed micro-market consumer research in order to profile what motivates the consumer, what turns him off, and what he can afford to pay.
 - a. With a revenue forecast, it is possible to back down on what the private sector can invest.
 - b. The amount of the investment converts to real estate tax income which can be backed down to public investment at local level.
 - c. Balance of cost must be subsidized by grants or shifted to secondary beneficiaries.
 4. Redevelopment designer must begin with a merchandising strategy designed to secure a competitive market position for the project proposal and then approach physical design with a pre-architectural program defined by consumer research and not be the conceits of the planning school. Where that is done the project succeeds because the cash flows are there and the financial structure has been driven by parameters controlled by rent rather than cost, i.e., the back door approach.
 - B. The objective this morning will be to define the general structuring and surveys of consumer research and in the process to provide three examples.
 - C. Free enterprise is the art of creating ones own monopoly, if only for a moment, in the mind of the buyer. Monopoly characteristics depend on careful market setmentation and catering to the segment.

1. Site and building characteristics of an existing building already provide a product profile which suggests the market segments.
 2. Preferably careful identification of the prospect will permit development of a customer profile who will be the source of a product profile that would provide the most satisfaction.
- D. As a result of merchandising research the analyst should be able to construct a hypothetical marketing program which defines:
1. The most probable user groups, their total number, and their effective demand constraints.
 2. The timing of their effective demand in the market.
 3. The competitive standard product minimum.
 4. The competitive product edge necessary for monopoly advantage
 5. Basic elements of a required promotion program
- II. The first step is to reduce aggregate data about user groups which is plausible but overly general information to a scale which will focus on a sub-segment with a proper rationale or hierarchy. To do that requires an analytical model and in most cases, each situation requires the analyst to create his own model with which to structure the data available and to discover the missing links in the logic diagram which must be researched.
- A. Models organize the analyst, the report, and the client
1. Models explain what you are going to do.
 2. Models make relationships and key assumptions explicit.
 3. Models permit clients to understand logic of conclusion and to test his own set of assumptions.
- B. A market research model should be careful to recognize?
1. What are the questions
 2. What data is available which is relevant?
 3. What theory is available to focus data on the questions?
 4. How will the results be communicated?
 5. What are the abilities of the analyst?
 6. What is the cost benefit ratio between the model method and the question?
- C. Market data refers to aggregate data, secondary information, the easy to acquire data from census tracts, traffic counts, building permits, and so on. It is useful to scale the size of the market potential, of the opportunity area but by itself aggregate market data is relatively unimportant to the success of most projects.

EXHIBIT 1

SEGMENTATION LOGIC TREE



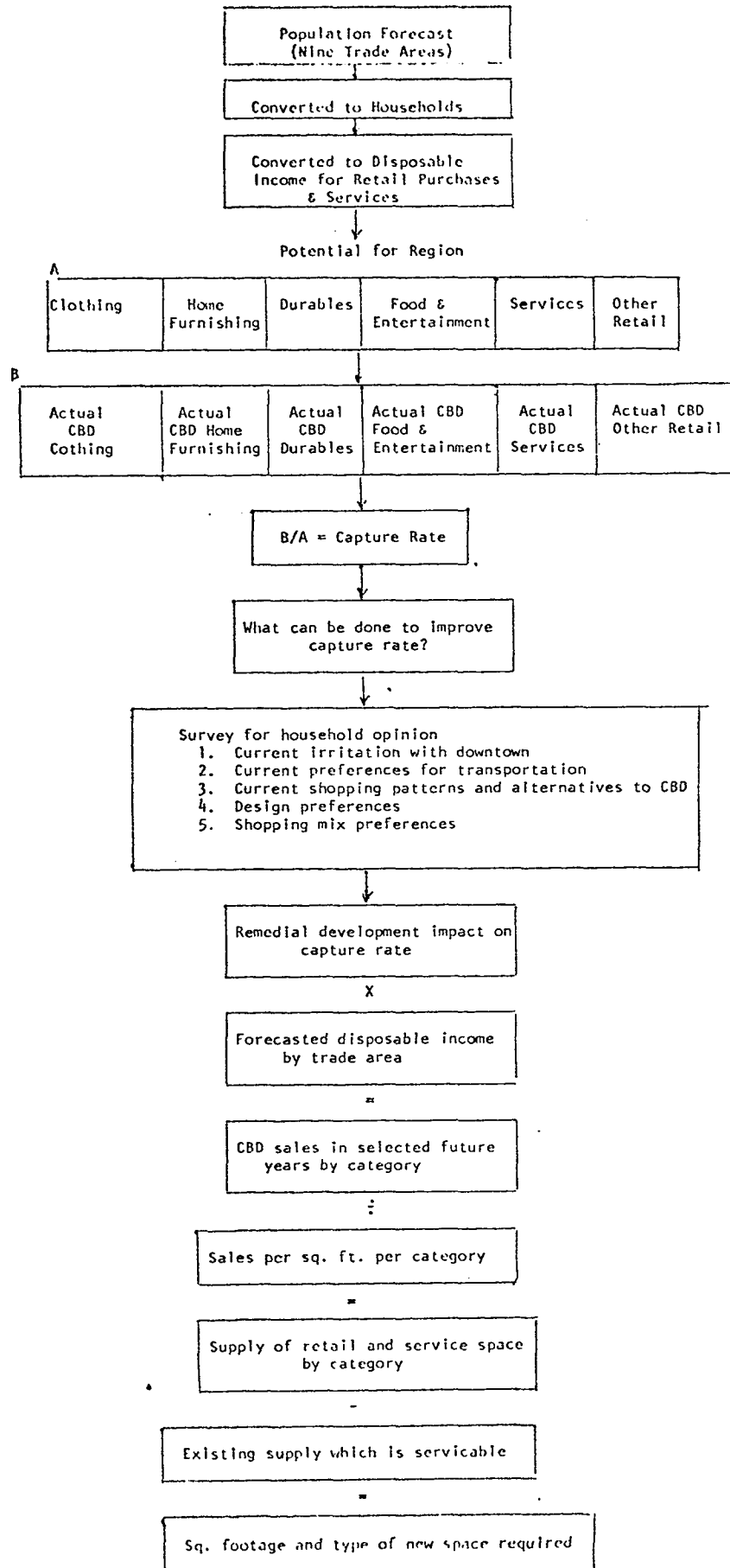
- D. Merchandising data is generally primary information generated by the analyst about specific competitive projects and specific user groups which will permit an estimate of what percentage of the opportunity group can be captured for a specific project.
 - 1. Absorption rates apply to aggregate market data to determine the total size or amount of market activity in terms of how many lots were sold, how many apartments in a rental range were newly rented, or how many square feet of leased office space were occupied.
 - 2. Capture rates are the product of merchandise research and are the ratio of the total opportunity potential which might be secured for a project or must be secured to achieve financial goals. The capture rate will reflect a careful judgment of product mix, amenities, pricing, and timing.
- E. A flow chart of the market research process is provided in Exhibit 1.
- F. Most multi-tenant or multi-user land uses are susceptible to a retail trade area model. A retail model is a device analogous to establishing a retail trade area perimeter for a super market to segregate households which have a reasonable probability of using the outlet from those who don't because of convenience, distance, age, or income. Thus the analyst should establish a preliminary hypothesis for:
 - 1. Primary market area to be served.
 - 2. Secondary market area to be served.
 - 3. Principal competitors.
- G. Consider Exhibit 2 as a simple market model to define the size of an opportunity area in a selected county for elderly persons requiring residential care units.
 - 1. For lines with asterisks the key ratios for reduction were derived from a survey of the elderly generating primary data for this county.
 - 2. For example, while 37% of the elderly were financially qualified, only about 60% of those were interested in considering a residential, minimal care facility or 22% of those in the conventional housing market - hence the reduction from 19,700 to only 4,200. This chart should have showed the ratios from the survey.
 - 3. Failure to convert serious interest into action was a round number based on experience of those which had marketed similar developments in the past, as was an allowance for potential customers coming from outside the county to be closer to relatives, etc.
- III. Market data provides a measure of potential scale of a market opportunity; the most important aspect of market analysis is forecasting the degree of market penetration or capture rate of remedial development.
 - A. To reduce aggregate market data to a merchandising hypothesis, the first clue to segmentation may be found in correctly understanding the essence of buyer motivation or of the activity to be housed.

EXHIBIT 2
DEMAND FOR ELDERLY RESIDENTIAL CARE UNITS

Persons in County age 65 and over in 1970	21,914
Adjustment 1970-1974 to reflect the number of persons moving into the 65+ bracket and the application of mortality rates by age and sex	<u>245</u>
Estimated persons in County age 65 and over in 1974	22,159
Less persons 65+ presently in nursing and residential care facilities in County	1,792
Less persons 65+ presently in government subsidized housing for the elderly	<u>638</u>
	<u>2,430</u>
Persons age 65+ in the conventional housing market in County in 1974	19,729
* Estimated number of persons financially qualified for and seriously interested in moving into the proposed residential care development	4,270
Household equivalent (+ 1.519 persons per household)	2,811
* Less estimated number who will not convert serious interest into any form of action (50%)	1,406
* Less the percentage who, while seriously interested, said (before they heard the hypothesis) that their next home would probably be outside County (13.3% from survey questionnaire)	187
* Less those disqualified because their current health status necessitates care beyond the scope of services to be provided in the residential care units (5.4% (from survey)	<u>76</u>
	<u>263</u>
Elderly households in County qualified for and seriously interested in moving into the proposed development	1,142
* Plus an allowance for those elderly households coming from outside County to enter the proposed development (10%)	<u>127</u>
Elderly households qualified for and seriously interested in moving into the proposed development	1,269
* Share of market opportunity area who stated in survey that for their next dwelling unit their first preference would be an apartment, in a highrise, midrise, or garden building:	
Highrise or midrise	28.0%
Garden	<u>49.1</u>
	77.1%
	978
Less estimated numbers of households who might move into competitive developments available supply of units	<u>270</u>
Households that can be considered candidates for the proposed development	708
That share of households who said they would be willing to move:	
Within 1 year from now	15.6% - 110 households
Within 2 years	31.2% - 220 "
Within 5 years	53.4% - 378 "
	<u>708</u>
A project of 100 units requires a capture rate of:	
91% for a 1 - year absorption rate	
90% for a 2 year	" "
14% for a 5 year	" "

1. Retailing is a break point for goods (a warehouse grocery), or a service industry, or a theater using lighting, staging, and mood to reinforce a role played by the buyer.
 2. A restaurant may be to provide a quick food break (high turnover, pedestrian flow, conditioned ordering), or to provide recreational entertainment and consumption of an evening, or to provide a staging for business, social, or publicity roles.
 3. A motel for transients, for resorts, or for terminal traffic uses all of its facilities and location to sell a "room-night" of occupancy because that is an 80% gross margin. Anything done after that is justified by its contribution to "room-night" sales or its reduction of average cost to capture a customer per "room-night."
 4. The revenue unit may be related to the method of measuring profit of the project in question such as per acre, per camper pad, per event, per front foot of shoreline, per stool or table, etc., not to mention sq. ft., per frame at a bowling alley or per tennis court hours, or per hour of ice time.
 5. Sometimes the prospect is identified by who really signs the check for a particular type of real estate.
 - a. The salesman or the management paying his travel costs
 - b. The doctor or the clinic
 - c. The district manager or the corporate real estate manager
 - d. The ticket buyer or the promoter
 - e. The bowling league, team business manager, travel agency tour guide
 6. The market segment may be defined initially by the source for a prospective user list - people who share a common address, hobby, professional specialty or some other identifier.
 - a. A reverse directory or criss-cross telephone book
 - b. Building directories of comparables
 - c. Mailing lists of specialty publications
 - d. License number spotting
 - e. Guest registers
 - f. Charge account mailing addresses
- B. The objective of these approaches, revenue unit, the decision maker, the prospect list source, is to segment the user market to a specific and relatively small group of potential customers who can be surveyed to generate original and relevant information about their space needs and motivations. Unlike most consumer markets, the number of prospects is always low; think small!
1. Real estate is a series of micro-markets. A 24-unit building with one, two, three bedroom units has at least three sub-markets.
 2. A 24-unit building is a \$500,000 enterprise with a \$75,000 gross sales potential from only 24 customers!

Exhibit 3



- C. A survey of existing properties and alternatives available to a selected market segment defines only the competitive standard - namely the minimum product and price necessary to be in the market.
 - 1. Comparison shopping further identifies where there may be gaps in the supply of alternatives, a market opportunity gap, or where the oversupply is so significant as to portend the last competitive alternative before bankruptcy - namely price cutting.
 - 2. Comparison shopping should not only identify the physical characteristics of the product and price but the nature of the promotion effort as well.
 - 3. Promotion comparison should consider pedestrian and vehicle approaches, model location, furnishings, and sales people.
 - 4. Review of the promotion campaign should reveal whom the competitors believe to be their prospect.
- D. A survey of users, is designed to reveal or to identify the competitive differential attributes which would provide that monopoly element required of every successful project.
 - 1. A second product of consumer survey is the ability to develop locally relevant ratios which permit disaggregation of market data into market segments and the conversion of potential numbers of people into potential dollar sales over time.
 - 2. Survey questions to create ratios require previous construction of a market model hypothesis.
 - 3. Survey questions can discover latent political issues or provide a calm base for citizen input from those who rightfully dislike public hearings.
 - 4. Survey questions and execution should not be done by planners or appraisers.
- IV. A good example of modeling market data through segmentation and survey for renovation in a small community is a project by Gruen Gruen + Associates for Santa Maria, California. The study was begun in 1972. Project is operating as the Santa Maria Town Center with retail sales ahead of forecasts.
 - A. The Gruen's were able to convince the redevelopment agency to avoid any physical planning until a detailed analysis of the demand for alternative services that could attract people back to the downtown area was done. This EMAS study (economic market analysis study) outline is in Exhibit 3 had the following outputs:
 - 1. First, a full analysis of economic data and retail data was utilized to generate information about the type of tenancies that could realistically be expected to penetrate downtown markets. (Table of Contents Exhibit 4)

2. With a lead on tenancies, the Gruen's worked with an architect to provide sketches of alternative architectural styles and concepts to show residence in survey to see what type of treatments might strike the most positive response. (See Exhibit 5)
 3. The EMAS should then be able to indicate the kind of tenancies that could survive downtown, suggest their dollar sales potential, and indicate at a preliminary level a design scheme. (See Exhibit 6)
deleted - illegible
 4. At the same time, back door financial studies are done from rents from capital budgets to discover what would be feasible for the private developer and what components may need to be subsidized by the public.
 5. Appraisers use the EMAS and suggested tenant mix as the basis for their value estimate in the after condition.
 6. Final stage was to write up a series of specifications or profiles on tenants, product design and components, and a cash flow analysis of the entire project from the viewpoint of the developer so he could see how much money there was to make and he would know that the city knew the financial aspects of the project. Developers were then asked to bid.
- B. In the case of Santa Maria, three developers bid and the city picked Ernest Hahn to build the project. There was no demolition or site acquisition before the start of the EMAS. The entire project was done within a four year period. For the first six months of complete operation, June 1976 through December 1976, sales were approximately 15.6 million and is 70% leased. The Mall did 4.9 million, Sears - 6.9 million, and a local department store - 3.7 million.
- C. Before looking at report organization and product, it is useful to observe:
1. Planners are poor market economists and merchandising survey analysts. Use specialist at the start.
 2. Most appraisers are equally bad, but are reluctant to use team approach or to accept EMAS by somebody else as a legitimate set of assumptions for appraisal. Moreover, appraisal financial analysis must be on after tax cash flow in the redevelopment game, or he will miss the market completely. The financial analysis must contain extensive sensitivity analysis so that changing times due to a slow pace of such projects does not invalidate a point conclusion.
 3. The leader of the team should be oriented to empirical observation, be he planner, lawyer or architect, rather than dedicated to purist appraisal or planning dogma and esthetics. The numbers crunch or nothing will be built that should have been built.
- V. The planner can relate to established community preferences as a marketing hypothesis. The Parkview Story in Milwaukee is an example.
- A. Parkview is a twenty acre tract in the central city of Milwaukee which was identified early in the 1950's as a prime candidate for total clearance. Clearance and relocation began in 1963. The development

Exhibit 4

ECONOMIC AND MARKET ANALYSIS STUDY
FOR DOWNTOWN SANTA MARIA

Prepared for: The City of Santa Maria
Redevelopment Agency

George S. Hobbs, Jr., Chairman
Elwin E. Mussell, Vice Chairman
Dan A. Firth
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Thomas P. Weldon, Jr., Executive Director

Prepared by:

GRUEN GRUEN + ASSOCIATES
Economic and Sociological Consultants

February, 1972



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Exhibit 5

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

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

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

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

Table 10 presents the percentage of respondents making remediable complaints. These complaints were used in conjunction with the information about the relationship between the indications of satisfaction discussed above to adjust the present indicators of the proportion of expenditures on various items in downtown Santa Maria (the S variables originally presented in Table 4) to reflect the increase in consumer preferences for downtown Santa Maria that would result from the completion of a sales optimizing redevelopment program. We did not think the evidence warranted using these percentages of remediable complaints (%RC) directly by adding them to the previously revealed preference percentages (S₁₉₇₀) to get a new percentage (S₁₉₇₅, 1980, 1985). Instead, we adopted the following rules to get the new estimates of this preference variable:

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

Table 10

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

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

Source: Gruen Gruen + Associates telephone survey

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

Table 11

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

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

Source: Gruen Gruen + Associates

Table 12

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

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

Exhibit 5

Source: Gruen Gruen + Associates

Table 30
Proportion of Expenditures in Downtown

<u>Trade Area</u>	<u>% Clothing</u>	<u>% Home Furnishings</u>	<u>% Other Retail</u>	<u>% Service</u>
1	15.9	20.5	18.8	33.3
2	22.6	22.8	9.5	35.9
3	13.1	15.5	11.8	23.0
4	5.7	7.0	7.7	5.3
5	5.4	4.5	1.1	4.0
6	2.9	0.9	0.5	1.8
7	2.5	1.5	0.6	0.6
8	6.6	5.0	1.3	3.5
9	2.0	0.6	0.5	0.6

Source: Gruen Gruen + Associates telephone survey

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

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

Source: Gruen Gruen + Associates downtown survey



FOR YES RESPONDENTS ONLY

37. If a new and attractive apartment complex were to be built in Downtown Santa Maria, would you be very likely____1, likely____2, or unlikely____3 to consider this location?
38. If a one-bedroom unit were priced from \$150-175 and a two-bedroom unit from \$175-250, would you be very likely____1, likely____2, or unlikely____3 to consider this location?
39. If a new residential hotel were to be built in Downtown Santa Maria, would you be very likely____1, likely____2, or unlikely____3 to consider this location?

We are going to show you four sets of pictures of differing of shopping centers. We would like to get your opinion of e

Picture No. 1

40. Which of the two pictures do you like the best?

A____1 B____2

a. Why?

INTERVIEWER: If respondent has not mentioned the width of the walkway ask:

41. Did the different widths of the walkway affect your choice in any way? Yes____1 No____2

a. If yes, how?

Picture No. 2

42. Which of the three pictures do you like the best?

A____1 B____2 C____3

a. Why?

43. Which of the three pictures do you like the least?

A____1 B____2 C____3

a. Why?



INTERVIEWER: If respondent has not mentioned the openness or closeness of the shopping center ask:

44. Picture A presents an open mall center. B a partly enclosed center and Picture C a completely closed mall. Did this factor influence your choice in any way? Yes 1 No 2
- a. How?

Picture No. 3

45. Which of the two pictures do you like the best?
A 1 B 2
- a. Why?

46. If Picture A were to contain both apartments and stores while Picture B were to contain only stores, which would you prefer? A 1 B 2
- a. Why?

Picture No. 4

47. Which of the three pictures do you like the best?
A 1 B 2 C 3
- a. Why?

48. Which of the three pictures do you like the least?
A 1 B 2 C 3
- a. Why?

To assist us in better planning for all residents, we would appreciate your answering a few biographical questions.

INTERVIEWER: Fill in sex and race

49. Sex: Male 1 Female 2 65
50. Race/Ethnic: White 1, Black 2, Spanish Surname 3,
Other 4 66

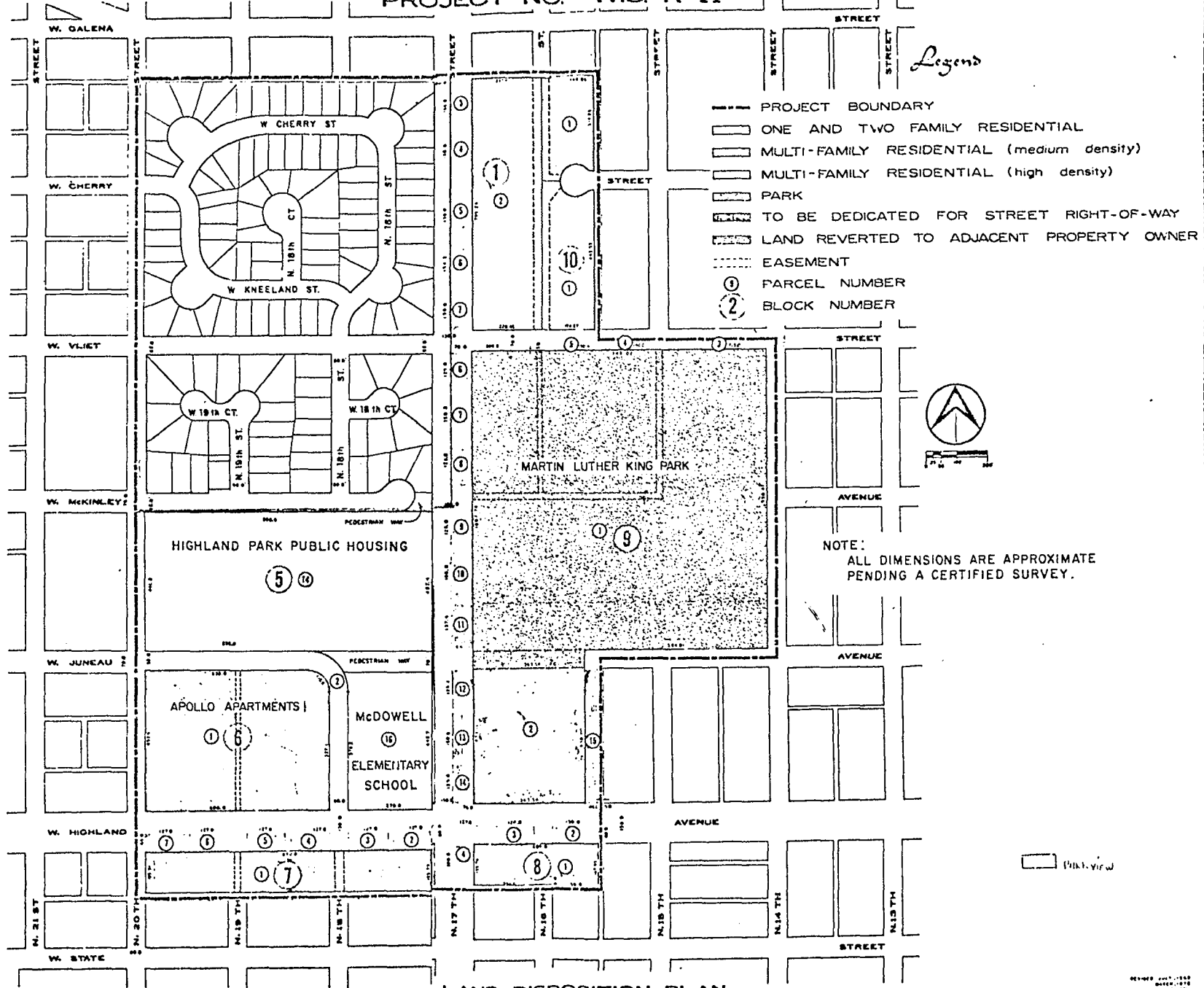


concept for single family cul-de-sac suburban style development began in 1967 and the third phase was completed in late 1970.

- B. The overwhelming choice of family households in the United States in both 1965 and 1977 is single family detached housing.
- C. Given that hypothesis, it is necessary to achieve a suburban product at the lowest possible price and on financing terms that provide the lowest possible monthly payment including real estate taxes.
 - 1. Exhibit 7 is a redevelopment plan.
 - 2. Exhibit 8 indicates the subsidy provided in the sale price of the land.
 - 3. Of the 119 homes built and sold, 50 were FHA insured mortgages under Section 235; 69 were 95% LTV's with Milwaukee lenders, insured by MGIC - the firm which was also project sponsor and developer.
 - 4. Original selling prices ranged from \$17,500 - \$22,050 in the first and second phase; \$19,500 - \$24,800 in the third phase.
 - 5. Only the third phase has produced any foreclosures and for sales; costs reduced original landscaping and buyers came to recognize it as a buffer against adjacent public housing projects.
- D. No statistical impact studies were done before or after the project because these costs are not considered part of project costs nor eligible for federal grants and certifiable costs for project mortgages sharply discourages consumer research before and after.
 - 1. Assembly of a new development building team for each project drastically reduces consumer feedback.
 - 2. Selling project concepts to committees leads to concepts which please the committee rather than the ultimate user. Physical land planners relate to legislative markets rather than ultimate users.
- E. What is known is by follow-up by the private sponsor
 - 1. Neighborhood stability - fewer than 25 homes have been sold, according to a local real estate broker. It takes about three months to find a buyer and financing.
 - 2. Property values - the real estate broker estimates average profit on resale has been \$4,000 - \$5,000 in an area which has a history of value decline.
 - 3. Financial stability - except for third phase where there was an excess number of thinly margined FHA borrower. The imbalance occurred when it was decided to increase ratio of low income home owners.

KILBOURNTOWN - NO. 3

PROJECT NO. • WIS. R-11



SEVENTH BIENNIAL HUD AWARDS FOR DESIGN EXCELLENCE



Descriptive Data (Please Type)

1. If Project Design, check here ☒ and complete this section:
 - a. Type
 - (1) Family Housing ☒ Housing for the Elderly and/or Handicapped ☐ College Housing ☐
 Other Housing ☐ Specify _____
 Number and type of dwelling units 119 Single-family detached
 Give appropriate figures for persons accommodated 610
 - (2) Non-residential structure ☐ Type -
 Give significant figures on size, e.g., square feet of space, etc. -
 - (3) Open Space ☐ Type -
 - (4) Other (specify) ☐ -
 Give appropriate figures on size -
 - b. Site area in acres 20 acres
 - c. Cost of land \$ 147,500 Average Cost Per Lot - \$ 1,200
 - d. Construction cost \$ 2,500,000
 - e. Date of completion of construction Substantially finished since Jan. 1, 1970
2. If Urban Design Concept, check here ☐ and complete this section:
 - a. Concept area in acres _____
 - b. Time frame: 1-5 yrs. ☐ 6-10 yrs. ☐ 11-15 yrs. ☐ 15 yrs. plus ☐
 - c. Estimated public and private investment required \$ _____
 - d. Date of public release of plan _____
3. If Management Approach, check here ☐ and complete item below as appropriate.
4. HUD Assistance:
 Name(s) of HUD Program(s) Urban Renewal, Project WIS-R-11
5. Insert a concise statement (not more than five typed pages) of all information relevant to the evaluation of the entry in the binder windows immediately following this form. Please organize the statement under the following and any additional appropriate headings:
 Public and Private Management Approaches/Planning Context (environmental setting)/Social and Economic Considerations/Program (detailed objectives and limitations)/Significant Design Features/Major Innovations in Construction Methods and Materials.

4. Crime rate -

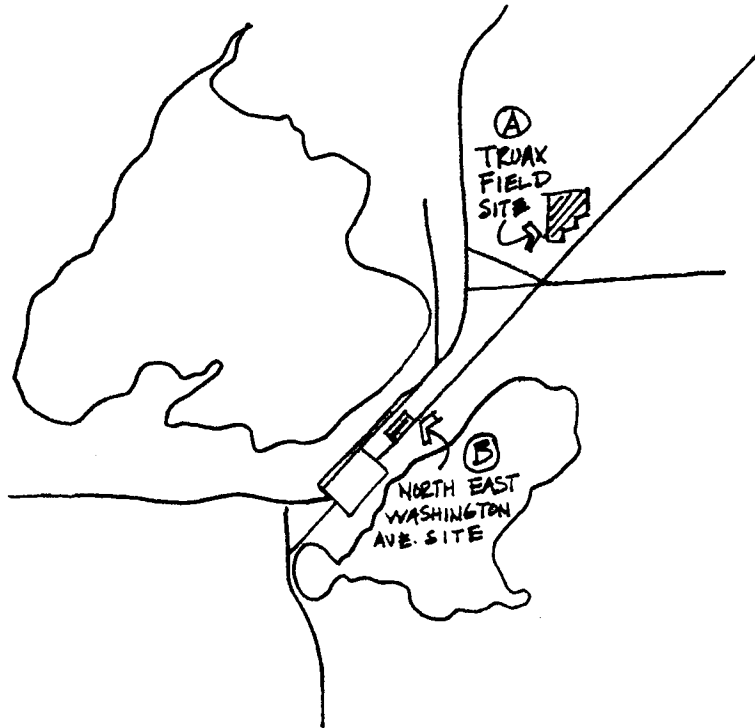
1975 Milwaukee Police Department Criminal
Offenses Reported by Census Tract*

<u>Census Tract Number</u>	<u>Number of Criminal Offenses Reported - 1975</u>
139 - Parkview	80
140 - Adjacent to Parkview	184
138 - Adjacent to Parkview	156
118 - Adjacent to Parkview	158
147 - Adjacent to Parkview	495
148 - Adjacent to Parkview	460

* Milwaukee Police Department 1975 Tab. Sec. Report.

- E. Elementary, junior and senior schools were rebuilt during the urban renewal phase. Marquette University and Concordia College are near by. Jewel Tea has built a neighborhood store two blocks away, but the planners missed a significant opportunity to carry the momentum forward by virtually surrounding the private investment with non-tax producing public land.
1. A basic synergy should exist so that public investment stimulates private investment which in turn will lead to a glomeration of private investment. Traditional physical plans balkinize and prevent the seed of private investment confidence from blooming by making the pot too small. Planners think up open space uses to give the appearance of absorption while preventing growing consumer absorption.
 2. An adequate survey of households in the area with desire and effective demand for such a unit would have permitted the planner to participate and scale the project and perhaps provide a Jewel Tea store at the outset to accelerate demand.
 3. In central city areas, most of the residents per residential units will be found within a half mile on the subject site; the potential for families returning to the central city is a romantic possibility that has yet to materialize.
 4. For each new housing project in your area, use the reverse telephone directory and the telephone book for the year before the project opened and do a scatter diagram to determine the trade area for those residential units. Then do a professional telephone survey to find out why people think they moved.
- VI. Public facility location and cost has never properly considered anything beyond first costs or life cycle cost of the facility. Cost to the user or opportunity costs to the community are not part of the architects design program.

- A. The third case for discussion involves location and construction of a *community technical college* which is currently the subject of massive debate and political infighting in Madison. Only after the location had been picked was an impact study on who benefits and who pays requested over the objections of the School Board. The studies which follow were done in two weeks for 0 dollars but are illustrative of the types of questions which should be raised.
- B. The major cost of any public facility is not the original cost but rather the recurring cost of operations, of lost opportunity, and user travel, time, and inertia overcome.
- C. Good corporate real estate administration always examines the need for space to see if it is cheaper to shift requirement by sub contract, to lease, or to buy, seeking liquidity and the ability to divest of surplus property as revenue capacities shift quickly. Public administrators must handle space as a purchasing problem rather than a problem of civics, monumentality, and political ploy.
- D. Any public facility which generates a flow of people to and from and concentration of employees can be regarded as a pump primer for capital investment. Therefore it follows:
 - 1. It should be located where there is land remaining for private redevelopment response.
 - 2. Cheap land already owned by the public is suspect if it is not contiguous with existing private investment in need of new customer opportunities or refurbishing and possibly expansion.
 - 3. Ideally new tax base generated should produce enough revenue to pay operating expenses of facility to be created with public funds (Madison Art Center).
- E. Retail services and housing are chicken and egg puzzles as they must exist or be created simultaneously in some area. Bond increment financing permits the City to create and give away a free apartment site or a free store site to a developer which will start the process. Increased real estate taxes will refund the gift in three to five years.
- F. Refer to Exhibit 9.



PRELIMINARY FINDINGS:

ECONOMIC AND FISCAL EVALUATION OF
MADISON AREA TECHNICAL COLLEGE
ALTERNATIVE EXPANSION SITES

October 1976

Dr. James A. Graaskamp, Chairman
Mr. Thomas W. Smith

Dept. of Real Estate and Urban Land Economics
Graduate School of Business
University of Wisconsin - Madison

Figure 1 A. TRUAX FIELD SITE

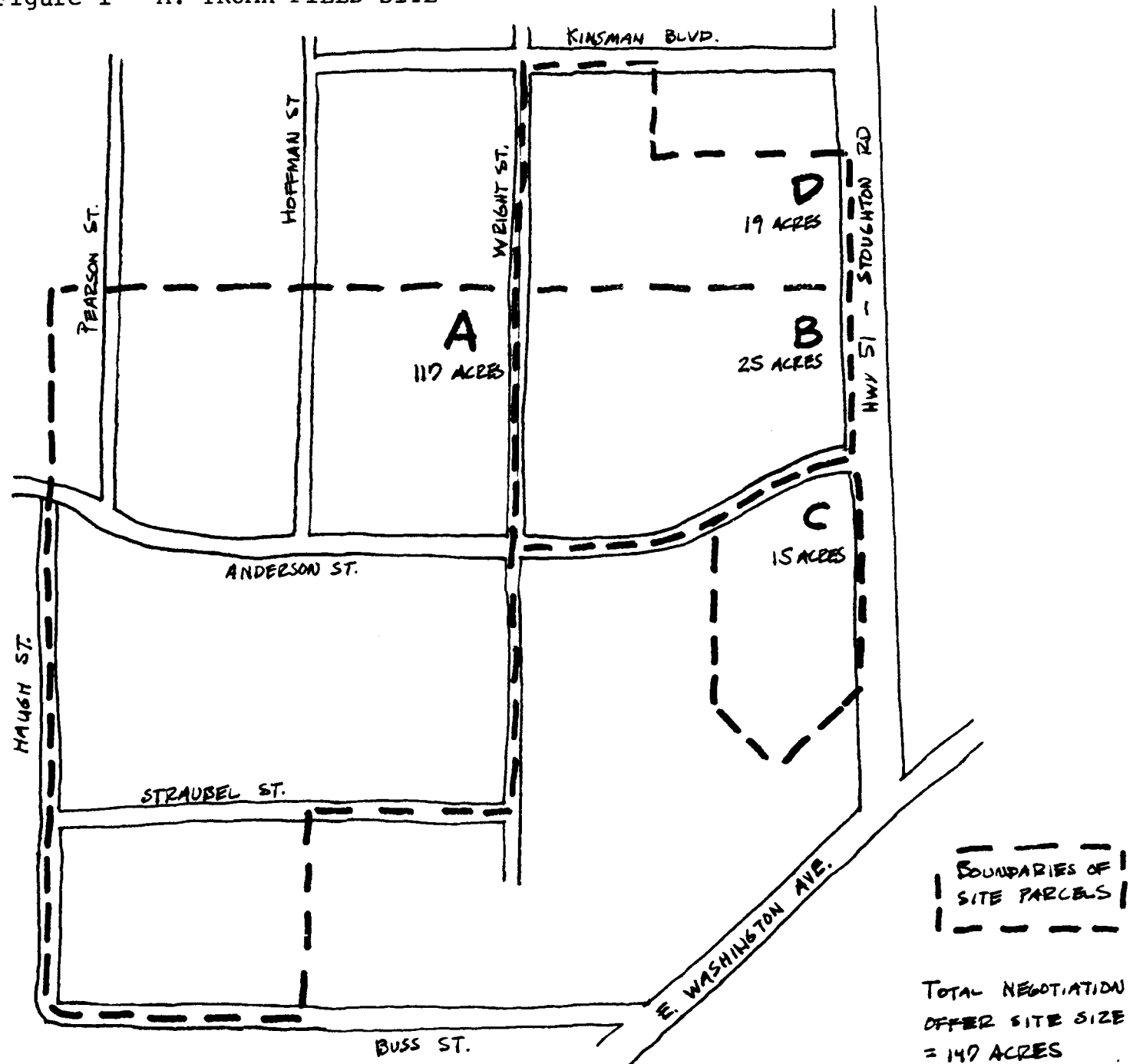
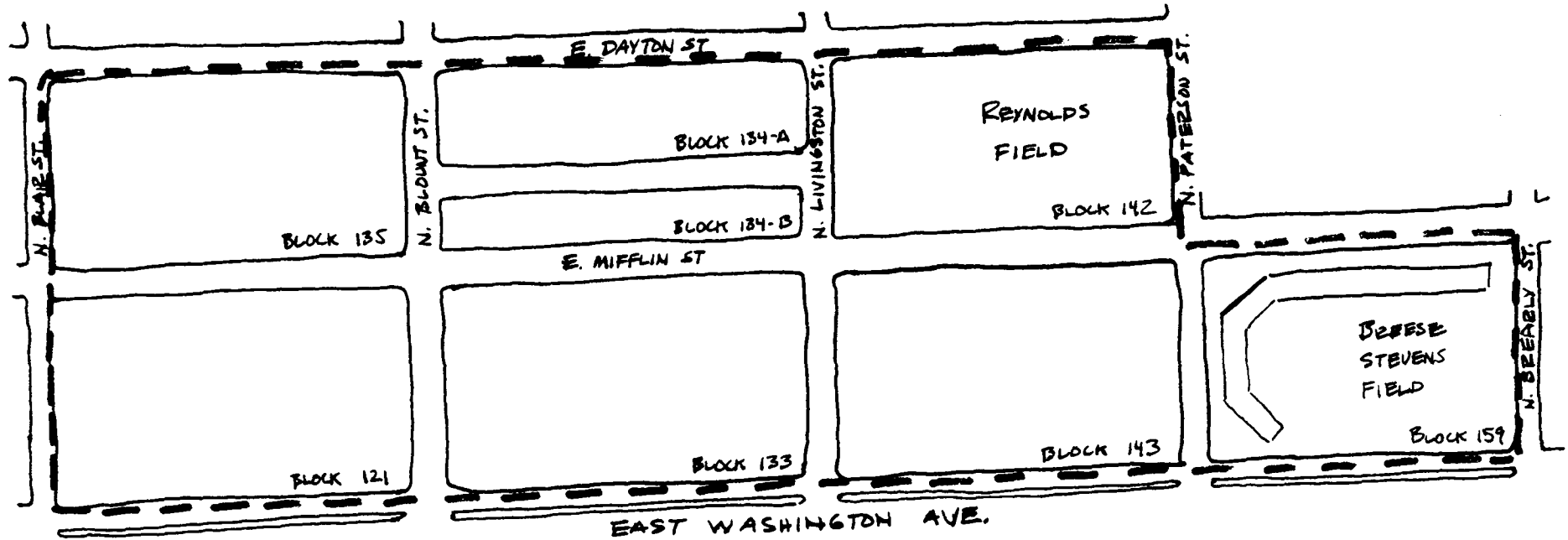


Figure 2 B. NORTH EAST WASHINGTON AVENUE SITE

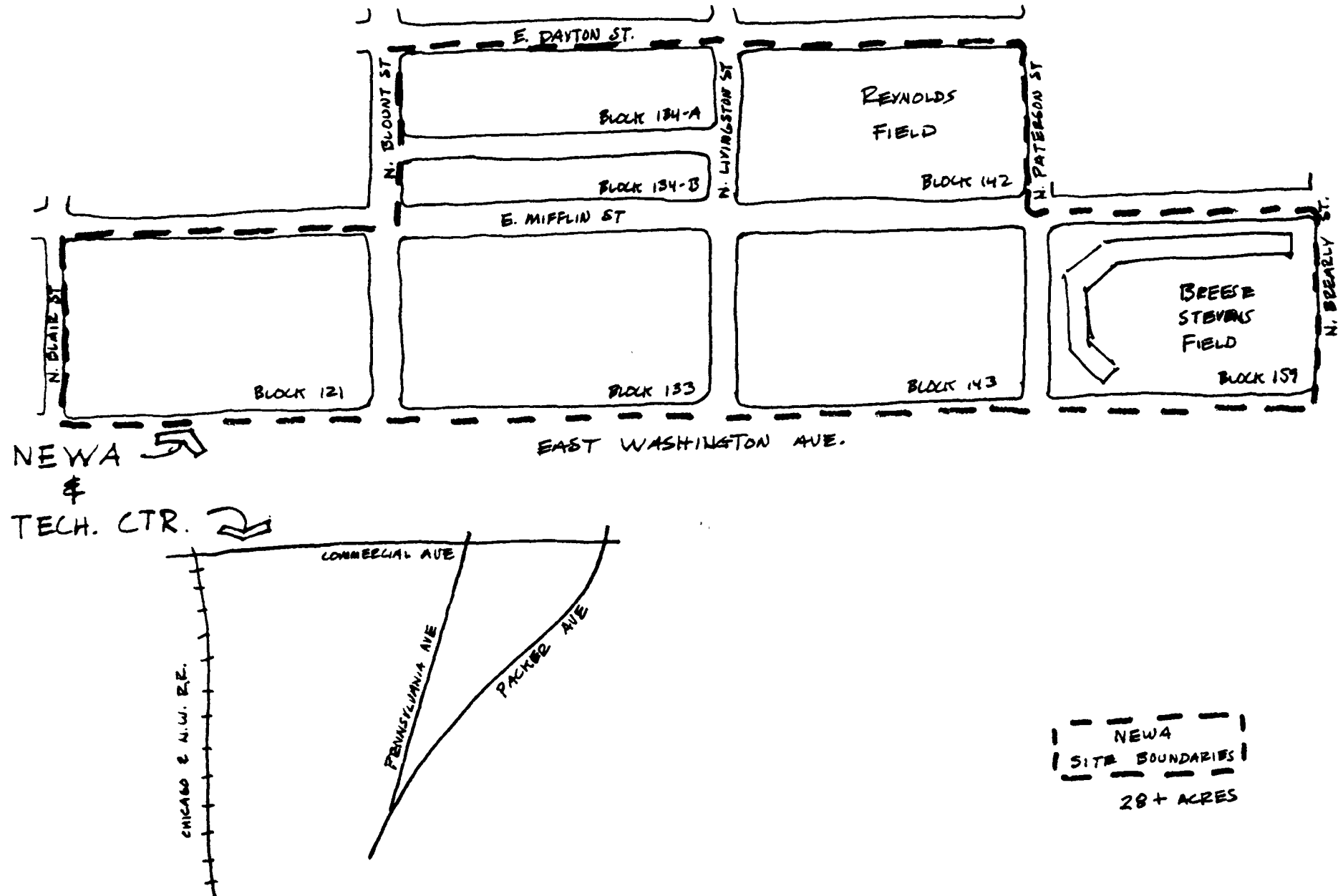


SITE
BOUNDARY

34 ACRES

Figure 3

C. SPLIT SITE - NEWA & TECHNICAL CENTER



4. By whom, and by how much, are these relative costs born? The table on the following page charts the total absolute and the differential relative costs to the four "publics" for which costs were calculated. For MATC, the Split site, then the Truax site are the least costly. For the City of Madison, the Split site is slightly less costly than the NEWA site and both of those are less costly than the Truax Field site. For private business and individuals, the Truax site is significantly more costly than either other alternative. In fact, it is these two groups, the students and the commercial and rental businesses which service MATC for whom a move to Truax Field would be most costly.
5. A significant omission in total cost comparison is the costs for heating and cooling at the North East Washington Avenue site. Conversations with heating engineers suggest that there is a way for using waste heat from MGE Power Plants, both winter and summer. They suggest savings of well over \$100,000 a year, but these engineers are muzzled because they fear that open discussion will expose them to retribution by the proponents of one site or another. This energy linkage MUST BE STUDIED FURTHER. In addition, the state heating plant may have excess capacity at significant capital and operating cost savings depending on how the state chooses to provide office space through construction of GEF II or the purchase or lease of existing structures. These energy savings in future years will be of increasing importance. A savings of \$100,000 a year increases the advantage of a downtown site by \$1,147,000 of present value at 6%.⁽¹⁾
6. A significant assumption of MATC downtown or Truax site requirements has been free parking for the students who drive - a policy which is counter-productive in terms of both energy savings and further deficits for public transit. There is no reason why persons visiting campus should not pay for parking as they do currently on the Lake Street and Webster Street ramps. Therefore, cost of a parking structure for East Washington Avenue sites has been transferred to the City of Madison's parking utility with the possibility that a future decline in the use of cars will be at the risk of the city. The risk is taken in compensation for a downtown site to support vitality of the center city.
7. Vitality of the center city is a concept which is hard to document or measure objectively. Some surveys such as Retail Sales and renovation of downtown apartments were included in the study. However, there is no dollar measure of the cost when the flow of pedestrians is reduced and the appearance of activity slackens, when fewer people expect to meet friends for random social interaction, and when some retail service operations lose that marginal revenue which permits them to maintain that indefinable edge of quality, diversity, or bustle.
8. The Truax Field site (among alternatives A and B) is cheaper for MATC because it creates a subtle, indirect tax on individuals and businesses. Individuals pay more to attend the Truax site in time and transportation costs. If the education that they receive at any site is the same, then the amount of discretionary income for other goods and services is reduced. This study did not measure the reduction in other retail purchases by individuals made necessary by the increase in travel costs. The increase in travel cost does not recognize the lack of convenience services at the Truax site which could cause students to drive to lunch, to supply stores, etc. during breaks in the school day. Finally, the cost to individuals and businesses does not recognize the opportunity cost created by spending more money for going to school, money which otherwise might have been invested in savings at 5% or reinvested in a business at 10% or more. In short, the present value of additional cost to the consumer and the business public of the Truax site is understated, but time did not permit evaluation of feedback effects over time.

⁽¹⁾ In addition to the suggested annual savings of over \$100,000 per year, initial capital costs may be saved as well since there would be no need to construct a boiler facility.

4. By whom, and by how much, are these relative costs born? The table on the following page charts the total absolute and the differential relative costs to the four "publics" for which costs were calculated. For MATC, the Split site, then the Truax site are the least costly. For the City of Madison, the Split site is slightly less costly than the NEWA site and both of those are less costly than the Truax Field site. For private business and individuals, the Truax site is significantly more costly than either other alternative. In fact, it is these two groups, the students and the commercial and rental businesses which service MATC for whom a move to Truax Field would be most costly.
5. A significant omission in total cost comparison is the costs for heating and cooling at the North East Washington Avenue site. Conversations with heating engineers suggest that there is a way for using waste heat from MGE Power Plants, both winter and summer. They suggest savings of well over \$100,000 a year, but these engineers are muzzled because they fear that open discussion will expose them to retribution by the proponents of one site or another. This energy linkage MUST BE STUDIED FURTHER. In addition, the state heating plant may have excess capacity at significant capital and operating cost savings depending on how the state chooses to provide office space through construction of GEF II or the purchase or lease of existing structures. These energy savings in future years will be of increasing importance. A savings of \$100,000 a year increases the advantage of a downtown site by \$1,147,000 of present value at 6%.⁽¹⁾
6. A significant assumption of MATC downtown or Truax site requirements has been free parking for the students who drive - a policy which is counter-productive in terms of both energy savings and further deficits for public transit. There is no reason why persons visiting campus should not pay for parking as they do currently on the Lake Street and Webster Street ramps. Therefore, cost of a parking structure for East Washington Avenue sites has been transferred to the City of Madison's parking utility with the possibility that a future decline in the use of cars will be at the risk of the city. The risk is taken in compensation for a downtown site to support vitality of the center city.
7. Vitality of the center city is a concept which is hard to document or measure objectively. Some surveys such as Retail Sales and renovation of downtown apartments were included in the study. However, there is no dollar measure of the cost when the flow of pedestrians is reduced and the appearance of activity slackens, when fewer people expect to meet friends for random social interaction, and when some retail service operations lose that marginal revenue which permits them to maintain that indefinable edge of quality, diversity, or bustle.
8. The Truax Field site (among alternatives A and B) is cheaper for MATC because it creates a subtle, indirect tax on individuals and businesses. Individuals pay more to attend the Truax site in time and transportation costs. If the education that they receive at any site is the same, then the amount of discretionary income for other goods and services is reduced. This study did not measure the reduction in other retail purchases by individuals made necessary by the increase in travel costs. The increase in travel cost does not recognize the lack of convenience services at the Truax site which could cause students to drive to lunch, to supply stores, etc. during breaks in the school day. Finally, the cost to individuals and businesses does not recognize the opportunity cost created by spending more money for going to school, money which otherwise might have been invested in savings at 5% or reinvested in a business at 10% or more. In short, the present value of additional cost to the consumer and the business public of the Truax site is understated, but time did not permit evaluation of feedback effects over time.

⁽¹⁾ In addition to the suggested annual savings of over \$100,000 per year, initial capital costs may be saved as well since there would be no need to construct a boiler facility.

* COMMENTS

ESTIMATED AUTO OPERATING COSTS FOR POST-SECONDARY STUDENTS: The costs shown for the alternatives are identical with those shown on the Environmental Impact Statement with one exception: They represent a cost/mile of 12¢ rather than 10¢. Therefore, total costs are 20% higher. This is in accord with current State of Wisconsin payments per mile for use of automobiles. It should be noted that, as gas costs per mile increase, the difference between sites expands geometrically; it does not remain constant. Therefore, in looking at future costs, the difference will continue to increase as costs continue to increase.

ESTIMATED AUTO OPERATING COSTS FOR MATC FACULTY AND STAFF: The costs of commuting were not estimated for faculty and staff in the EIS. 1980-81 estimates show that there will be 541 faculty and staff. Faculty survey results showed that 70% drive their car to school. Keeping that proportion constant, and assuming that the residency distribution pattern for faculty is equal to post-secondary students, (a factor which probably acts to understate costs somewhat for both sites), the approximate auto operating costs (using the same method as in the EIS) for each site were estimated - again, using 12¢ per mile. This estimate should be revised when and if specific data on faculty and staff residence becomes available.²

ESTIMATED AUTO OPERATING COSTS FOR MATC "ADULT" STUDENTS: The costs for commuting "adult" students (those that are taking credit-free courses) were not computed in the EIS. Adult students usually take one or two courses per semester. Courses meet not only in MATC facilities, but in scattered locations throughout the city area. For this reason, and because apparently little programming has been done regarding courses likely to be taught in new MATC facilities for adults, there was no estimate of auto operating costs. This is particularly unfortunate since there are currently approximately 10,000 adult students as compared with a headcount of 7600 post-secondary students.¹ Clearly, if adult students had the same residence distribution pattern as post-secondary students and the same classroom locations, the difference in auto costs would be on the order of \$508,766 per year in favor of a NEWA site. However, with available information, this is impossible to determine accurately. When and if specific information on adult students and their places of residence is compiled, precise estimates should be prepared. The estimate contained here cuts the \$508,766 difference in half, taking into account the fact that adult students are not as likely to live downtown, that not all classes for adults are likely to be held at MATC facility, and that the frequency of days attended is less than half of that for post-secondary students. However, there can be little dispute to the fact that the NEWA site is the most centrally located site and, therefore, will have the lowest overall commuting costs for those attending classes at an MATC facility.²

ESTIMATED 9-MONTH HOUSING COSTS FOR STUDENTS IN MADISON AREA: The costs presented are those included in the EIS. We do feel, however, that older housing near downtown will cause lower per capita rents over time for alternatives B and C, resulting in less difference in cost than that shown on the table.

PARKING COSTS FOR STUDENTS: This estimate is based on charges for parking in the 960 stall parking structure at NEWA of 75¢/day/student. It is estimated that there will be one complete turnover in spaces per day. No costs are shown for the Truax Field site. The policy is to provide free parking on 4000 spaces to be provided. We question this policy in light of increased demand pressures on gas as well as in light of a variety of state and local policies that encourage higher utilization of mass transit. The question of charging for parking and the implication on annual recurring costs should be further investigated.

¹Information from a phone conversation with Mr. Cliff Andrioli, Registrar's Office, MATC. No projection of adult student enrollment has been made by MATC according to Mr. Andrioli.

²The centrally located downtown sites will probably gain, over time, and increasingly greater marginal cost advantage over that shown in this report. Costs of gasoline and auto operating expenses were calculated to increase at a 6% rate for the twenty-year period covered by the present value cost estimates. However, in the case of petroleum products, the rate of price increase in recent years has exceeded the 6% figure. Therefore, the estimates are probably conservative.

February 3, 1977

EXPANDED PRELIMINARY EVALUATION OF ECONOMIC AND FISCAL IMPACTS
OF MADISON AREA TECHNICAL COLLEGE CONSTRUCTION OF A
NEW CAMPUS OF ALTERNATIVE EXPANSION SITES *

At the request of Mary Louise Symon, Chairman of the Dane County Board of Supervisors, the four authors of this report have reviewed and reconciled by joint study the assumptions and conclusions of somewhat contradictory studies of fiscal impact relative to MATC site alternatives. The four authors have established a common set of assumptions for the capital and annual recurring costs inherent in the construction and operation of the proposed new MATC facility alternatives within the limits of information available to use in terms of student patterns, proposed design features, and transportation costs shifted to the student public.

Refinement and expansion of the study has delineated impacts on Dane County as well as the City of Madison, has delineated component construction cost to reflect differences for heating, athletic facilities, and foundations on various sites, and has more accurately represented annual recurring costs as they shift among parties at interest. For example, a parking ramp constructed by the City of Madison represents an outlay in year one but income for the next twenty years; however, that income to the City is an expense to the students. Such an expansion of accounting detail does not change the total cost but does reveal the shift of costs among the parties at interest including the MATC district, Dane County, the City of Madison, affected businesses, and full time or adult education student groups. Thus, this report provides a better description of "who pays and who benefits" from alternative site selections.

THIS JOINT STUDY CONCLUDES THAT A NORTHEAST WASHINGTON AVENUE CAMPUS FOR MATC HAS A \$5,677,200 COST ADVANTAGE OVER THE PROPOSED TRUAX FIELD SITE IN PRESENT VALUE TERMS DISCOUNTED AT 6% OVER TWENTY YEARS. THIS ESTIMATE IS BASED ON THE ASSUMPTIONS CONTAINED IN FOOTNOTES IN THE TABLES WHICH FOLLOW AND IN CERTAIN MORE DETAILED EXPLANATION OF METHODS USED TO ESTIMATE COST PROVIDED IN THE ORIGINAL SMITH-GRAASKAMP STUDY DATED OCTOBER 25, 1976, AND THE COULTER-VANDERZANDEN STUDY DATED NOVEMBER 15, 1976.

Several significant controversies remain about the proposed MATC building program as it would influence fiscal impacts on the parties identified above. These are identified below as they affect the assumptions made for this study:

1. Nobody has determined how the MATC buildings will be heated. Since gas would not be available, alternative sources would include coal, electricity, reclaimed heat from lights, activities, and body heat of building occupants, or solar energy.

*Prepared by Prof. James A. Graaskamp and Mr. Thomas W. Smith, Department of Real Estate and Urban Land Economics, Graduate School of Business, University of Wisconsin; and Mr. George Coulter, Administrative and Budget Analyst and Mr. Richard Vanderzanden, Airport Property Manager, Dane County.

- a. Coal would require a boiler plant of unknown capacity, a tall chimney, and approval of the mechanical system by air quality officials. The county has an ordinance establishing maximum structure height near the airport and the Truax site; FAA has approved anything up to 150' in exchange for the county airport waiving any future claims for damage or injunctive relief from an increase in noise due to increased future airport operations. (See below.)
 - b. Architect claims steam generated from coal is unnecessary because of advanced building design. Architect proposes to heat MATC buildings from reclaimed heat generated by lights, activities, and bodies of occupants. Architect proposes a system somewhat more expensive than now which could take advantage of solar energy innovations later. University Planning & Construction engineers report that heating a building with excess body heat and lighting heat can work for most daylight hours if bodies and lights are evenly distributed over the building floor area and through time, if there is limited ingress and egress during the day. It is their opinion that a classroom building with occupancy density and movement in and out changing every hour and shop buildings with large garage doors, exhaust air vents, etc., do not make practical reclaimed heat for more than 50% of what might be required. The architects presume electricity would supply deficits.
 - c. However, at the NEWA site, MG&E may be able to deliver surplus steam throughout the year except July and August (which are peak electricity demand months) and that would offer some potential (as yet uncoded) savings relative to energy sources at Truax. As an arbitrary indication of this potential linkage advantage, we have added \$500,000 to the cost of the NEWA site for a steam tunnel to connect with MG&E Blount Street plant but have added \$1 million to the cost of the Truax site for supplementary boilers or solar heaters and first costs of reclaimed heat systems.
2. Research into feasibility of steam boiler stacks in an airport zone revealed that a stack was permissible up to 150' but that the federal aviation administration is very sensitive to the impact of increasing flight noise on adjacent land uses. Existing zoning ordinances do not relate permissible uses to noise, only to height and mass of structure. The Wisconsin State Aeronautical Administration is seeking enabling legislation this year to require land use zoning to restrict uses sensitive to noise within a half mile of the runway center line and in some cases beyond. Wisconsin has recently published "Guide for Land Use Planning Around Airports." Both the federal and the state agency fear future injunctions on airport operations due to noise. Both agencies advise modification of building specifications for a school building near an airport but have no legal powers to control uses. The FAA approval was subject to standard FAA clause (which appears as para 20 in MATC lease) which reserves "the right of aircraft to cause any noise inherent in the operation of aircraft."

- a. Noise is not presently a consideration in Dane County land use control ordinances; therefore, there is no legal constraint on uses at the Truax site or the East Washington Avenue site relative to noise. Far sighted communities may wish to modify their land use ordinances or building construction ordinances. Of course, Truax is not in the league with O'Hare or Los Angeles International where legal actions have occurred so that no further ordinances may be required in Dane County.
 - b. School buildings can be built at extra cost so that walls and ceilings will screen out unacceptable noise intrusions near airports. These same features often contribute to energy conservation as well. Noise levels on East Washington Avenue downtown can be argued as equal to those encountered at the airport. No recognition of possible differences in cost for noise proofing of roofs at the airport or sidewalls downtown has been made for this study.
3. A significant cost differential between the Truax and downtown site sector is the differential in the transportation cost for full time and adult students. The analysts have differed with the City of Madison viewpoint and significantly reduced the alleged metropolitan bus deficit, but have been unable to explain or predict the transportation cost burden of adult education courses for the following reasons:
- a. Over a year ago, the Madison School Board met with MATC and offered the use of surplus classrooms in schools throughout the City for adult education courses at rents of \$2.00 - \$2.40 per square foot per 750 square foot classroom per year, a cost which MATC cannot duplicate in the rental market or through new construction. It is reasonable to assume that instructors could commute to these classrooms more cheaply than adults could commute to a single new campus center.
 - b. Shifting adult education courses in large part to Madison Public Schools and other school systems in the MATC district might reduce building space requirements for totally new MATC campus buildings regardless of site.
 - c. Other area technical colleges in Wisconsin have substantially reduced adult education offerings after financing and constructing of new campuses. It has been alleged that MATC would like to reduce its adult education program, which costs much more to deliver than it provides in revenue, diluting other full time programs. If such a reduction is forthcoming, MATC should indicate how such a reduction of adult courses (or movement of courses to rented Madison Public Schools and others in the district) might reduce overall space needs of the proposed building program. It would also reduce the cost impact differential between the two sites at issue.

4. The four authors recognize that a great deal more study should occur to enable them to accomodate the economic multiplier or ripple effect which a change in MATC Campus location would have on the Madison SMSA economy. Due to inadequate information and a relatively short time period, the authors were constrained to reaching agreement only on the costs and revenues which could be directly traced to the site development proposals as originally sketched. This study is in the nature of a cost-effective study and not a cost-benefit study as we are assuming identical educational and community benefits at each site.

Net Present Value of Capital and Recurring Costs

	<u>A. Truax</u>	<u>B. NEWA</u>	<u>C. Split</u>
I. MATC			
Capital	\$ 40,784,000	\$ 44,065,820	\$ 40,105,550
Recurring	<u>1,674,895</u>	<u>15</u>	<u>2,443,015</u>
SUB-TOTAL	<u>\$ 42,458,895</u>	<u>\$ 44,065,835</u>	<u>\$ 42,548,565</u>
II. Madison			
Capital	\$ 711,595	\$ 5,680,115	\$ 5,680,115
Recurring	<u>(2,664,530)</u>	<u>(9,487,730)</u>	<u>(8,861,790)</u>
SUB-TOTAL	<u>\$ (1,952,935)</u>	<u>\$ (3,807,615)</u>	<u>\$ (3,181,675)</u>
III. Dane County			
Capital	\$ 120,000	\$ 0	\$ 0
Recurring	<u>(1,119,040)</u>	<u>(792,600)</u>	<u>(792,600)</u>
SUB-TOTAL	<u>\$ (999,040)</u>	<u>\$ (792,600)</u>	<u>\$ (792,600)</u>
IV. Private Business			
Capital	\$ 185,620	\$ 185,620	\$ 185,620
Recurring	<u>3,397,670</u>	<u>4,242,550</u>	<u>4,472,710</u>
SUB-TOTAL	<u>\$ 3,583,290</u>	<u>\$ 4,428,170</u>	<u>\$ 4,658,330</u>
V. Individuals			
Capital	\$ 0	\$ 0	\$ 0
Recurring	<u>202,364,935</u>	<u>195,884,155</u>	<u>200,408,585</u>
SUB-TOTAL	<u>\$202,364,935</u>	<u>\$195,884,155</u>	<u>\$200,408,585</u>
I-V. Combined			
Capital	\$ 41,801,215	\$ 49,931,555	\$ 45,971,285
Recurring	<u>203,653,930</u>	<u>189,846,390</u>	<u>197,669,920</u>
<u>TOTAL</u>	<u>\$245,455,145</u>	<u>\$239,777,945</u>	<u>\$243,641,205</u>

Difference in Net Present Value Costs

	<u>A. TRUAX SITE</u>	<u>B. NEWA SITE</u>	<u>C. SPLIT SITE</u>
I. MATC			
Capital	\$ 678,450	\$3,960,270	\$ -0-
Recurring	<u>1,674,880</u>	<u>-0-</u>	<u>2,243,000</u>
SUB-TOTAL	-0-	\$1,606,940	\$ 89,670
II. Madison			
Capital	\$ -0-	\$4,968,520	\$4,968,520
Recurring	<u>6,823,200</u>	<u>-0-</u>	<u>625,940</u>
SUB-TOTAL	\$ 1,854,680	-0-	\$ 625,940
III. Dane County			
Capital	\$ 120,000	\$ -0-	\$ -0-
Recurring	<u>-0-</u>	<u>326,440</u>	<u>326,440</u>
SUB-TOTAL	\$ -0-	\$ 197,440	\$ 197,440
IV. Private Business			
Capital	\$ -0-	\$ -0-	\$ -0-
Recurring	<u>-0-</u>	<u>844,880</u>	<u>1,075,040</u>
SUB-TOTAL	\$ -0-	\$ 844,880	\$1,075,040
V. Individuals			
Capital	\$ -0-	\$ -0-	\$ -0-
Recurring	<u>6,480,780</u>	<u>-0-</u>	<u>4,524,430</u>
SUB-TOTAL	\$ 6,480,780	\$ -0-	\$4,524,430
I-V. Combined			
Capital	\$ -0-	\$8,130,340	\$4,170,070
Recurring	<u>13,807,540</u>	<u>-0-</u>	<u>7,823,530</u>
<u>TOTAL</u>	<u>\$ 5,677,200</u>	<u>\$ -0-</u>	<u>\$3,863,260</u>

Annual Recurring Cost NPV Calculations

(all discounted @ 6% over 20 years)

	<u>Truax</u>	<u>NEWA</u>	<u>Split</u>
I. <u>MATC</u>			
Leased Land	\$ 26,580 @ 1% = \$ 331,245 ¹	\$1 @ 8% = \$15	\$1 @ 8% = \$15
Parking	55,000 @ 8% = 1,343,650	0	0
Split-Site Oper.	0 = 0	0	100,000 @ 8% = \$ 2,443,000
SUB-TOTAL NPV	\$ 1,674,895	\$15	\$
II. <u>Madison</u>			
All Recurring Costs	\$ (109,068) @ 8% = \$ (2,664,530)	\$ (388,364) @ 8% = \$ (9,487,730)	\$ (362,742) @ 8% = \$ (8,861,790)
SUB-TOTAL NPV	\$ (2,664,530)	\$ (9,487,730)	\$ (8,861,790)
III. <u>Dane County</u>			
All Recurring Costs	\$ (55,952) @ 6% = \$ (1,119,040)	\$ (39,630) @ 6% = \$ (792,600)	\$ (39,130) @ 6% = \$ (792,600)
SUB-TOTAL NPV	\$ (1,119,040)	\$ (792,600)	\$ (792,600)
IV. <u>Business</u>			
Taxes - City	\$ 117,511 @ 8% = \$ 2,870,790	\$ 158,549 @ 8% = \$ 3,873,350	\$ 158,549 @ 8% = \$ 3,873,350
County	26,344 @ 6% = 526,880	18,460 @ 6% = 369,200	29,968 @ 6% = 599,360
SUB-TOTAL NPV	\$ (3,397,670)	\$ 4,242,550	\$ 4,472,710
V. <u>Individual</u>			
Auto	\$4,644,000 @ 8% = \$113,452,920	\$3,832,395 @ 8% = \$ 93,625,410	\$4,054,725 @ 8% = \$ 99,056,930
Parking	0 = 0	321,280 @ 8% = 9,070,370	334,150 @ 8% = 8,163,280
Housing	4,305,000 @ 6% = 86,100,000	4,522,000 @ 6% = 90,440,000	4,522,000 @ 6% = 90,440,000
Transit	115,105 @ 8% = 2,812,015	112,500 @ 8% = 2,748,375	112,500 @ 8% = 2,748,375
SUB-TOTAL NPV	\$202,364,935	\$195,884,155	\$200,408,585

¹This and all other figures on page show rate of inflation applied to first year annual cost times 6% discount rate over 20 years.

I. MATC

CATEGORIES	A. TRUAX SITE		B. NEWA SITE		C. SPLIT SITE
A. Initial Capital Costs					
Property Acquisition					
Property	\$ 0		\$ 4,140,900		\$ 3,465,900
Relocation	0		653,600		478,600
Court Costs	0		219,300		185,750
Real Estate Contingency	0	\$ 0	292,400	\$ 5,306,200	224,400
Demolition		27,000		460,100	387,360
Utilities		396,000		393,000	393,000
Site Work		3,490,000		1,289,300	1,186,120
Construction					
New	\$35,267,000 ¹		\$33,823,000 ¹		\$29,481,000 ¹
Remodeling	0		400,000		400,000
Fixed Equip.	2,180,000	\$37,447,000	2,180,000	\$36,403,000	2,180,000
Sub-Total		\$41,333,000		\$43,851,600	\$32,061,000
Contingency		2,000,000		2,000,000	2,000,000
Time Delay Costs		0		1,973,320 ²	1,727,420 ²
Road Improvement Assessment		210,000		0	0
Gross Total Capital Costs		\$43,543,000		\$47,824,820	\$42,114,550
Less:					
Proceeds of Property Sale:		\$(2,759,000) ³		\$(2,759,000) ³	\$(1,009,000) ³
Community Devel. Block Grant		0		(1,000,000) ⁴	(1,000,000) ⁴
Net Total Capital Costs		\$40,784,000		\$44,065,820	\$40,105,550
Less Bond Issue:		(30,000,000)		(30,000,000)	(30,000,000)
Unmet Costs		\$10,784,000		\$14,065,820	\$10,105,550
B. Annual Recurring Costs					
Land Lease	\$ 26,580		\$ 1 ⁵		\$ 1 ⁵
Parking Lot Maintenance Cost	55,000		0		0
Extra Cost for Operating a Split Site	0		0		100,000 ⁶
Net Total Annual Costs	\$ 81,580		\$ 1		\$ 100,001

1. Uses the less expensive type construction indicated in the Graaskamp Study for a \$4,000,000 savings at any site.
2. Assumes 6% annual inflation factor applied to sub-total capital costs for 9-month delay caused by the need to relocate and remove persons and buildings.
3. Graaskamp Study figure.
4. This grant money is applied to only these two sites by the City of Madison.
5. From Graaskamp Study.
6. Estimate, to include duplicate heating, parking, utilities, etc.
7. Estimated by staff.

II. CITY OF MADISON

<u>CATEGORIES</u>	<u>A. TRUAX SITE</u>	<u>B. NEWA SITE</u>	<u>C. SPLIT SITE</u>	
A. Initial Capital Costs				
Community Development Block Grant	\$ 0	\$ 910,000	\$ 910,000	
Foregone Renovation Costs for Breese Stevens Field	0	(400,000)	(400,000)	
Street & Highway Improvements	590,000	255,000	255,000	
Traffic Engineering Improvements	76,595	91,515	91,515	
Property Acquisition (Parking)	0	938,600 ¹	938,600 ¹	
Parking Structure	0	3,840,000 ¹	3,840,000 ¹	
Lost Prop. Taxes for MATC Lease Term (1 Yr.)	<u>45,000</u>	<u>45,000</u>	<u>45,000</u>	
Total Initial Capital Costs	\$ 711,595	\$5,680,115	\$5,680,115	
B. Annual Recurring Costs (Gains)				
Reduced Maintenance Costs for Breese Stevens Field	\$ 0	\$ (14,850) ²	\$ (14,850) ²	
Mass Transit Loss (Gain)	(425) ³	33,430 ³	33,430 ³	
Parking Revenue	0	(371,280) ⁴	(334,150) ⁴	
Traffic Engr. Maint. Costs	3,429	2,355	2,355	
Street Div. Maint. Costs	5,438	1,360 ⁵	1,360 ⁵	
Parking Ramp Maint. Costs	0	98,000 ⁵	98,000 ⁵	
Property Tax Losses (Gains)				
Site Owners - Net	\$ 0	\$ 21,170	\$ 9,662	
Induced Real Estate Taxes - Res.	(92,170)	(131,375)	(131,375)	
Induced Real Estate Taxes - Comm.	<u>(25,341)</u>	<u>(27,174)</u>	<u>(27,174)</u>	
Total Annual Recurring Costs	\$ (109,068)	\$ (388,364)	\$ (362,742)	

-
1. Assumes a 960 car structure at \$4,000/car. (per J. Flad EIS).
 2. From City Parks Department Budget.
 3. Refer to attached Mass Transit Cost Analysis.
 4. Assumes 2,790 cars for day with: 1,920/day using parking structure
470/day parking free on side streets
400 meters in other ramps.
Assumes 10% less total cost for the free parking at the Split Site.
Assumes 170 school days.
Assumes \$274 cost/offstreet meter and \$252 car/meter (from 1977 City Budget).
 5. Estimated from City and County ramp experience.

III. COUNTY OF DANE

<u>CATEGORIES</u>	<u>A. TRUAX SITE</u>	<u>B. NEWA SITE</u>	<u>C. SPLIT SITE</u>
A. Initial Capital Costs			
Foregone Net Revenue For Leasing Land	<u>\$120,000</u> ¹	\$ 0	\$ 0
Total Initial Capital Costs	\$120,000	\$ 0	\$ 0
B. Annual Recurring Costs			
Lease Cost (Revenue)	\$(26,580)	\$ 0	\$ 0
Property Tax Losses (Gains)			
Site Owners - Net	\$ 0	\$ 0	\$ 0
Induced Taxes - Residential	(23,042) ³	(32,840) ³	(32,840) ³
Induced Taxes - Commercial	<u>(6,330)</u> ³	<u>(6,790)</u> ³	<u>(6,790)</u> ³
Total Annual Recurring Costs	\$(29,372) ³	\$(39,630) ³	\$(39,630) ³
	\$(55,952)	\$(39,630)	\$(39,630)

-
1. Net Present Value of total parcel less value of land usable by others.
 2. Interest at 6% per year.
 3. City of Madison induced taxes adjusted by ratio of tax rates: $\frac{\text{County}}{\text{City}} = .25$.

IV. PRIVATE BUSINESS

<u>CATEGORIES</u>	<u>A. TRUAX SITE</u>	<u>B. NEWA SITE</u>	<u>C. SPLIT SITE</u>	
A. Initial Capital Costs				
Reduced Property Taxes (1 Yr.)	\$ (45,000)	\$ (45,000)	\$ (45,000)	
Lost MATC Rentals (1 year)	<u>230,620</u>	<u>230,620</u>	<u>230,620</u>	
Total Initial Capital Costs	\$ 185,620	\$ 185,620	\$ 185,620	
B. Annual Recurring Costs (Gains)				
Property Taxes				
1. Commercial - Paid Directly				
Additional City Tax for New Development	\$ 25,341	\$ 27,174	\$ 27,174	
Additional County Tax for New Development	6,336	6,790	6,790	
Net Reduction for Some Businesses not Relocating	(654)	(4,565)	(2,084)	
2. Residential - Paid Through Commercial				
Additional City Tax for New Development	\$ 92,170	\$ 131,375	\$ 131,375	
Additional County Tax for New Development	23,042	32,840	32,840	
Net reduction for some individuals not relocating	<u>(2,380)</u>	<u>(16,605)</u>	<u>(7,578)</u>	
Total Annual Recurring Costs	\$ 143,855	\$ 177,009	\$ 188,517	

V. INDIVIDUALS

<u>CATEGORIES</u>	<u>A. TRUAX SITE</u>	<u>B. NEWA SITE</u>	<u>C. SPLIT SITE</u>
A. Initial Capital Costs			
B. Annual Recurring Costs (Gains)			
Auto Costs ⁵			
Post-Secondary Students	\$2,700,250	\$2,223,370	\$2,445,700 ¹
Faculty	168,020	145,915	145,915 ¹
Adult	<u>1,776,480</u>	<u>\$4,644,750</u>	<u>1,463,110¹</u>
Parking Costs ²	\$	\$ 0	\$ 371,280
Housing Costs (9 months)		4,305,000	4,522,000
Bus Transit Costs ⁴		<u>115,105</u>	<u>112,500</u>
Total Annual Recurring Costs	\$9,064,855	\$8,838,175	\$9,023,375

1. 10% higher than Graaskamp Study to account for commuting between the two locations.
2. Fees assumed to equal City of Madison revenue computation--See City of Madison sheet.
3. Decreased by 10% from NEWA Site to account for free parking at Tech. Center.
4. See attached Mass Transit Cost Analysis.
5. Assumes 14.81¢/mile from County experience.