

~~/HOUSING AFFORDABILITY/~~
IMPACTS OF ZONING AND SUBDIVISION REGULATIONS

by

Kenneth Roland Howell, Jr.

B. S., Northern Arizona University, 1977

A MASTER'S THESIS

submitted in partial fulfillment of the

requirements for the degree

MASTER OF LANDSCAPE ARCHITECTURE

Department of Landscape Architecture

KANSAS STATE UNIVERSITY
Manhattan, Kansas

1986

Approved by:



LD
2668
T4
1986
H68
c.2

ACKNOWLEDGEMENTS

A11206 722570

My sincere appreciation is extended to the three members of my faculty advisory committee; Professors Dennis Day, Gene Ernst and Tony Barnes, for their patience, support and understanding throughout this study.

I also wish to thank the many people who provided assistance in so many different ways during the course of this study, including:

- | | |
|-----------------|---|
| Michael Shibley | National Association of Home Builders |
| Gene Herndon | National Association of Home Builders |
| Dave Robertson | U.S. Department of Housing and Urban
Development |
| Welford Sanders | American Planning Association |
| Terry Leonard | Bloodgood Architects, Des Moines, Ia |
| Richard Counts | Planning Dept., Phoenix, Az |
| Gary Greenan | School of Architecture, University of
Miami |
| Jack & Jim Ryan | Ryan Realty, Manhattan, Ks |
| John Roberts | Roberts Realty, Manhattan, Ks |
| Dennis Day | Habitats Construction, Manhattan, Ks |
| Roger Schultz | D & R Construction, Manhattan, Ks |
| Loren Reiswig | Blueville Nursery, Manhattan, Ks |
| Chuck Williams | Engineering Dept, Manhattan, Ks |

Finally, I would like to thank the helpful staff members of the Planning Departments and Chambers of Commerce in the cities of: Manhattan, Ks; Overland Park, Ks; Topeka, Ks; and Wichita, Ks.

DEDICATION

To my wife, Nancy, whose many sacrifices have made possible the realization of my Master of Landscape Architecture degree;

To my daughter, Kristen, whose birth provided the inspiration for completion of my degree requirements, and;

To my parents, who instilled within me the tremendous value of a good education.

CONTENTS

	Page
ACKNOWLEDGEMENTS	ii
DEDICATION	iii
FIGURES	v
Chapter	
1 INTRODUCTION	1
Background	1
Review of Recent Findings	6
Justification of Study	16
Scope of Study	17
Objectives of Study	19
2 METHODOLOGY	21
Procedure	21
Case Study Selection	22
Code Acquisition	23
Inventory of Code Requirements	23
Preliminary Evaluation Matrix	25
Testing Parameters	38
Quantitative Evaluation Matrix	47
Demonstration Requirements	54
3 CASE STUDIES	57
Chapter Format	57
Manhattan, Kansas	59
Overland Park, Kansas	73
Topeka, Kansas	88
Wichita, Kansas	103
Summary Observations	118
Demonstration "A" and "B"	125
Demonstration "A"	127
Demonstration "B"	134
Final Summary Observations	141
4 RESULTS, CONCLUSIONS & RECOMMENDATIONS	150
Results & Conclusions	150
Recommendations for Future Study	157
REFERENECEES	159
APPENDIX "A"	162
APPENDIX "B"	165
APPENDIX "C"	167

FIGURES

Figure		Page
1	Categories and General Requirements	24
2	Preliminary Evaluation Matrix-Sample/Format	28
3	Preliminary Evaluation Matrix-Sample/Scoring	30
4	Preliminary Evaluation Matrix-Sample/Use	36
5	Candlewood Addition (unit one)	40
6	"Test" Development Site	41
7a	"Test" Dwelling Unit-plan	43
7b	"Test" Dwelling Unit-elevation	44
8	Quantitative Evaluation Matrix-Sample/Format	49
9	Quantitative Evaluation Matrix-Sample/Use	52
10	Preliminary Evaluation Matrix-Manhattan, Ks.	61
11	Manhattan, Ks./Major Category Scores	64
12	Quantitative Evaluation Matrix-Manhattan, Ks.	67
13	Manhattan, Ks./Category Cost Percentages	69
14	Preliminary Evaluation Matrix-Overland Park, Ks.	75
15	Overland Park, Ks./Major Category Scores	78
16	Quantitative Evaluation Matrix-Overland Park, Ks.	82
17	Overland Park, Ks./Category Cost Percentages	84
18	Preliminary Evaluation Matrix-Topeka, Ks.	90
19	Topeka, Ks./Major Category Scores	93
20	Quantitative Evaluation Matrix-Topeka, Ks.	97
21	Topeka, Ks./Category Cost Percentages	99
22	Preliminary Evaluation Matrix-Wichita, Ks.	105
23	Wichita, Ks./Major Category Scores	108
24	Quantitative Evaluation Matrix-Wichita, Ks.	112
25	Wichita, Ks./Category Cost Percentages	114
26	Preliminary Comparisons: Major Category Scores	120
27	Preliminary Comparisons/Overall Scores	120
28	Preliminary Comparisons/Major Category Scores (Breakdowns)	120
29	Cost Comparisons: Major Category Requirements	121
30	Cost Comparisons/Total Improvement Costs	121
31	Cost Comparisons/Major Category Costs (Breakdowns)	121
32	Quantitative Evaluation Matrix-Demonstration "A"	128
33	Demonstration "A"/Category Cost Percentages	130
34	Quantitative Evaluation Matrix-Demonstration "B"	135
35	Demonstration "B"/Category Cost Percentages	137
36	Cost Comparisons: Major Category Requirements	143
37	Cost Comparisons/Total Improvement Costs	143
38	Cost Comparisons/Major Category Costs (Breakdowns)	143
39	Cost Comparisons: Per Dwelling Unit	144
40	Cost Comparisons/Per Dwelling Unit Improvement Costs	144
41	Cost Comparisons/Per Dwelling Unit Costs (Breakdowns)	144
42	Cost Comparisons: Overall Comparisons	145

THE
BLOODGOOD
GROUP

BLOODGOOD
PLAN SERVICE

3001 GRAND AVENUE
DES MOINES, OWA 50312
(515) 283-1404

April 1, 1985

Mr. Ken Howell
1821 Poyntz
Manhattan, Kansas 66502

Dear Ken:

As approved by phone - Bloodgood Architects has no objection to your use of our design number 8323 as a "test house" in your thesis.

We would appreciate copies of the information discovered relating to our design. Cost input is an area in which we get little input for our plan service and your comparisons would be valuable to us.

Good to hear from you.

Best luck with your work.

Cordially,



Terry J. Leonard, A.I.A.
Director/Plans Production/Special Projects
BLOODGOOD ARCHITECTS, P.C.

enclosure

clk

CHAPTER ONE: INTRODUCTION

Background

"By most physical criteria - notably, quantity and quality of living space - American's are among the best-housed people in the world." (Hartman, 1983:17) For most American's, homeownership has traditionally represented success and upward mobility.

Housing has always been an important part of our nation's economy. It provided an important economic stimulus during the depression of the 1930's, and following World War II was largely responsible for national interest in savings and capital accumulation. (Seidel, 1978) It was during the late 1940's, however, that the "American Dream" of homeownership really began to grow. The pent-up demand created by the depression and World War II was responsible in large part for the creation of the housing industry as we know it today. During the latter part of the 1940's, through the 1950's and 60's, millions of Americans could buy or rent housing for approximately 25 percent of their earnings or less. For nearly three decades housing was not only abundant, but affordable. (Spink, 1983)

During the 1960's and 70's, the United States experienced the most productive housing era in its history. In the ten years from 1960 to 1970, the country's housing inventory increased by over ten million units. By the end of the 1970's, some thirty million units had been added. This represented one unit for every two that existed at the beginning of the era. Although many reasons can be cited for this tremendous increase in housing units, perhaps the two most important were the unparalleled rate of

household formation coupled with the availability of low-cost, long-term, fixed-rate mortgages. The result was record years of single-family house construction and nearly one-third of the total personal wealth of Americans being directly related to housing. (Sternleib and Hughes, 1984)

Over the past decade, however, the number of families who can afford the "American Dream" has been reduced dramatically. Mosena (1984: 9), states:

"The American Dream is in trouble. The possibility of owning a single-family house on an individual lot has collided hard with the unpleasant economic realities of the 1980's, putting it out of reach of the large majority of newly formed households."

The growing gap between family income and the price of a home is the quintessential element of the affordable housing problem which faces this country today. For example, in 1971, 62 percent of first time buyers could purchase the average-priced new home if they spent one-third of their income on housing. (Even this figure represented more than the traditional one-fourth required in previous years.) However, by 1981, first time buyers qualifying for homeownership had fallen to 23 percent. The median sales price of a new single-family residence jumped from \$23,400 in 1970 to \$69,300 in 1982, almost a 200 percent increase, while median family income during the same period rose only 135 percent. (Smith, 1983)

"We have reached a point where only 15 percent of first-time buyers can afford to purchase the median priced new house - a sharp drop from the 50 percent who could do so 10 years ago. Today, housing prices and interest rates are so high that a majority (60 percent) of existing homeowners could not afford to purchase their present homes without benefit of their accrued equity. The building industry is depressed, and new households have little hope for homeownership." (Hoben, 1982: 1)

There are many reasons why housing prices have risen so dramatically in recent years. High rates of inflation and interest have contributed in large part to escalating housing cost, but these two factors are really only part of the overall problem. A study of all the major components that go into the cost of a new home must be considered to fully understand the actual cost of housing. Smith (1983: 5) notes that "building and owning a home incurs both production costs and carrying costs." She defines the components of production costs as; land, developer's overhead, capital improvements, labor, materials, financing and profit, and the components of carrying costs as; debt service, property taxes, utilities and maintenance, and repair. (These latter costs generally occur after the home is occupied.) During the 1970's, however, another component that had, as yet, not received a great deal of attention was being added to the already complex housing cost equation. The component was **government regulation**, and by the late 1970's it was receiving a good deal of attention by housing professionals across the country.

Government regulation, as applied to the housing industry is, in itself, a very complex component. In a "generic" sense, it can encompass areas of regulation governing; building codes, zoning controls, subdivision requirements, energy-conservation codes, environmental controls, growth controls and financing requirements. Although all of these aspects of government regulation have received their share of attention, recent studies, reports and articles prepared by various professionals and professional organizations have focused a good deal of attention

upon the areas of zoning and subdivision requirements and their impact on the costs and affordability of housing. These particular aspects of government regulation typically occur at the local level, although local governments are empowered to adopt and enforce such regulations from their respective state legislatures. Leary (1968:403-404) describes zoning as follows:

"Zoning is essentially a means of insuring that the land uses of a community are properly situated in relation to one another, providing adequate space for each type of development. It allows the control of development density in each area so that the property can be adequately serviced by such governmental facilities as the street, school, recreation and utilities systems. This directs new growth into appropriate areas and protects existing property by requiring that development afford adequate light, air and privacy for persons living and working within the municipality.

...zoning is an exercise of the basic power of the state and its political subdivisions, to enact legislation protecting the public health, safety, morals and general welfare of its citizens. This means that each regulation in the zoning ordinance must bear a reasonable and substantial relationship to these ends or it will be found in violation of the 'due Process' clauses of state and federal constitutions. While the constitutionality of zoning has been upheld by a long series of court decisions - notably the landmark case of *Euclid v. Ambler Realty Co.* (272 US 365), decided by the United States Supreme Court in 1926 - the courts will still examine the application of individual provisions to individual pieces of property to see whether the specific restrictions imposed meet constitutional requirements."

In a report of the National Commission on Urban Problems entitled, Building the American City, (1968:203) elements of subdivision regulation were described as follows:

"While conventional zoning normally applies to individual lots, subdivision regulations govern the process by which those lots are created out of larger tracts.

...subdivision regulations typically seek to assure that the subdivisions are appropriately related to their surroundings. Commonly, they require that the subdivision be consistent with a comprehensive plan for

the area (e.g. by reserving land for proposed highways or parks). Requirements normally assure that utilities (local streets, sewers) tie into those located [on] or planned for adjoining property. Other requirements are intended to assure that the subdivision itself is related to its own site and that it will work effectively. The widths of streets, the length of blocks, the size of lots, and the handling of frontage along major streets, are among commonly regulated subjects.

...subdivision regulations may contain provisions that effectively allocate costs of public facilities between the subdivider and local taxpayer. Commonly, regulations require subdividers to dedicate land for streets and to install, at their own expense, a variety of public facilities to serve the development. These often include streets, sidewalks, storm and sanitary sewers, and street lights. In recent years, more and more subdivision regulations have also been requiring subdividers to dedicate parkland, and sometimes school sites or to make cash payments in lieu of such dedications. Some regulations go further still, requiring payment of fees to apply toward such major public costs as the construction of sewage disposal plants."

Since their early beginnings in the 1920's zoning and subdivision regulations have, for the most part, received both popular and legal support. However, many of the recent studies, reports and articles referred to earlier have begun to question the overall lack of flexibility of such regulations as well as the apparent excessiveness. Seidel (1978: 1) states:

"While many of these regulations, as they are implemented are aimed at positive objectives - preserving the environment, making homes safer, reducing sprawl, etc...all too frequently these regulations, as they are implemented, result in significantly increasing the price and reducing the number of new housing units."

The cost of new housing and construction in general has local governments across the country concerned about the impact that zoning, subdivision regulations, and other development rules have on building costs. "Local leaders want to insure that local regulatory measures don't exacerbate the problem, but rather offer

incentives to developers to build affordable housing and other needed development projects." (Murphy, 1982: 0)

This attitude and approach is further reflected in many of the studies, reports and articles described in the following section entitled "Review of Recent Findings", as well as in the references listed in Appendix "C".

Review of Recent Findings

During the past fifteen years, much has been written and published concerning housing, housing costs and affordability. Seidel, (1978), notes early efforts (1968, 1969) by the Kaiser and Douglas Commissions in studying the impact of governmental regulations on housing costs. In May of 1969, then Secretary of Housing and Urban Development, George Romney, announced a program to develop, test and promote the best in volume produced housing systems. This program, known as "Operation Breakthrough", was designed to attack the problems of producing volume housing as well as finding markets for it. Its objective was to establish total housing systems as a force in the building of homes and better communities for Americans of all incomes. The program was intended not only to meet the housing shortage at that time, but also to encourage new technology, improve architectural design and site planning, utilize the full range of labor skills, reduce rising costs, overcome building code, zoning and labor constraints, encourage more and better methods of financing, improve management and identify and aggregate larger markets to provide greater opportunities for volume produced housing systems. (H.U.D., 1970) Unfortunately, little information is available

concerning the results of this program. Efforts by the author to obtain what may be available have to date been unsuccessful.

Lynne B. Sagalyn and George Sternleib, (1972) studied the cost impact of zoning and development requirements on the price of housing. The study utilized a multiple regression analysis model to quantitatively analyze the impact of exclusionary land-use and building controls upon the purchase price of new housing. The study revealed that:

"As anticipated, public policy decisions pertaining to minimum zoning requirements are significant factors explaining selling price variation. However, the size of the house - directly affected by minimum size regulation and indirectly conditioned by minimum lot size requirements - is the single most important factor explaining selling price variation. Lot size and lot frontage specifications are highly significant and highly intercorrelated;...their interaction produces significant cumulative impact." (Sagalyn and Sternleib, 1972:48)

In 1976, two major studies on housing costs were undertaken, one in the United States and one in Canada. In the U.S., Land Design/Research inc., prepared a report for the National Association of Home Builders entitled, Cost Effective Site Planning/Single Family Development. The study was devoted to improving skills associated with producing small lot subdivisions and effecting other cost savings in the land planning process. It addressed a wide range of land planning techniques proven successful in reducing development costs, as well as comparing site development costs for twenty-five site plans ranging from one to four acres in size and from 2.75 to 9.55 dwelling units per acre in density. Additionally the report compared a "cluster" development on a 166 acre tract to a conventional one-quarter acre lot scheme on the same tract. The comparisons revealed that

significant savings could be achieved in all areas of land development by utilizing the techniques described within the report. (LD/R, 1976) (Note: This report was revised with new cost figures and published again in 1982.)

Meanwhile in Canada, the Local Planning Policy Branch of the Ontario Ministry of Housing was preparing a report entitled, Urban Development Standards - Demonstration of the Potential for Reducing Costs. The central objective of this report was to study ways and means by which development costs of new housing in subdivisions could be lowered. The study reviewed existing development standards analyzing the possibilities of reducing excessive standards or suggesting alternative approaches. Included were standards for lot sizes, set-backs, road rights-of-way, pavement widths and utility services. Specific subdivision designs were developed which allowed direct comparison of conventional designs and suggested alternatives. (O.M.H., 1976)

Results of the study included the following:

"While there are savings in reduced engineering standards, the bulk of cost savings result from changes in planning standards."

"Using reduced standards, total cost savings per unit are considerable."

"Yet, reduction of standards need not be extreme in order to gain such cost savings." (O.M.H., 1976:55-56)

Seidel (1978) undertook a major research effort aimed at analyzing the extent to which government regulations were responsible for the rapid increases in housing costs. He examined in detail seven areas of regulation including: building codes, energy-conservation codes, subdivision requirements, zoning controls, growth controls, environmental controls and financing

regulations. Seidel utilized extensive survey data in conducting his research. He interviewed nearly 300 public agency officials including the staff members of municipal building code departments and planning and zoning departments, as well as analyzing the codes of eighty municipalities. Additional data was gathered through an extensive survey of the home builders' industry followed up by telephone contacts. As a final step, case studies involving specific residential construction projects in New Jersey, North Carolina and California were initiated.

Several results from Seidel's study concerning subdivision regulations and zoning regulations follow:

"Subdivision improvement requirements are determined primarily by local officials and bear very little relationship to minimum health and safety safeguards, and therefore unnecessarily drive up the cost of housing."

"Subdivision requirements are increasingly being used as a device to shift what once were considered public costs to the shoulders of the developer."

"Zoning regulations frequently include provisions which severely limit the construction of moderately priced housing."

"Zoning ordinances are frequently administered by elected officials who are more attuned to political than planning objectives." (Seidel, 1978:308-310)

Also in 1978, working through the Department of Housing and Urban Development, the federal government established a task force to study increasing housing costs. Around this same time the General Accounting office began a similar inquiry (The Rice Center, 1980). In May of that year H.U.D. issued its Final Report of the Task Force on Housing Costs.

"The Task Force dealt with the identified problems within three categories: Land Supply and Development; Building and Technology; and Financing, Money Markets and Marketing. Of these, problems associated with

inadequate amounts of land and the costs related to development were considered particularly acute. Three factors were identified as the main causes for the rise in the cost of the serviced site: constraints on the supply of developable land, high site development costs, and procedural delays." (H.U.D. 1979:vii)

(Note: The Rice Center, (1980), notes that the results of the G.A.O. study, conducted during the same period reached very similar conclusions.)

As a result of the above findings, then Secretary of Housing and Urban Development, Patricia Harris Roberts, proposed that a national conference be held to deal with the costs of creating land for housing development. "The conference would invite to Washington a broad range of practitioners from the public and private sectors to deliberate on housing cost issues and to recommend courses for action." (H.U.D., 1979:vii) The five workshops that comprised the two day conference produced 105 recommendations. Some examples include:

"Development standards should generally not exceed basic environmental, health, safety and welfare requirements. Communities should always consider housing costs implications of standards designed to meet 'quality of life' objectives in excess of those basic requirements."

"Federal, State, and local agencies should periodically review their off-site and on-site standards, as well as their methods and procedures as to zoning, subdivision controls and environmental standards to insure that they reflect the state-of-the-art and do not exceed minimum standards."

"Subdivision control measures should be reviewed against standards which assure that overdesign is not required." (H.U.D., 1979:x-xii)

In March of 1980, the U.S. Department of Housing and Urban Development, together with the Urban Land Institute initiated and organized the "Council on Development Choices for the '80's." The council included persons with a close personal knowledge of

development. Its members were divided between elected public officials and private sector leaders including; builders, developers, lenders, designers and development consultants. The Council's scope dealt with issues concerning; the future of community building in the U.S., the nature and importance of factors shaping physical development decisions, development choices compatible with anticipated changes which emphasize affordability, efficiency and convenience, and specific public and private actions that could be taken to realize the preferred choices. Having conducted numerous Forums, symposiums, on-site visits and commissioning papers on selected topics, the Council published a report entitled, The Affordable Community: Growth, Change, and Choice in the 80's. (Council on Development Choices for the '80s, 1980) Among the many agreements and recommendations produced by the Council were the following concerning revising development regulations:

"At all levels of government, but especially at the local level, there has evolved a maze of regulations that unnecessarily complicate and delay development. The results are higher costs and lack of innovative development. Some of the ways that the Council proposes to simplify and expedite the development process and to encourage development in line with choices for the '80's are to:

1. Change zoning and building regulations to permit increased densities and smaller lot sizes.
2. Change zoning provisions to eliminate single-use zones and revise planned unit development ordinances to permit certain uses by right in projects.
3. Coordinate regulations and simplify permitting procedures to minimize delay and uncertainty.
4. Offer incentives to developers to produce units for low-and-moderate income households... (Council on Development Choices for the '80s, 1980: xii-xiii)

(Note: Other General recommendations included revising development regulations and reducing excessive development standards.)

Also in 1980, the U.S. Department of Housing and Urban Development joined with the National Association of Home Builders and the City of Las Vegas, Nevada in a demonstration project called "Approach '80 - A Search for Value." (H.U.D. and N.A.H.B., 1980) In the publication describing the effort it states:

"Approach '80 demonstrates that land development and housing costs can be reduced without lowering the quality of life. The land provides family housing, including detached, duplex, triplex, and quadruplex, arranged in such a way as to provide privacy as well as openness in a higher density situation. All aspects of land planning have been addressed including street widths and arrangement, sidewalks, easements, open space and lot configuration." (H.U.D. and N.A.H.B., 1980:1)

In a follow-up publication entitled, An Approach for the 80's: Affordable Housing Demonstration, author E. Lee Fisher, (date unknown), Director of Industrial Engineering for the N.A.H.B. Research Foundation, Inc. provided a complete in-place cost analysis of all land development and construction as well as comparisons with conventional Las Vegas construction practices.

The year 1982 appeared to be a big year for the affordable housing movement. In January of 1982, Secretary of Housing and Urban Development, Samuel R. Pierce, Jr., announced the formation of the "Joint Venture for Affordable Housing". This was to be a public-private partnership established to combat the problem of high housing costs. In announcing this effort Secretary Pierce stated:

"The President's Commission on Housing and the H.U.D. Task Force on Affordable Housing both found that this problem results from outdated and unnecessary building and land use regulations.

One of the most important elements of the Joint Venture program is the series of affordable housing demonstrations now under way in twenty states. These demonstrations are being carried out through the cooperative efforts of builders, developers, and local officials to show how regulatory reform can cut housing costs." (N.A.H.B., 1984:iv)

Since Secretary Pierce's announcement, 15 case studies have been published for Affordable Housing Demonstration Projects in: Phoenix Arizona; Crittenden County, Arkansas; Mesa County, Colorado; Elkhart County, Indiana; Valdosta, Georgia; Santa Fe, New Mexico; Lacey and Everett, Washington; Birmingham, Alabama; Knox County, Tennessee; Lincoln, Nebraska; Sioux Falls, South Dakota; Portland, Oregon; and Tulsa, Oklahoma. Each of these case studies provides valuable information concerning the development project and its history, innovations and cost impacts, the details of changes, as well as their costs and comparisons to conventional practices of the specific jurisdiction. These case studies are excellent examples of how actual housing costs have been reduced through reductions in standards, new technology and public, private cooperation, while maintaining basic protection of public health, safety and welfare.

Douglas R. Porter and Susan Cole (1982), working through the Urban Land Institute, were also researching and preparing affordable housing case studies. In their report, Affordable Housing: Twenty Examples from the Private Sector, Porter and Cole provide examples of affordable single-family detached projects in: Houston, Texas; San Marcos, California; Hillsboro, Oregon; Frederick, Maryland; and Royal Palm Beach, Florida. Although somewhat less detailed than the H.U.D.-N.A.H.B. studies, they

still provide valuable insight into the affordable housing movement across the country.

Also published in 1982, by the International City Management Association, was a report entitled, Reforming Local Development Regulations: Approaches In Five Cities. This report describes the efforts of five "model" communities selected by I.C.M.A. which had "done a superior job of modernizing their local regulations and procedures." (I.C.M.A., 1982:0) The communities described were: Brattleboro, Vermont; Cleveland Heights, Ohio; Fort Collins, Colorado; Phoenix, Arizona; and Salinas, California.

Welford Sanders and David Mosena (1982), working through the American Planning Association, published a report entitled, Changing Development Standards for Affordable Housing. This report summarized the results of a 1981 nationwide survey of 1,086 communities which attempted to identify those that had taken steps to make their residential development standards more flexible and less restrictive.

"A major objective of this survey was to locate communities that had recently completed a comprehensive revision of their development regulations resulting in new standards that may help to reduce the cost of housing.

Specific information was sought on changes in requirements for setbacks, frontage, yard areas, building dimensions, open space, and parking - requirements usually contained in zoning ordinances. In addition, information was sought on changes in standards commonly contained in subdivision ordinances - requirements for lot improvements, streets and sidewalks, drainage and storm sewers, sewage disposal facilities, and dedications." (Sanders/Mosena, 1982:1)

Some of the more interesting findings from this report follow:

"Of the total sample of 171 communities that had changed standards contained in their zoning ordinances, the

largest number of communities, 127, changed their density standards. Of these 127 communities, 64 percent relaxed their density standards."

"Subdivision ordinances as a whole are undergoing less change than zoning ordinances. Survey responses indicated, however, that some communities are making substantial reductions in their subdivision requirements for local or minor residential streets."

"Sidewalk requirements contained in subdivision ordinances are also undergoing some reductions among the communities surveyed." (Sanders/Mosena, 1982:3-8)

Two years later in 1984, the American Planning Association returned to the 171 communities studied above to identify those in which developers had built or were building single-family detached housing under new standards. This second report entitled, Affordable Single-Family Housing A Review of Development Standards, was the product of a year long effort which examined residential development standards in 134 communities in which 18 affordable housing developments were recently built. (Sanders, and others, 1984) Results of this effort were enlightening in a number of areas. Those of particular value are included below:

"Communities encouraged the provision of affordable single-family detached housing primarily by reducing lot area, frontage, and setback requirements."

"Developers of affordable housing in many areas did not build to minimum requirements. Their perception of local market preferences often led them to exceed the standards."

"Communities seldom modified their site improvement standards for streets and sidewalks, drainage, storm sewers, and other utilities to encourage affordable housing development."

"As lot area, frontage, and setbacks were reduced, planners and developers found it important to adjust building and site designs."

"The main trade-offs that occurred as lots became smaller involved parking, open space and the privacy of individual residential units. Local governments made

special efforts to compensate for problems in these areas."

"Flexibility was the key to regulations that encouraged the development of high-quality affordable housing. Local governments were able to build flexibility into conventional regulations as well as P.U.D. regulations." (Sanders, and others, 1984:vii-viii)

The above studies help bring into perspective the major issues surrounding the housing affordability problem in this country over the past fifteen years. Additional reports, studies and articles were reviewed during the course of this study which have not been directly incorporated into its text. However, these references have been included in a "selected bibliography" found at the end of this study in Appendix "C", and may be helpful to those interested in further study of affordable housing.

Justification of Study

Unquestionably, the high cost of housing is a problem of crisis proportions, affecting millions of American households. The complexity of the problem has made a single comprehensive solution illusive, as it demands expertise in many different fields of knowledge. As a result, efforts have been directed toward the study of individual "component" costs and their relationship to the "overall" cost of housing.

For the landscape architect, increases in housing costs attributed to financing, land, labor and materials are often beyond his/her control or outside his/her area of expertise. However, increases in housing costs related to government regulation, and in particular local government regulation, is an area in which the qualifications of the landscape architect make

possible positive contributions toward the development of cost effective policy.

Local regulation, via zoning and subdivision ordinances dictate standards which impact every aspect of land planning, design and development. These areas are at the heart of landscape architectural training and professional practice. Therefore, the landscape architect's involvement in setting policy in these areas seems only natural.

As policy necessary to a comprehensive solution will require a multidisciplinary approach, the landscape architect must share his expertise with planners, engineers, architects, builders, realtors and developers, to create an atmosphere of cooperation in which cost effective solutions to the escalating cost of housing may be evolved. It is hoped that this study will be a part of the cooperative effort.

Scope of Study

Without doubt, it is the combined effect of many component costs that is responsible for the severity of the housing cost problem. Acknowledging that, however, this study will focus only upon the costs associated with local government regulation. This body of regulatory policy would be typically found at the city or county level. Local government regulation has been acknowledged as one of the most influential components contributing to increased housing cost. Author Stephen Seidel (1978:4) states:

"Many of the other factors responsible for increasing costs, such as inflation and high interest rates, may be only a temporary function of current economic conditions. Even if those forces were mitigated, government regulations would remain, and would still be

responsible for preventing the delivery of a moderately priced house."

Specifically this study will focus upon requirements contained wholly within local zoning and subdivision ordinances. It will further be restricted to those requirements of zoning and subdivision ordinances which address only single-family detached housing uses and/or developments. Where zoning ordinances include more than one zoning classification for single-family detached housing, only the most restrictive zones, as determined by minimum lot size, will be utilized. (Note: The decision to focus upon the single-family detached housing type was prompted by reviewing the expert opinions of professionals in the housing industry as well as various preference studies of the homebuying public. These professional opinions and studies support the author's belief that Americans have traditionally preferred and continue to prefer the single-family detached lifestyle. Specific preference studies have revealed that for many, the "American Dream" consists of a 1,400 square foot single-family home with three bedrooms, two baths, a garage and backyard. (Becker, 1985) (See also L.D.R. inc., 1980/Pfister, 1983/Updegrave, 1984.)

This study will not address any state or federally imposed regulations. Nor will it include other local regulations such as; building codes, traffic codes, general or specific land use plans, or jurisdictional goals, objectives or policies not contained within specific zoning and/or subdivision ordinances.

Although the limited focus of this study may only yield equally limited results, the author believes in the wisdom of Stevenson Weitz when he writes; "It is the cumulative impact of many small changes that yields appreciable savings." (Weitz,

1982:19) Therein, lies the motivation that is the foundation of this and other efforts to reduce housing costs.

Objectives of Study

The primary objective of this study is as follows:

To demonstrate that local zoning and subdivision ordinances currently in use, contain many land use and development requirements which add unnessessarily to the finished cost of a home, and thereby, directly affect housing affordability.

Secondary objectives are as follows:

To demonstrate that unnecessary cost results largely from the inability of a requirement to achieve its intended purpose (that is, the protection of basic health, safety, and welfare considerations) in a cost efficient manner, and;

To demonstrate that the inability of a requirement to achieve its purpose is determined to a large extent by the relative degree of flexibility and/or excessiveness contained within the requirement.

(Note: The decision to focus upon the elements of flexibility and excessiveness was prompted by reviewing the expert opinions of professionals in the housing industry as well as various studies and reports on the topic of housing affordability. These opinions and studies suggest that inflexible and excessive local regulation, particularly zoning and subdivision regulation, are responsible in large part for unnecessarily increasing the cost of a new home. (See Seidel, 1978/Council on Development Choices for the '80s, 1980/Sanders-Mosena, 1982/N.A.H.B., 1984/Sanders, and others, 1984.)

To further clarify the meaning and intent of the above stated objectives, the following definitions have been developed for use in this study:

Affordability: (affordable housing)

The ability of a family, with earnings equal to the median income of a given area or region, to qualify for the purchase of a median priced home, based upon conventional standards of financing (ie: monthly mortgage payments less than or equal to 25% of monthly earnings).

Flexibility: (flexibile requirement)

The ability of a locally imposed governmental requirement to provide a choice of alternatives from which specific solutions to land use and/or development decisions may be persued.

Excessiveness: (excessive requirement)

Any local governmentally imposed requirement which exceeds the minimum considerations necessary for the protection of public health, safety and welfare. (Ford, 1978)

In order to effectuate the stated objectives, an overall procedure and methodology was developed and is discussed in the following chapter.

CHAPTER TWO: METHODOLOGY

Procedure

Selection of four case study jurisdictions was an important first step in implementing the objectives of the study. For each jurisdiction, copies of current zoning and subdivision ordinances were obtained. This enabled an inventory of all applicable land use and development requirements. Once inventoried, requirements were organized into major categories. This structure provided the framework for preliminary and quantitative evaluation.

A **Preliminary Evaluation Matrix** was developed for each jurisdiction and utilized to assess the relative degree of flexibility and/or excessiveness, according to the definitions developed earlier, within each specific requirement. A **Quantitative Evaluation Matrix** was developed for each jurisdiction and utilized to determine the actual cost of each specific requirement, as applied to a "test" development situation.

Finally, two sets of "**demonstration**" requirements were developed by the author, which incorporated **increased flexibility** and **decreased excessiveness**. These requirements were equally applied to the "test" development and quantitatively evaluated for comparison with requirements from the four case study jurisdictions. Observations were recorded from individual case studies and from inter-case study comparisons. Conclusions and recommendations were then drawn from analysis of these observations. A more detailed discussion of this procedure follows.

Case Study Selection

Several factors were considered in the selection of case study jurisdictions. The results of an American Planning Association report entitled, Changing Development Standards for Affordable Housing, was largely responsible for the decision to focus efforts within the state of Kansas. The report summarized the results of a nationwide survey which identified 171 communities that had completed a comprehensive revision of their development standards within the last five years. Survey results revealed that many communities across the nation had taken steps to make their residential development standards more flexible and less restrictive. (Sanders, Mosen, 1982) Although communities in several neighboring midwestern states were identified, **Kansas communities were strangely absent.** This fact, coupled with the limited financial resources available for the study, solidified the decision to focus efforts within the state.

Once the general area of study had been selected, efforts were made to choose a minimum of three "metropolitan" communities offering a variety of cultural, economic and demographic characteristics, as case study jurisdictions. The author felt this would provide a reasonably representative cross section of current regulatory attitudes and policies within the more densely populated regions of the state.

Based upon these criteria, four Kansas communities were selected as case study jurisdictions. They are: **Manhattan, Overland Park, Topeka, and Wichita.**

One factor given close attention in the selection process was the population density of the surrounding county. This factor was

considered important, as the author, based upon his past professional planning experience, was aware that attitudes and policies adopted by metropolitan areas within counties are likely to influence attitudes and policies in the county as a whole. Therefore, high county population density would likely expose more people to new ideas and concepts of regulatory reform. According to the Kansas Statistical Abstract 1984-85, the four communities selected are located in four of the seven most densely populated counties in Kansas.

Code Acquisition

As outlined in the Scope of Study, zoning and subdivision ordinances were targeted as the source for all requirements related to single-family detached land use and development. Acquisition resulted from contacting each jurisdiction's planning department and purchasing current copies of both ordinances.

Inventory of Code Requirements

Upon receipt of the necessary zoning and subdivision ordinances, an inventory of all requirements relating to single-family detached land use and development was undertaken. This was accomplished by perusing each section of all ordinances and highlighting applicable requirements.

Once inventoried, all highlighted requirements were first organized by major category and then further refined by identifying sub-categories containing general and specific requirements, within the context of the major category. Figure

(1) which follows, lists the major categories, sub-categories and general requirements utilized for this study.

CATEGORIES and GENERAL REQUIREMENTS

<u>Major Category</u>	<u>Sub-Category</u>	<u>General Requirement</u>
Street Systems	Access	Right-of Way Width
	Collector (primary)	Pavement Width
	Sub-Collector (secondary)	Curbing Type
	Local (lane)	
	Loop/Cul-de-Sac (place)	
	Excavation Compaction	
Pedestrian Systems	Sidewalks	Width Location
Utility Systems	Storm Sewers	Open (surface) Closed (underground)
	Sanitary Sewers	Main Lines Laterals
	Water Systems	Public Private Fire Protection (yes/no)
	Street Lighting	yes/no
Lot Requirements	Minimum Size	Size
	Minimum Frontage	Standard Lot Cul-de-Sac Lot
	Minimum Width	Width
	Minimum Depth	Depth
	Yard Setbacks	Front Yard Side Yards Rear Yards Side Yard (corner lot)

Dwelling Unit and Development Type Requirements	Unit Requirements Allowed Development Types	Height Coverage Single-Family Detached Planned Unit Development Cluster Housing Zero Lot Line Housing
Parking Requirements	Off-Street Parking	Spaces Required
Dedication Requirements	Rights-of-Way Open Space Easements	Streets Sidewalks Area Required Types Widths
Other Requirements	Landscaping Off-Site Improvements Erosion Control Underground Utilities Survey Costs Flood Plane Areas	Individual Lot Open Space Types Required yes/no yes/no yes/no yes/no

Figure 1

Specific requirements related to each general requirement shown in Figure (1) have intentionally not been included. Such requirements are applicable only within the context of a specific case study.

Preliminary Evaluation Matrix

Purpose

The **primary purpose** of the Preliminary Evaluation Matrix is as follows:

To establish a framework within which the relative degree of flexibility and/or excessiveness of a specific requirement, and/or category of requirements, can be assessed in relationship to its impact on the cost and/or affordability of housing.

To this end, specific requirements will be assigned scoring values, based upon definitions developed earlier for flexibility and excessiveness, which will be directly related to similar cost/affordability scoring values.

Objectives

The primary objectives of the Preliminary Evaluation Matrix are as follows:

To Allow the investigator to become familiar with the structure and emphasis of individual zoning and subdivision ordinances in the "broad" sense, and;

To highlight specific requirements and/or categories of requirements that are, by definition, inflexible and/or excessive, and;

To show the range of variance of excessiveness and/or inflexibility, where applicable, between the case study jurisdictions, and;

To provide a general indication of the severity of the problem with respect to housing cost and affordability, and;

To target specific requirements and/or categories of requirements in advance of the more detailed investigation via the Quantitative Evaluation Matrix.

Format

The "matrix" format has been utilized as an efficient method for facilitating preliminary evaluation of zoning and subdivision ordinance requirements. Development of the Preliminary Evaluation Matrix and graphics was facilitated by utilizing the Lotus 1-2-3 software program and a Compaq Deskpro micro-computer. The matrix title and jurisdiction are located in the top left corner of each matrix (Fig. 2, Letter A). The leftmost column entitled "Requirement Description", contains the major category heading, followed by the sub-category heading, and the general requirements (Fig. 2, Letter B). Moving to the right, the next column entitled "Specific Requirement", contains the specific requirements, unique to each individual jurisdiction, directly related to the general requirements located in the leftmost column (Fig. 2, Letter C). Moving right again, the next column entitled "Flexibility Score", contains the values assigned to each specific requirement related to the degree of flexibility of the requirement (Fig. 2, Letter D). (Note: see the following section on "Scoring" for further detail) Again, moving right, the next column, entitled "Excessiveness Score", contains the values assigned to each specific requirement related to the degree of excessiveness of the requirement (Fig. 2, Letter E). The extreme right column, entitled "Cost/Affordability Score", contains two separate, but related values associated with the overall cost and/or affordability of each individual sub-category and major category (Note: See the following section on "Scoring" for further detail.) Starting from the top of this column and working down, the first value, or set of values, relates to the

PRELIMINARY EVALUATION MATRIX					
Jurisdiction: SAMPLE (A)					
REQUIREMENT DESCRIPTION	SPECIFIC REQUIREMENT	FLEXIBILITY SCORE	EFFICIENCY SCORE	COST/AFFORDABILITY SCORE	
STREET SYSTEMS (B)					
ACCESS:					
Right-Of-Way Width	0.00	0.0	0.0	0.0	
Pavement Width	0.00	0.0	0.0	0.0	
Pavement Width	0.00	N/A	- N/A		(F) 0.0
Curbing (vertical)	yes/no	0.0	0.0	0.0	
Curbing (rolled)	yes/no	0.0	0.0	0.0	
COLLECTOR: (PRIMARY)					
Right-Of-Way Width	0.00	0.0	0.0	0.0	
Pavement Width	0.00	0.0	0.0	0.0	
Pavement Width	0.00	N/A	N/A		0.0
Curbing (vertical)	yes/no	0.0	0.0	0.0	
Curbing (rolled)	yes/no	0.0	0.0	0.0	
PEDESTRIAN SYSTEMS					
SIDEWALKS:					
Width	WIDTH?				
Location(s)	REQUIRED WHERE?	0.0	0.0	0.0	
peripheral		(OVERALL	CATEGORY	SCORE)	
collector streets					
sub-collector streets					
local streets					
loop/cul-de-sac streets					
mid-block					(G) 0.0
FLOOD PLANE FREES:					
	yes/no	0.0	0.0	0.0	
OVERALL SCORE: (H) 0.0					

Figure 2

cost/affordability of each individual sub-category (Fig. 2, Letter F). The summary value, located in the rectangular box, relates to the cost/affordability of the adjacent major category (Fig. 2, Letter G). Finally, an "overall" score for each jurisdiction is located in the bottom right corner of each matrix (Fig. 2, Letter H). Additional information on using the Preliminary Evaluation Matrix is provided in a following section entitled "Mechanics of Use".

Scoring

Scoring within the Preliminary Evaluation Matrix takes place at four different levels. At the **first level**, specific requirements are assigned values which reflect their relative degree of flexibility and excessiveness. **These values are based upon the definitions of flexibility and excessiveness developed earlier** (Fig 3, Letter A). At the **second level**, a cost/affordability score is assigned to each sub-category of requirements. **This value assumes a strong relationship between cost/affordability, flexibility and excessiveness.** The value is an average of the flexibility and excessiveness values assigned to the specific requirements (Fig. 3, Letter B). At the **third level**, a cost/affordability score is assigned to the major category, and is an average of the sub-category values (Fig. 3, Letter C). At the **fourth level**, each jurisdiction is assigned an overall score, related to cost and affordability, which is an average of all major category values (Fig 3, Letter D).

Figure 3, provides an overall picture of how scoring takes place within the matrix. Specific information on each scoring

PRELIMINARY EVALUATION MATRIX

Jurisdiction: SAMPLE

REQUIREMENT DESCRIPTION	SPECIFIC REQUIREMENT	FLEXIBILITY SCORE	EXCESSIVENESS SCORE	COST/AFFORDABILITY SCORE
* STREET SYSTEMS				
ACCESS:				
Right-Of-Way Width	0.00	0.0	0.0	
Pavement Width	0.00	0.0	0.0	
Pavement Width	0.00	N/A	- N/A	0.0
Curbing (vertical)	yes/no	0.0	0.0	
Curbing (rolled)	yes/no	0.0	0.0	
COLLECTOR: (PRIMARY)				
Right-Of-Way Width	0.00	0.0	0.0	
Pavement Width	0.00	0.0	0.0	
Pavement Width	0.00	N/A	N/A	(B) 0.0
Curbing (vertical)	yes/no	0.0	0.0	
Curbing (rolled)	yes/no	0.0	0.0	
PEDESTRIAN SYSTEMS				
SIDEWALKS:				
Width	WIDTH?			
Location(s)	REQUIRED WHERE?	0.0	0.0	(B) 0.0
peripheral		(OVERALL	DATE/TORY	SCORE)
collector streets				
sub-collector streets				
local streets				
loop/cul-de-sac streets				
mid-block				(C) 0.0
FLOOD PLANE TREES:				
	yes/no	0.0	0.0	(C) 0.0
OVERALL SCORE:				(D) 0.0

Figure 3

value, as well as other symbols and explanations used within the matrix follows.

Flexibility Score(s): These scoring values are based upon the ability of a specific requirement to provide a choice of alternatives from which specific solutions to land use and/or development decisions may be pursued. Score values range from one (1), to five (5), and are assigned on the following basis:

(1): A value of one (1) is assigned when a specific requirement is prescribed without additional choices. This score is considered the least flexible.

(2,3,4): These values are assigned based upon the relative degree of flexibility of the specific requirement. The higher the degree of flexibility (ie: choice) the higher the score.

(5): A value of five (5) is assigned when no specific requirement is prescribed. Such a situation was determined to be the most flexible.

As indicated, values were typically assigned to each individual specific requirement. However, two exceptions to individual scoring should be noted.

The first occurred within the major category of "Pedestrian Systems". Due to the nature of the specific requirements of this major category, individual values for each sidewalk location were of less significance than an overall value for the entire category. Consequently, requirements from each of the four case study jurisdictions were compared, as a whole, and assigned a value based upon their relative degree of flexibility as compared to one another. Thus, an overall category score replaced an individual specific requirement score as indicated by note, within each Preliminary Evaluation Matrix.

The second exception occurred within the sub-category of "Allowed Development Types", which is a part of the major category

entitled "Dwelling Unit and Development Type Requirements". In this case, the nature of the specific requirements again make individual scoring less desirable. Therefore, the sub-category was considered as a whole, and assigned a value based upon its relative degree of flexibility. Thus, an overall sub-category score replaced individual scores for specific requirements, as noted within the Preliminary Evaluation Matrix.

Excessiveness Score(s): These scoring values are based upon the degree to which the specific requirement exceeds the minimum considerations necessary for the protection of public health, safety and welfare. Score values range from zero (0), to five (5), and are assigned on the following basis:

(0): A value of zero (0) is assigned when the specific requirement from each of the four case study jurisdictions is the same. (Note: A zero (0) value is considered neutral and is not included in cost/affordability scoring.)

(1,2,3,4): These values are assigned by comparing similar specific requirements from each of the four case study jurisdictions and ranking them according to their relative degree of excessiveness as compared to one another. This process was particularly effective in identifying varying degrees of excessiveness since all zoning and subdivision ordinance requirements are designed to provide the minimum standards necessary for the protection of public health, safety and welfare. Thus, those standards that are more restrictive are thereby more excessive. For example; if jurisdiction "X" can protect the public with a collector street pavement width of 27 feet, why then, does jurisdiction "Y" need 41 feet to provide the same protection? The answer is, they don't! Therefore, jurisdiction "Y" is prescribing a requirement that exceeds the minimum considerations necessary for the protection of public health, safety and welfare - by definition, an excessive requirement! With this in mind, scores were assigned as follows:

When all four specific requirements are different; the least excessive receives a value of (4), the next more excessive receives a (3), the next a (2) and the most excessive requirement receives a value of (1).

When only three specific requirements are different, (ie: two of four are the same); the least excessive requirement(s) receive(s) a value of (3), the next more excessive

requirement(s) receive(s) a (2), and the most excessive requirement(s) receive(s) a value of (1).

When only two specific requirements are different, (ie: three of four are the same); the least excessive requirement(s) receive(s) a value of (2), and the most excessive requirement(s) receive(s) a value of (1).

(5): A value of five (5) is assigned when no specific requirement is prescribed. Such a situation was determined to be the least excessive of all.

Cost/Affordability Score(s): These scoring values occur at three different levels and are based upon the assumed relationship between cost affordability, flexibility and excessiveness.

Sub-Category Level: Cost/affordability scores at this level are determined by averaging values assigned to the specific requirements of the sub-category. Remember, however, a specific value of (0) is considered "neutral" and is not included as part of the sub-category score. Thus, a cost/affordability score at the sub-category level is an average of all the specific requirement values, greater than zero (0), contained within the particular sub-category.

Major Category Level: Cost/affordability scores at this level are determined by averaging all the sub-category cost/affordability values of the major category.

Overall Score: At this third level, the cost/affordability score becomes an "overall" score for each jurisdiction, by averaging all the major category cost/affordability values.

The advantage of the evaluation system described above is that it facilitates quick inter-jurisdictional comparisons at all four levels of scoring. The user can quickly determine that requirements, or categories of requirements with the highest

scoring values will be the most flexible, least excessive and have the greatest potential for lower costs and higher levels of affordability. Whereas, the lowest scoring values will be the least flexible, most excessive and have the greatest potential for higher costs and lower levels of affordability.

Other Symbols and Explanations: Several other symbols have been used within the Preliminary Evaluation Matrix for various reasons. These symbols are noted and explained as follows:

N/A: (not applicable) This symbol is utilized when the particular characteristics of a requirement, or category of requirements, does not lend itself to any meaningful scoring value.

EXCEPTION "A": The words "see exception A" are used within the matrix when it is determined that scoring values should not be assigned because such requirements, or categories of requirements were **beyond the control of the local government agency.** (Examples include requirements addressing utility system infrastructure. Such requirements are typically established at the state level.)

EXCEPTION "B": The words "see exception B" are used within the matrix when it is determined that scoring values should not be assigned to certain general requirements, as they would be of little value **unless and until the relevant specific requirement was also considered.** (An example would be the general requirement for right-of-way dedication. Such requirements per se, are not inflexible and/or excessive until one considers the size or area involved, which is prescribed by a specific requirement.)

EXCEPTION "C": The words "see exception C" are used within the matrix when it is determined that scoring values should not be assigned because such requirements, or categories of requirements are **prescribed on an individual project basis only.** Thus, **specific development plans would be necessary before requirements could be determined.** (Examples include off-site improvement requirements and excavation/ compaction requirements.)

One final scoring note. The ultimate desirability of the scoring value is **not considered** when the value is assigned. Scoring values are assigned according to **strict definition and/or comparison only!**

Mechanics of Use

The previous discussions concerning the Preliminary Evaluation Matrix have focused on its purpose, objectives, format and scoring. This section describes a step-by-step process for quickly ascertaining information from the matrix by utilizing the actual example found in Figure 4.

The example described below assumes that a Manhattan, Kansas resident is interested in determining how his city scored, and how it compared to the other case study jurisdictions evaluated by this study. He is particularly interested in pavement width requirements for collector streets, but is also curious as to how his city scored and compared at the sub-category and major category level for "Street Systems" and "Pedestrian Systems". In addition, he is also curious about how Manhattan compared in overall scoring.

To determine this information, the resident first checks the top of the Preliminary Evaluation Matrix to assure that the jurisdiction is in fact, Manhattan, Kansas (Fig.4 , Letter A). Having checked this, he then locates the leftmost column entitled "Requirement Description" and locates the major category of "Street Systems" by scanning down the column (Fig. 4, Letter B). Continuing to scan down this column, the resident locates the sub-category entitled "Collector: (Primary)" (Fig. 4, Letter C). At this point, he can now locate the general requirement for pavement width, and by moving to the right, across the matrix, he can further locate; the specific pavement width requirement (27 feet), its "Flexibility Score" value (1.0), "Excessiveness Score" value (4.0), and the "Cost/Affordability Score" value for the sub-

PRELIMINARY EVALUATION MATRIX				
Jurisdiction: Manhattan, Kansas (A)				
REQUIREMENT DESCRIPTION	SPECIFIC REQUIREMENT	FLEXIBILITY SCORE	EXCESSIVENESS SCORE	COST/AFFORDABILITY SCORE
* STREET SYSTEMS (B)				
ACCESS:				
Right-Of-Way Width	50.00	1.0	3.0	
Pavement Width	27.00	1.0	2.0	
Pavement Width	0.00	N/A	N/A	1.9
Curbing (vertical)	yes	2.0	2.0	
Curbing (rolled)	yes	2.0	2.0	
COLLECTOR: (PRIMARY) (C)				
Right-Of-Way Width	60.00	1.0	4.0	
Pavement Width	(D) 27.00	(E) 1.0	(F) 4.0	
Pavement Width	0.00	N/A	N/A	(G) 2.3
Curbing (vertical)	yes	2.0	2.0	
Curbing (rolled)	yes	2.0	2.0	
EXCAVATION:				
	site specific	(SEE EXCEPTION	"C")	
COMPLETION:				
	site specific	(SEE EXCEPTION	"C")	
(H) 2.1				
* PEDESTRIAN SYSTEMS (I)				
SIDEWALKS:				
Width	4 FT. WIDTH			
Location(s)	REQUIRED	4.0	4.0	4.0
peripheral	ONE SIDE	(OVERALL	CATEGORY	SCORE)
collector streets	COLLECTOR			
sub-collector streets	SUB-COLLECTOR			
local streets				
loop/cul-de-sac streets				
mid-block				4.0
FLOOD PLANE AREAS:				
	yes	1.0	0.0	1.0
				3.0
OVERALL SCORE: (J) 2.6				

Figure 4

category of primary collector streets (2.3) (Figures 4, Letters D, E, F, & G respectively).

To locate the value for the major category of "Street Systems", the resident must then scan down the far right column entitled "Cost/Affordability Score". Soon he locates a value inside a rectangular box at the end of the column adjacent to the major category of "Street Systems". The value located in this box is the cost/affordability score for that major category (2.1) (Fig. 4, Letter H).

To locate scoring information for "Pedestrian Systems", the resident need only follow the same procedure described above (Fig. 4, Letter I). Then, to determine how Manhattan scored overall, he can quickly move to the bottom right hand corner of the Preliminary Evaluation Matrix where the words "Overall Score" are located. Immediately to the right of these words, he will find the overall cost/affordability score for the Manhattan jurisdiction (2.6) (Fig. 4, Letter J).

Finally, since the resident wishes to compare his city to the other cities that are evaluated, he need only follow the same procedure with each jurisdiction's Preliminary Evaluation Matrix. Then, by simple comparison, he can quickly determine how his city ranked by recalling that: higher scoring values were most flexible and least excessive with the greatest potential for lower costs and higher levels of affordability; whereas, lower scoring values were least flexible and most excessive with the greatest potential for higher costs and lower levels of affordability.

Basis for Quantitative Analysis

The Preliminary Evaluation Matrix described above established a framework within which the relative degree of flexibility and/or excessiveness of a specific requirement, and/or category of requirements, can be assessed with respect to its impact on the cost and/or affordability of housing.

In addition, the Preliminary Evaluation Matrix provides the foundation for the subsequent quantitative analysis of zoning and subdivision ordinance requirements. That is, by focusing upon the same requirements contained within the Preliminary Evaluation Matrix, the Quantitative Evaluation Matrix will quantify, in dollars and cents, the degree to which flexibility and excessiveness affect the overall cost and/or affordability of housing.

Testing Parameters

Prior to development of the Quantitative Evaluation Matrix, a "test" situation had to be established that would facilitate consistent and uniform application of zoning and subdivision ordinance requirement costs for each of the case studies to be evaluated. Five key elements were identified as being vital to the consistency and uniformity of the quantitative evaluation. These five elements are as follows: (1) An existing "test" development site, (2) a "test" dwelling unit, (3) accurate determination of improvement quantities of (ie: lengths of streets and sidewalks, areas of pavement etc...), (4) determination of "like" quantity units within which quantities could be addressed (ie: lineal feet, square feet etc ...) and, (5) determination of

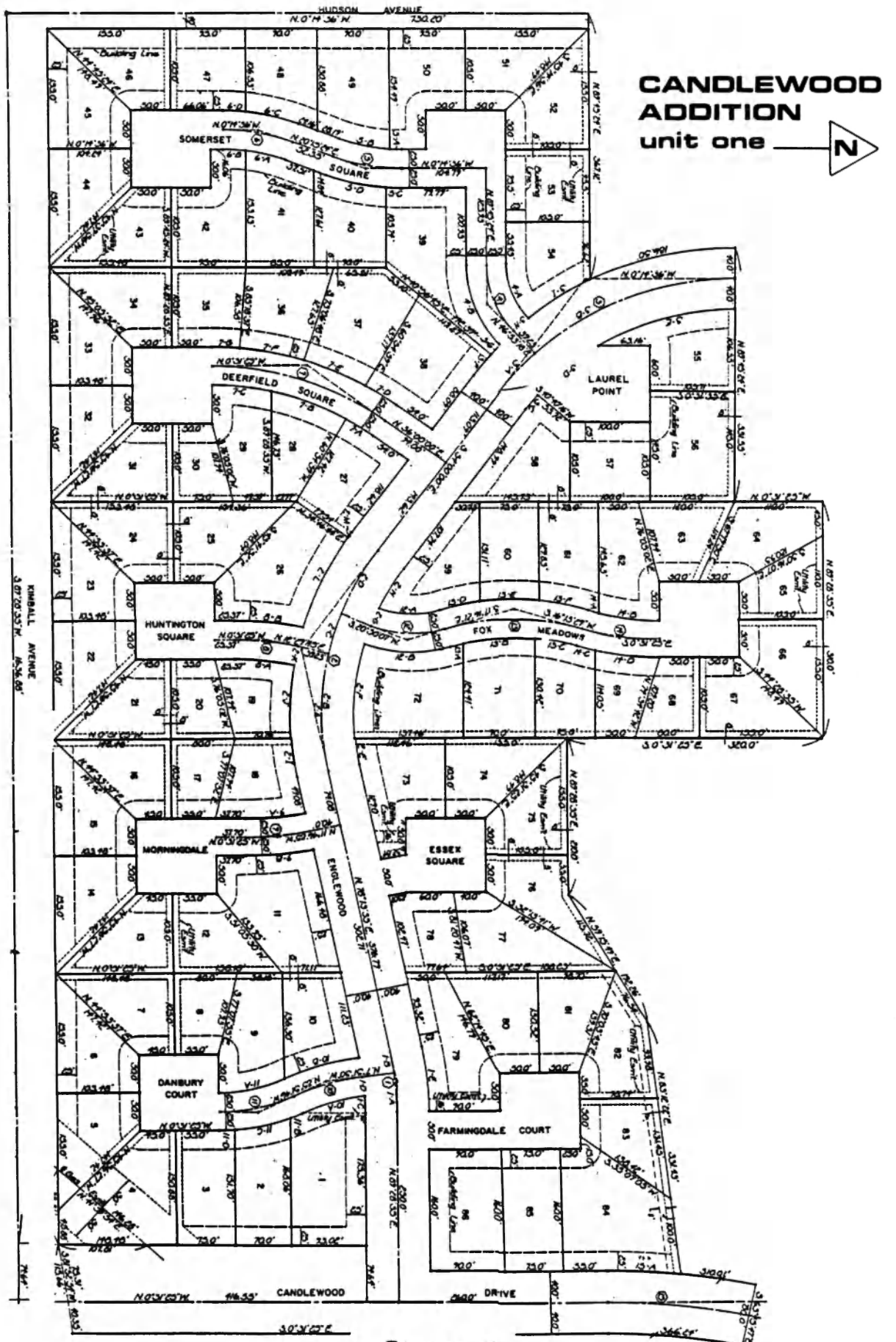
accurate unit costs (ie: price per unit of improvement). Once identified, each of these elements were standardized as necessary and held constant during the quantitative evaluation of each case study jurisdiction. A more detailed discussion of each element follows:

Test Development Site: The test development site selected is an approximate thirty-one (31) acre tract of land located in northwest Manhattan, Kansas. This tract is platted as "Candlewood Addition Unit One". Selection of this particular tract as the "test" development site was based upon its representation as a "typical" subdivision within the region, as well as the ready availability of information concerning the development:

Candlewood Addition Unit One consists of eighty-six (86) lots ranging in size from approximately 6,800 square feet, to in excess of 19,000 square feet. All lots have frontage on one of nine (9) cul-de-sac streets which have a north/south orientation within unit one. Each cul-de-sac intersects an east/west sub-collector street which in turn, intersects the primary collector street serving unit one and surrounding areas (Fig. 5). Infrastructural improvements include separate storm and sanitary sewers, water, gas, electricity, telephone and cable T.V. services.

To facilitate application of the specific requirements from each jurisdiction, only the skeletal framework of the existing development will be utilized. The elements of the existing development that will be held constant for each case study jurisdiction are as follows:

(1) The overall site boundary and/or property lines, (2) the relative location and components of all infrastructural



**CANDLEWOOD
ADDITION
unit one** 

Figure 5

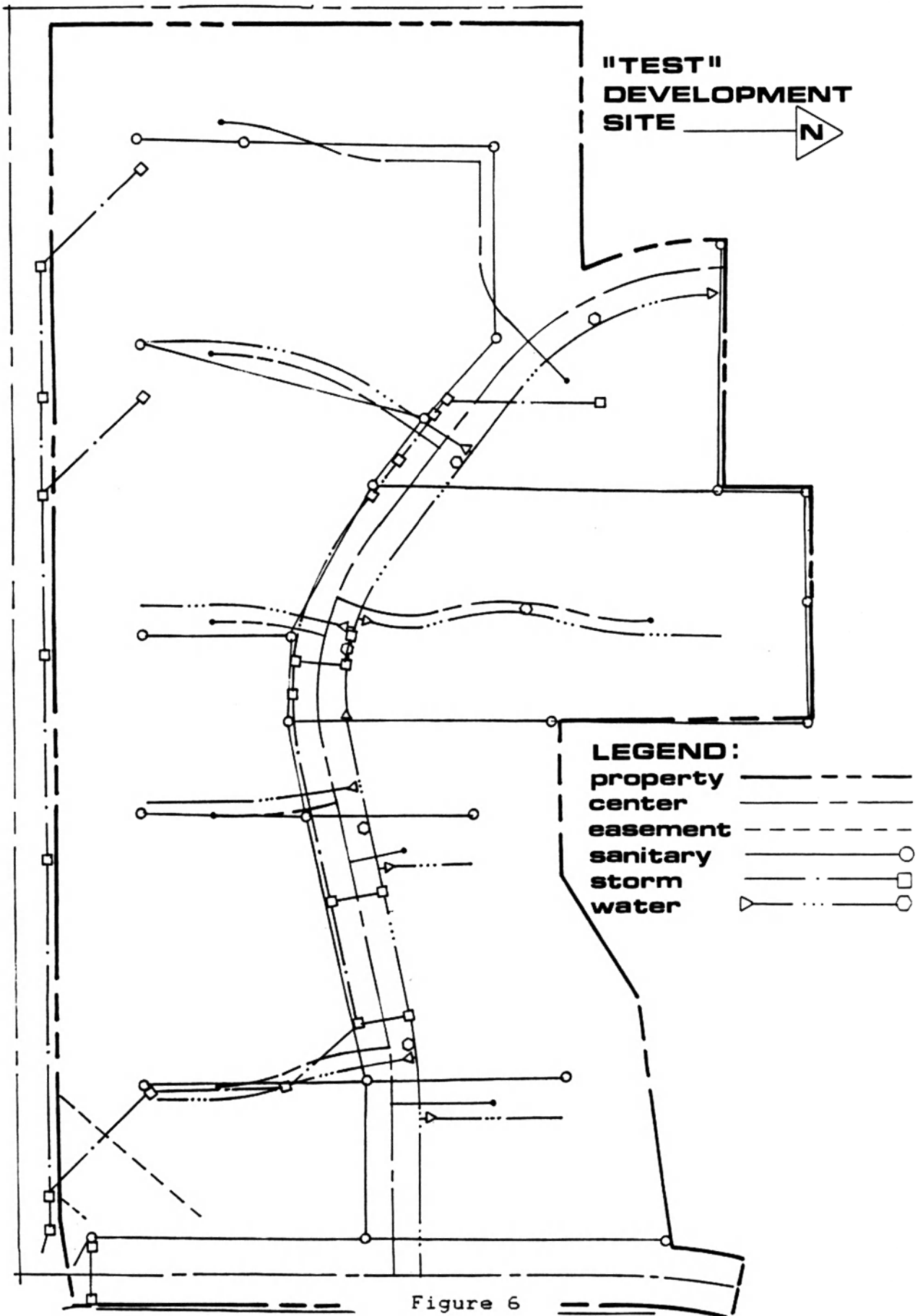


Figure 6

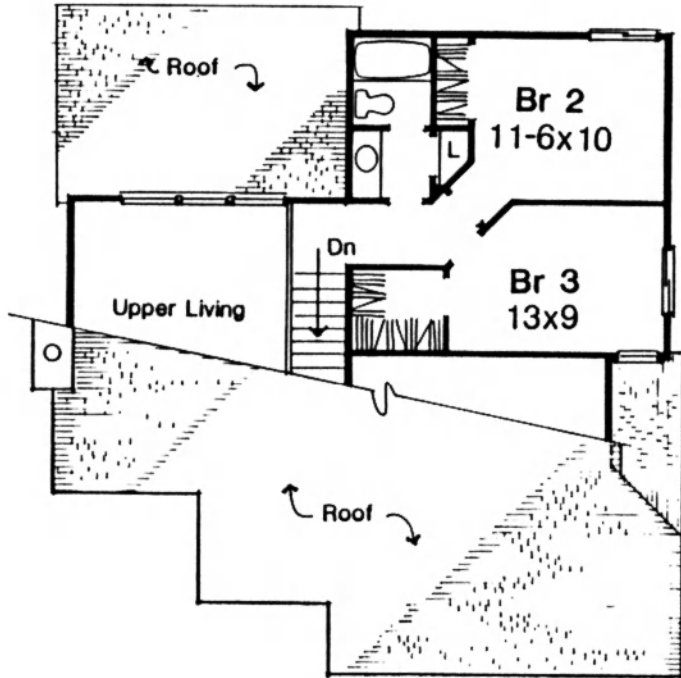
improvements and, (3) all road centerlines and "absolute" utility easements (Fig. 6).

With these skeletal elements remaining constant, the "variables" (ie: specific requirements from each case study jurisdiction) can be applied individually and independently to the "test" development. Thus, the actual cost of land development for a given jurisdiction can be determined in relation to specific zoning and subdivision ordinance requirements. This will be discussed in greater detail in following sections.

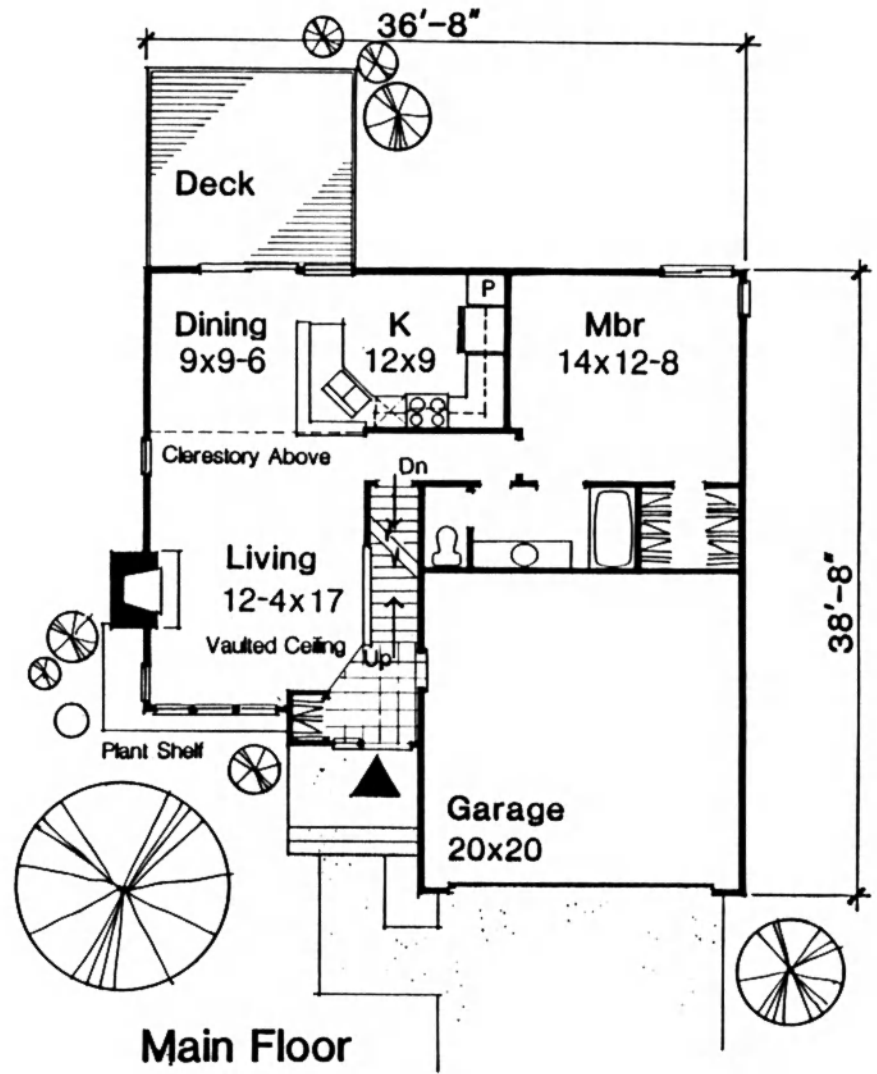
"Test" Dwelling Unit: As the objectives of this study are centered around the costs and/or affordability of housing, a "test" dwelling unit has been selected to reinforce the relationship of zoning and subdivision requirement costs to the "finished" cost of a home. Selection of a specific home resulted from parameters outlined within the "Scope of Study" as well as general information derived from a review of recent literature. (Note: Experts in the field, as well as preference studies and surveys indicate that the single-family detached dwelling unit is still preferred by most households. Also preferred are homes of 1,200 to 1,500 square feet with two to three bedrooms and double garages. (See citations in "Scope of Study".) As a result, home no. 8323, designed by Bloodgood Architects and shown in Figures 7a and 7b, was selected as the "test" dwelling unit.

The construction cost of this unit was estimated by multiplying current "per square foot" construction costs by the total square feet of the home. These costs were obtained by contacting builders working in the Manhattan, Kansas area. This total cost, including typical "service utility" hookups for each

"TEST" DWELLING UNIT



Upper Floor
400 Sq.Ft.



Main Floor
846 Sq.Ft.
1246 Sq.Ft. Total

Figure 7a

"TEST" DWELLING UNIT

44



TRADITIONAL ELEVATION

Figure 7b

unit, was held constant. Holding the construction costs of the "test" dwelling unit constant for each case study provided equal and uniform influence of such costs upon the actual "finished" cost of the home. Thus, as intended, the actual "finished" cost of the dwelling unit for each case study was ultimately determined by the "variable" land improvement costs directly related to the specific requirements of the zoning and subdivision ordinances for each individual case study.

Quantities and Quantity Units: Once the "test" development was selected, a comprehensive and thorough inventory of all land use and improvements within the existing development was conducted. The inventory was accomplished by acquiring the construction documents for Candlewood Addition Unit One from the Engineering Department of the City of Manhattan. Once acquired, detailed quantity "take-offs" were conducted for all improvements associated with each major category of zoning and subdivision ordinance requirements, previously identified. This established a data base of improvements and facilitated the standardization of improvement quantities, as well as quantity units within which zoning and subdivision ordinance requirements would be addressed. The data base was then utilized to facilitate the application of each individual specific requirement from each case study to the "test" development. Through this process, the actual cost of such requirements could be determined, thereby facilitating comparative analysis of each case study.

Unit Costs: Unit costs or price per unit of improvement, were needed for each specific requirement to be evaluated within the Quantitative Evaluation Matrix. Every effort was made to

assure that all costs were accurate and reflective of current conditions. To this end, requirement costs were obtained as follows:

Land Costs: Land costs were determined by contacting realtors and developers working in the Manhattan, Kansas area who were familiar with the "test" development site and could thereby estimate the current (1985) value of raw land with similar characteristics of the "test" site, prior to its development. Land costs were reflected in several major categories of requirements.

Improvement Costs: Improvement costs were determined by utilizing 1984 and 1985 Bid Tabulation Summaries for similar developments or improvements in the Manhattan, Kansas area. Every effort was made to assure that improvement items listed in current summaries were identical to those used in the original development of the "test" site. Bid Tabulation Summaries were obtained from the Engineering Department of the City of Manhattan, Kansas. Improvement costs were reflected consistently on a "per unit" basis for each of the major categories.

Landscaping Costs: Landscaping costs were determined by contacting various landscape nurseries in Manhattan, Kansas. These costs reflected 1985 values and were utilized within the major category entitled "Other Requirements".

Having determined the necessary testing parameters and compiled and standardized the necessary information, the uniform and consistent application of zoning and subdivision ordinance

requirement costs could be addressed by the Quantitative Evaluation Matrix described in the following section.

Quantative Evaluation Matrix

Purpose

The primary purpose of the Quantitative Evaluation Matrix is as follows:

To establish a framework within which the actual cost of specific requirements, and/or categories of requirements, can be quantifiably assessed in relationship to its impact on housing affordability.

To this end, specific requirements will be applied to the "test" development situation from which their actual costs can be determined.

Objectives

The primary objectives of the Quantitative Evaluation Matrix are as follows:

To determine the actual cost of specific requirements within the context of the "test" development, and;

To show the range of variance of costs between the case study jurisdictions, and;

To indicate the degree to which specific requirements of zoning and subdivision ordinances affect the cost of housing, and;

To determine whether the findings of the Quantitative Evaluation Matrix are consistent with the findings of the Preliminary Evaluation Matrix.

Format

F. "matrix" format has been utilized to facilitate quantitative evaluation of zoning and subdivision ordinance requirements. The basic format of the Quantitative Evaluation Matrix is similar in many ways to the preceding Preliminary Evaluation Matrix. It should be noted, that the similarities between the two matrices were intentional. Similarities were incorporated to reinforce the relationship between matrices and provide a smoother transition between the two for easier use. Development of the Quantitative Evaluation Matrix and graphics was facilitated by utilizing the Lotus 1-2-3 software program and a Compaq Deskpro micro-computer.

The matrix title and jurisdiction are located in the top left corner of each matrix (fig. 8, Letter A). The leftmost column entitled "Requirement Description" is identical to its predecessor. It contains the major category heading, followed by the sub-category heading, and the general requirements (Fig. 8, Letter B). Moving to the right, the next column entitled "Specific Requirement" is also identical to its predecessor. It contains the specific requirements unique to each individual jurisdiction directly related to the general requirements located in the leftmost column (Fig. 8, Letter C). Moving right again, the next column entitled "Quantities: Lineal Feet/Notes", contains the lineal feet of required improvements needed within the "test" development site and/or notes of explanation (Fig. 8, Letter D). Moving right again, the next column is a double wide column entitled "Quantity: Total Unit(s)". This double wide column contains the total quantity of the particular required improvement

QUANTITATIVE EVALUATION MATRIX

Jurisdiction: SAMPLE (A)

REQUIREMENT DESCRIPTION	SPECIFIC REQUIREMENT	QUANTITIES: LIN. FT./NOTES	QUANTITY: TOTL	UNIT(S)	COST: PRICE/UNIT	COST: UNIT TOTAL	CATEGORY TOTAL COST
(B)	(C)	(D)	(E)	(F)	(G)	(H)	
STREET SYSTEMS							
ACCESS:							
Right-Of-Way Width	0.00	0.00	0.00	sq. ft.	\$0.00	\$0.00	
Pavement Width	0.00	0.00	0.00	sq. ft.	\$0.00	\$0.00	
Pavement Width	0.00	0.00	0.00	sq. ft.	\$0.00	\$0.00	
Curbing (vertical)	yes/no	0.00	0.00	lin. ft.	\$0.00	\$0.00	
Curbing (rolled)	yes/no	0.00	0.00	lin. ft.	\$0.00	\$0.00	
COLLECTOR: (PRIMARY)							
Right-Of-Way Width	0.00	0.00	0.00	sq. ft.	\$0.00	\$0.00	*
Pavement Width	0.00	0.00	0.00	sq. ft.	\$0.00	\$0.00	*
Pavement Width	0.00	0.00	0.00	sq. ft.	\$0.00	\$0.00	*
Curbing (vertical)	yes/no	0.00	0.00	lin. ft.	\$0.00	\$0.00	*
Curbing (rolled)	yes/no	0.00	0.00	lin. ft.	\$0.00	\$0.00	*
SUB-COLLECTOR: (SECONDARY)							
Right-Of-Way Width	0.00	0.00	0.00	sq. ft.	\$0.00	\$0.00	*
Pavement Width	0.00	0.00	0.00	sq. ft.	\$0.00	\$0.00	*
Pavement Width	0.00	0.00	0.00	sq. ft.	\$0.00	\$0.00	*
Curbing (vertical)	yes/no	0.00	0.00	lin. ft.	\$0.00	\$0.00	*
Curbing (rolled)	yes/no	0.00	0.00	lin. ft.	\$0.00	\$0.00	*
LOCAL: (LANE)							
Right-Of-Way Width	0.00	0.00	0.00	sq. ft.	\$0.00	\$0.00	
Pavement Width	0.00	0.00	0.00	sq. ft.	\$0.00	\$0.00	
Pavement Width	0.00	0.00	0.00	sq. ft.	\$0.00	\$0.00	
Curbing (vertical)	yes/no	0.00	0.00	lin. ft.	\$0.00	\$0.00	
Curbing (rolled)	yes/no	0.00	0.00	lin. ft.	\$0.00	\$0.00	
LOOP/CUL-DE-SAC: (PLACE)							
(Stem) Right-Of-Way Width	0.00	*NOTE: VALUES INCLUDE	0.00	sq. ft.	\$0.00	\$0.00	*
(Stem) Pavement Width	0.00	TOTALS FOR ALL	0.00	sq. ft.	\$0.00	\$0.00	*
(Stem) Pavement Width	0.00	(9) NINE LOOP/	0.00	sq. ft.	\$0.00	\$0.00	*
(Terminus) Right-Of-Way Width	0.00	CUL-DE-SACS!	0.00	sq. ft.	\$0.00	\$0.00	*
(Terr.) Pvm't. Width (cir. radius)	0.00	SEE APPENDIX	0.00	sq. ft.	\$0.00	\$0.00	*
(Terr.) Pvm't. Width (looped)	0.00	"A"	0.00	sq. ft.	\$0.00	\$0.00	*
(Terr.) Pvm't. Width (looped)	0.00	FOR FURTHER	0.00	sq. ft.	\$0.00	\$0.00	*
Curbing (vertical)	yes/no	DETAIL!	0.00	lin. ft.	\$0.00	\$0.00	*
Curbing (rolled)	yes/no		0.00	lin. ft.	\$0.00	\$0.00	*
EXCAVATION:							
	site specific	(CONSTANT!)	0.00	c.y.	\$0.00	\$0.00	*
COMPACTION:							
	site specific	(CONSTANT!)	0.00	c.y.	\$0.00	\$0.00	*
							\$0.00
PEDESTRIAN SYSTEMS							
SIDEWALKS:							
Width	0.00						
Location(s)							
peripheral	0.00	0.00	0.00	sq. ft.	\$0.00	\$0.00	
collector streets	0.00	0.00	0.00	sq. ft.	\$0.00	\$0.00	*
sub-collector streets	0.00	0.00	0.00	sq. ft.	\$0.00	\$0.00	*
local streets	0.00	0.00	0.00	sq. ft.	\$0.00	\$0.00	
loop/cul-de-sac streets	0.00	0.00	0.00	sq. ft.	\$0.00	\$0.00	
mid-block	0.00	0.00	0.00	sq. ft.	\$0.00	\$0.00	
							\$0.00
FLOOD PLANE AREAS:							
	yes/no		(NOT RELEVANT TO THE TEST DEVELOPMENT!)				\$0.00
							(I) \$0.00

Figure 8

and the unit within which that quantity is addressed. Total quantities are derived by multiplying the "Specific Requirement" by the lineal feet of required improvements (Fig. 8, Letter E). Moving again to the right, the next column entitled "Cost: Price/Unit", contains the dollar value of each unit of improvements required by the jurisdiction (Fig. 8, Letter F). Moving right, the next column entitled "Cost: Unit Total" contains the value for the total cost of the particular general requirement. This value is derived by multiplying the "Quantity Total" by the price per unit of improvement (Fig. 8, Letter G). The extreme right column entitled "Category: Total Cost", contains both symbols and total major category cost values. The symbols are used to highlight the specific "Unit Total" values used to derive "Category Total Cost" (Fig. 8, Letter H). These symbols are described as follows:

***** : This symbol was used for all jurisdictions. Its purpose was to highlight the "Unit Total" values which comprise the "Category Total Cost" values.

B : This symbol was used exclusively for the Topeka jurisdiction. It stands for the word "both" and means that the adjacent "Unit Total" value was used in deriving both the "Lesser" and "Greater Totals" for the major category.

L : This symbol was used exclusively for the Topeka jurisdiction. It stands for the word "lesser" and means that the adjacent "Unit Total" value was used in deriving only the "Lesser Total" for the major category.

G : This symbol was used exclusively for the Topeka jurisdiction. It stands for the word "greater" and means that the adjacent "Unit Total" value was used in deriving only the "Greater Total" for the major category.

N/A : This symbol was used for all jurisdictions in any situation whereby a specific value was "not applicable".

(Note: Not all "Unit Totals" were used to derive "Category Total Cost" values, and are therefore not highlighted by an applicable symbol. In such cases, however, the notes located

in the column entitled "Quantities: Lineal Feet/Notes", explain why these figures were not utilized. This will become clearer as each case study jurisdiction is evaluated in the following chapter.

Finally, the "Total Improvement Cost" for each jurisdiction is located in the bottom right corner of each matrix. This cost is the combined total cost of all major category costs within the Quantitative Evaluation Matrix (Fig. 8, Letter I).

Mechanics of Use

The mechanics involved in using the Quantitative Evaluation Matrix are very similar to those of the Preliminary Evaluation Matrix. To reinforce this fact, the same example utilized to illustrate the use of the Preliminary Evaluation Matrix will be used again to illustrate the use of the Quantitative Evaluation Matrix.

The example assumes that a Manhattan, Kansas resident is interested in determining the costs associated with zoning and subdivision ordinance requirements, as applied to the "test" development for his city. He also would like to know how those costs compared with similar situations in other case study jurisdictions evaluated by this study. He is particularly interested in pavement width requirement costs for collector streets, but is also curious about the total costs for the entire major categories of "Street Systems", and "Pedestrian Systems". Lastly, the resident is curious as to the "Total Development Costs" for Manhattan's requirements, and how that cost compared to the other jurisdictions.

To determine this cost information, the resident first checks the top of the Quantitative Evaluation Matrix to assure that the

QUANTITATIVE EVALUATION MATRIX

Jurisdiction: Manhattan, Kansas (A)

REQUIREMENT DESCRIPTION	SPECIFIC REQUIREMENT	QUANTITIES: LIN. FT./NOTES	QUANTITY: TOTAL	UNIT(S)	COST: PRICE/UNIT	COST: UNIT TOTAL	CATEGORY TOTAL COST
* STREET SYSTEMS (B)							
ACCESS:							
Right-Of-Way Width	50.00	0.00	0.00	sq. ft.	\$0.13	\$0.00	
Pavement Width	27.00	0.00	0.00	sq. ft.	\$1.45	\$0.00	
Paverent Width	0.00	0.00	0.00	sq. ft.	\$1.45	\$0.00	
Curbing (vertical)	yes	0.00	0.00	lin. ft.	\$1.15	\$0.00	
Curbing (rolled)	yes	0.00	0.00	lin. ft.	\$1.15	\$0.00	
COLLECTOR: (PRIMARY) (C)							
Right-Of-Way Width	60.00	813.30	48,798.00	sq. ft.	\$0.13	\$6,343.74	*
Pavement Width	27.00	813.30	21,959.10	sq. ft.	\$1.45 (E)	\$31,840.70	*
Paverent Width	0.00	813.30	0.00	sq. ft.	\$1.45	\$0.00	
Curbing (vertical)	yes	1,626.60	1,626.60	lin. ft.	\$1.15	\$1,870.59	*
Curbing (rolled)	yes	1,626.60	1,626.60	lin. ft.	\$1.15	\$1,870.59	
SUB-COLLECTOR: (SECONDARY)							
Right-Of-Way Width	50.00	1,589.00	79,450.00	sq. ft.	\$0.13	\$10,328.50	*
Pavement Width	27.00	1,589.00	42,903.00	sq. ft.	\$1.45	\$62,209.35	*
Paverent Width	0.00	1,589.00	0.00	sq. ft.	\$1.45	\$0.00	
Curbing (vertical)	yes	2,761.00	2,761.00	lin. ft.	\$1.15	\$3,175.15	*
Curbing (rolled)	yes	2,761.00	2,761.00	lin. ft.	\$1.15	\$3,175.15	
LOCAL: (LINE)							
Right-Of-Way Width	50.00	0.00	0.00	sq. ft.	\$0.13	\$0.00	
Pavement Width	27.00	0.00	0.00	sq. ft.	\$1.45	\$0.00	
Paverent Width	0.00	0.00	0.00	sq. ft.	\$1.45	\$0.00	
Curbing (vertical)	yes	0.00	0.00	lin. ft.	\$1.15	\$0.00	
Curbing (rolled)	yes	0.00	0.00	lin. ft.	\$1.15	\$0.00	
LOOP/CUL-DE-SAC: (PLACE)							
(Stem) Right-Of-Way Width	50.00	*NOTE: VALUES INCLUDE	90,100.00	sq. ft.	\$0.13	\$11,713.00	*
(Stem) Pavement Width	27.00	TOTALS FOR ALL	56,403.00	sq. ft.	\$1.45	\$81,784.35	*
(Stem) Paverent Width	0.00	(9) NINE LOOP/	0.00	sq. ft.	\$1.45	\$0.00	
(Terminus) Right-Of-Way Width	50.00	CUL-DE-SACS!	90,125.00	sq. ft.	\$0.13	\$11,716.25	*
(Term.) Pvm't. Width (cir. radius)	35.50	SEE APPENDIX	19,785.95	sq. ft.	\$1.45	\$28,689.63	*
(Term.) Pvm't. Width (looped)	27.00	"A"	31,482.00	sq. ft.	\$1.45	\$45,648.90	*
(Term.) Pvm't. Width (looped)	0.00	FOR FURTHER	0.00	sq. ft.	\$1.45	\$0.00	
Curbing (vertical)	yes	DETAIL!	7,263.75	lin. ft.	\$1.15	\$8,353.31	*
Curbing (rolled)	yes		7,263.75	lin. ft.	\$1.15	\$8,353.31	
EXCAVATION: *NOTE:							
	site specific	(CONSTANT!)	12,465.00	c.y.	\$3.32	\$41,383.80	*
COMPACTION: *NOTE:							
	site specific	(CONSTANT!)	3,354.00	c.y.	\$2.17	\$7,278.18	*
							(F)
							\$352,335.45
* PEDESTRIAN SYSTEMS (G)							
SIDEWALKS:							
Width	4.00						
Location(s)							
peripheral	4.00	0.00	0.00	sq. ft.	\$1.63	\$0.00	
collector streets	4.00	720.50	2,882.00	sq. ft.	\$1.63	\$4,697.66	*
sub-collector streets	4.00	1,459.50	5,838.00	sq. ft.	\$1.63	\$9,515.94	*
local streets	4.00	0.00	0.00	sq. ft.	\$1.63	\$0.00	
loop/cul-de-sac streets	4.00	0.00	0.00	sq. ft.	\$1.63	\$0.00	
mid-block	4.00	0.00	0.00	sq. ft.	\$1.63	\$0.00	
							\$14,213.60
FLOOD PLANE AREAS: yes (NOT RELEVANT TO THE TEST DEVELOPMENT!)							
							\$166,662.63
TOTAL IMPROVEMENT COSTS: (H)							\$1,157,214.36

52

Figure 9

jurisdiction is in fact, Manhattan, Kansas (Fig. 9, Letter A). Having checked this, he then locates the leftmost column entitled "Requirement Description", and locates the major category of "Street Systems" by scanning down the column (Fig. 9, Letter B). Continuing to scan down this column, the resident locates the subcategory entitled "Collector: (Primary)" (Fig. 9, Letter C). At this point, he can now locate the general requirement for pavement width (Fig. 9, Letter D). By moving to the right, across the matrix to the column entitled "Cost: Unit Total", the resident can determine the total cost for Manhattan's collector street pavement width requirement as applied to the "test" development, (\$31,840.70) (Fig. 9, Letter E).

To locate the cost for the entire major category of "Street Systems", the resident must then scan down the far right column entitled "Category: Total Cost". At the end of the column associated with the major category of "Street Systems", the resident will find the total major category cost for "Street Systems" within the "test" development, (\$352,335.45) (Fig. 9, Letter F).

To locate similar cost information for "Pedestrian Systems", the resident need only follow the same procedure described above (Fig. 9, Letter G). Then, to determine the "Total Improvement Cost" of the "test" development for the city of Manhattan, he can quickly move to the bottom right hand corner of the Quantitative Evaluation Matrix where the words "Total Improvement Cost" are located. Immediately to the right of these words, he will find the total cost value (\$1,157,214.36) (Fig. 9, Letter H).

Finally, since the resident wishes to compare his city to the other cities that are evaluated, he need only follow the same procedure with each jurisdiction's Quantitative Evaluation Matrix. By simple comparison, the resident can quickly determine how each city ranked with respect to specific requirements, as well as overall development costs.

Basis for Comparisons

The Quantitative Evaluation Matrix described above establishes a framework within which the actual cost of specific requirements, or categories of requirements, can be quantifiably assessed in relationship to its impact on housing affordability. Thus, the matrix provides the basis for cost comparisons between zoning and subdivision ordinance requirements of all case studies evaluated herein. Through this process, the actual cost of a specific requirement, or category of requirements, can be related directly to its impact on housing affordability and thereby compared to other case studies for further analysis.

Demonstration Requirements

In an effort to determine the potential cost effectiveness related to increased flexibility and decreased excessiveness within zoning and subdivision ordinance requirements, two sets of "demonstration" requirements were developed and are referred to as **Demonstration "A"** and **Demonstration "B"**. The specific requirements utilized in the Demonstration "A" and "B" case studies were developed from a list of recommendations of professionals and/or professional organizations concerned with the

issue of housing affordability. The list of recommendations was compiled during the literature review conducted as a part of this study. Many of the reports and studies discussed within the previous section entitled, "Review of Recent Findings", contributed in various ways to the above list as did various other references cited throughout this study. However, due to the quantity and overlapping nature of much of the information, the bulk of the references which contributed to the list of recommendations, and subsequent specific requirements, were not directly cited or reviewed within this study. As a result, Appendix "C" was developed and includes all remaining references from which recommendations used to develop the specific requirements of the Demonstration "A" and "B" case studies were drawn. Also included are other relevant references reviewed during the course of this study. In this way, general credit can be given to those whose ideas or concepts were adapted to this study, while at the same time providing a selected bibliography to readers of this study or other interested persons.

The specific requirements utilized within the Demonstration "A" and "B" case studies were based upon the following criteria: (1) each specific requirement had to be realistic in terms of its application to the "test" development, (2) each specific requirement had to incorporate increased levels of flexibility and/or decreased levels of excessiveness, and, (3) each specific requirement had to provide basic protection of public health, safety and welfare.

It should be noted that many of the requirements found in the Demonstration "A" and "B" case studies are identical. However,

significant differences between the two occur within the major category of "Street System" development. For example; the Demonstration "A" case study eliminates all street curbing and utilizes grass-lined natural swales to handle storm water runoff. This option has cost implications in six of the eight major categories of requirements. The Demonstration "B" case study, however, utilizes curbing, but significantly reduces right-of-way widths as a result. This, too, has cost implications within six of the eight major categories of requirements.

The overall affect of the above requirements is illustrated in greater detail within the following chapter entitled "Case Studies". As with each of the other four case study jurisdictions, the Demonstration "A" and "B" case studies were evaluated via the Quantitative Evaluation Matrix. From this evaluation, observations were drawn for comparison to other case studies and analysis with respect to the impact of the demonstration requirements on housing affordability.

CHAPTER THREE: CASE STUDIES

Chapter Format

The following chapter is devoted to application of the methodology via the six case studies noted in the previous chapter. Each of the first four case studies (ie: Manhattan, Kansas; Overland Park, Kansas; Topeka, Kansas and Wichita, Kansas), will begin with some brief information concerning their cultural, economic and demographic characteristics. Following this information, the Preliminary Evaluation Matrix for each jurisdiction will be introduced, and will be followed by a summary graphic and observations for each major category of requirements.

Following those observations, the Quantitative Evaluation Matrix for each jurisdiction will be introduced. This matrix will also be followed by a summary graphic and observations for each major category of requirements. Once these observations have been made, the costs associated with the "test" dwelling unit will be introduced and an actual cost scenerio for each case study will be developed. Following the fourth case study, comparative observations will be drawn utilizing summary charts and graphs.

The final two case studies (ie: Demonstration "A" and "B"), will have a similar format, with the following exceptions: Demonstration "A" and "B" will begin with a brief review of their "specific requirement" differences. Because the specific requirements of the Demonstration "A" and "B" case studies were developed to be more flexible and less excessive, their "biased" preliminary evaluation scores are obviously more favorable. Such scores, therefore, are of questionable comparative value. As a

result, the Demonstration "A" and "B" Preliminary Evaluation Matrices have been omitted. Thus, the introductory comments for the final two case studies will be immediately followed by their respective Quantitative Evaluation Matrices, a summary graphic and observations for each major category of requirements. This information will be followed by the costs associated with the "test" dwelling unit and an actual cost scenerio. Final comparative observations utilizing summary charts and graphs developed for all six case studies will complete the chapter.

Manhattan, Kansas

Located in Northeastern Kansas, approximately 125 miles west of Kansas City, Manhattan is the county seat of Riley County. The 1980 census figures show the City of Manhattan having a population of 32,644, with Riley County encompassing some 63,505 residents.

Manhattan offers a variety of community services to its residents including: (3) hospitals, more than (40) churches of various demoninations, ample recreation opportunities including; (11) public tennis courts, (2) public swimming pools, a nearby public golf course, a private country club, and Tuttle Creek Reservoir just two miles north of town. Lodging and convention facilities are available from (9) area hotels and motels, and (8) financial institutions serve area residents.

Manhattan is home to Kansas State University, Manhattan Christian College and Manhattan Area Vocational-Technical School. In addition, there are (11) elementary schools, (8) public and (3) private, (1) public junior high school and (2) high schools, (1) public and (1) private.

Ten major manufacturers combine with numerous other major employers to provide a wide variety of employment opportunities for Manhattan-Riley County residents. (Kansas D.E.D., 1985)

Manhattan has a rich Kansas history and culture, providing many local and nearby points of interest and activities to visitors and residents alike including; Sunset Zoo, the historic Goodnow and Hartford Homes, Riley County Historical Museum, the American Institute of Baking, the scenic Flint Hills and historic Fort Riley, to mention only a few.

Preliminary Evaluation Matrix

Figures 10 and 11 respectively, are the Preliminary Evaluation Matrix and summary graphic for Manhattan, Kansas. The matrix is designed to determine the relative degree of flexibility and/or excessiveness of a specific requirement, and/or category of requirements, with respect to its impact on the cost and/or affordability of housing. (Note: Requirements, or categories of requirements with the highest scoring values will be the most flexible, least excessive and have the greatest potential for lower costs and higher levels of affordability. Whereas, the lowest scoring values will be the least flexible, most excessive and have the greatest potential for higher costs and lower levels of affordability—See "Methodology" chapter for details.)

PRELIMINARY EVALUATION MATRIX

Jurisdiction: Manhattan, Kansas

REQUIREMENT DESCRIPTION	SPECIFIC REQUIREMENT	FLEXIBILITY SCORE	EXCESSIVENESS SCORE	COST/AFFORDABILITY SCORE
STREET SYSTEMS				
ACCESS:				
Right-Of-Way Width	50.00	1.0	3.0	
Pavement Width	27.00	1.0	2.0	
Pavement Width	0.00	N/F	N/F	1.9
Curbing (vertical)	yes	2.0	2.0	
Curbing (rolled)	yes	2.0	2.0	
COLLECTOR: (PRIMARY)				
Right-Of-Way Width	60.00	1.0	4.0	
Pavement Width	27.00	1.0	4.0	
Pavement Width	0.00	N/F	N/F	2.3
Curbing (vertical)	yes	2.0	2.0	
Curbing (rolled)	yes	2.0	2.0	
SUB-COLLECTOR: (SECONDARY)				
Right-Of-Way Width	50.00	1.0	4.0	
Pavement Width	27.00	1.0	4.0	
Pavement Width	0.00	N/F	N/F	2.3
Curbing (vertical)	yes	2.0	2.0	
Curbing (rolled)	yes	2.0	2.0	
LOCAL: (LINE)				
Right-Of-Way Width	50.00	1.0	3.0	
Pavement Width	27.00	1.0	4.0	
Pavement Width	0.00	N/F	N/F	2.1
Curbing (vertical)	yes	2.0	2.0	
Curbing (rolled)	yes	2.0	2.0	
LOOP/CUL-DE-SAC: (PLACE)				
(Steep) Right-Of-Way Width	50.00	1.0	3.0	
(Steep) Pavement Width	27.00	1.0	3.0	
(Steep) Pavement Width	0.00	N/F	N/F	
(Terminus) Right-Of-Way Width	50.00	1.0	0.0	
(Terr.) Pav't. Width (cir. radius)	35.50	1.0	3.0	1.9
(Terr.) Pav't. Width (looped)	27.00	1.0	3.0	
(Terr.) Pav't. Width (looped)	0.00	N/F	N/F	
Curbing (vertical)	yes	2.0	2.0	
Curbing (rolled)	yes	2.0	2.0	
EXCEPTION:				
	site specific	(SEE	EXCEPTION	"C")
COMPACTION:				
	site specific	(SEE	EXCEPTION	"C")
				2.1

Figure 10 (continued next page)

* PEDESTRIAN SYSTEMS					
SIDEWALKS:					
Width	4 FT. WIDTH				
Location(s)	REQUIRED	4.0	4.0	4.0	
peripheral	ONE SIDE	(OVERALL	CATEGORY	SCORE)	
collector streets	COLLECTOR #				
sub-collector streets	SUB-COLLECTOR				
local streets					
loop/cul-de-sac streets					
mid-block					4.0
* UTILITY SYSTEMS					
STORM SEWERS:					
Open (Surface)	REQUIRED	(SEE	EXCEPTION	"A")	
Closed (Underground)					
SANITARY SEWERS:					
Main Lines	REQUIRED	(SEE	EXCEPTION	"A")	
Laterals					
WATER/FIRE SYSTEMS:					
Public Water	REQUIRED	(SEE	EXCEPTION	"A")	
Private Water					
Fire Protection					
STREET LIGHTING:					
Requirement(s)	NOT REQUIRED	(SEE	EXCEPTION	"A")	
					N/F
* LOT REQUIREMENTS					
MINIMUM SIZE:					
	10,000.00	1.0	1.0	1.0	
MINIMUM FRONTAGE:					
Standard Lot	none	5.0	0.0	5.0	
Cul-De-Sac Lot	none	5.0	5.0		
MINIMUM WIDTH:					
	75.00	1.0	1.0	1.0	
MINIMUM DEPTH:					
	100.00	1.0	4.0	2.5	
YARD SETBACKS:					
Front Yard	25.00	1.0	2.0		
Side Yards (2) to o/lot	8.00	1.0	1.0	1.4	
Rear Yard	25.00	1.0	2.0		
Side Yard (Corner Lot)	25.00	1.0	2.0		2.2
* DWELLING UNIT / DEVELOPMENT					
TYPE REQUIREMENTS					
UNIT REQUIREMENTS:					

Figure 10 (continued next page)

Unit Height	35 ft.	3.0	0.0	1.7
Unit Coverage	30% max.	1.0	1.0	
ALLOWED DEVELOPMENT TYPE(S):				
Single Family Detached	yes			
Planned Unit Development	yes			
Cluster Housing	yes w/p.u.d.	3.0	N/A	3.0
Zero Lot Line Housing	yes w/p.u.d.	(OVERALL SCORE)		2.4
* PARKING REQUIREMENTS				
OFF-STREET PARKING:				
Spaces Required	2.00	1.0	2.0	1.5
* DEDICATION REQUIREMENTS				
		(SEE EXCEPTION "B" & REFER TO "STREET SYSTEM" REQUIREMENTS ABOVE!)	(SEE EXCEPTION "B" & REFER TO "STREET SYSTEM" REQUIREMENTS ABOVE!)	(SEE EXCEPTION "B" & REFER TO "STREET SYSTEM" REQUIREMENTS ABOVE!)
RIGHTS-OF-WAY:				
Streets	yes			
Sidewalks	yes			
OPEN SPACE:				
Area Required	none	5.0	5.0	5.0
EASEMENTS:				
Type(s)				
k.p. ll. gas - (constant)	k.p. ll. gas			
utility	yes			
drainage, avigation	yes			
Width(s)				
16 ft. utility	16.00	1.0	1.0	1.0
* OTHER REQUIREMENTS				
LANDSCAPING:				
Individual Lot landscape package	none	5.0	0.0	5.0
Open Space (street) trees (island) trees seeding	none	5.0	0.0	5.0
OFF-SITE IMPROVEMENTS:	site specific street/sanitary/storm sewer possible	(SEE EXCEPTION "C")		
Type(s) Required				
EROSION CONTROL:	yes	1.0	1.0	1.0
UNDERGROUND UTILITIES:	encouraged	5.0	5.0	5.0
SURVEY COSTS:	yes	1.0	1.0	1.0

Figure 10 (continued next page)

FLOOD PLANE AREAS:	yes	1.0	0.0	1.0
		OVERALL SCORE:		2.6

Figure 10

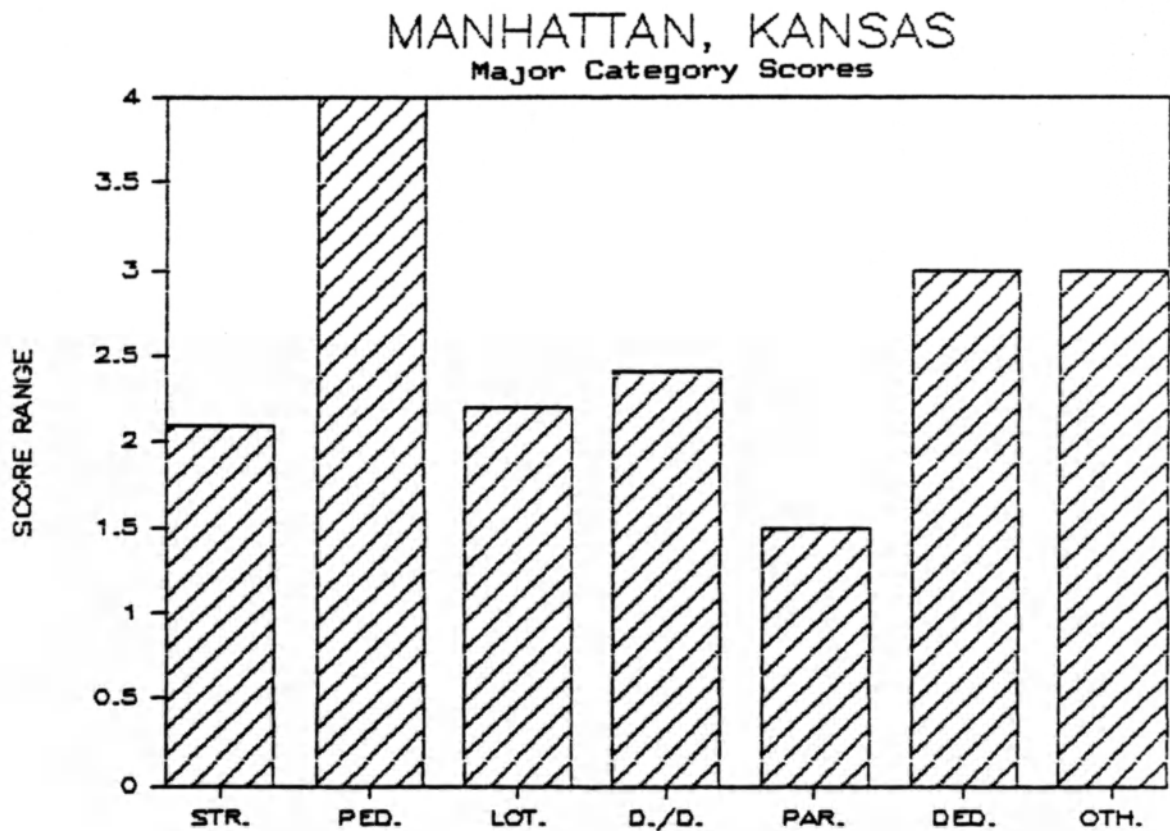


Figure 11

Observations

Street Systems:

- * Street pavement widths for all sub-categories of Manhattan's street systems were identical.
- * Right-of-way widths were mostly identical, with collector streets as the exception.
- * Flexibility scores were generally low which lowered cost/affordability scores at the sub-category and major category level.
- * Excessiveness scores were generally higher, many in the 3-4 range.
- * The Cost/Affordability score of (2.1) for Street Systems was fairly reflective of all sub-category values, but was lowered as a result of low values within the sub-categories of Access and Loop/Cul-de-sac streets.

Pedestrian Systems:

- * Manhattan's Pedestrian System score of (4.0) ranked first or highest of the four case study jurisdictions evaluated. This score was also the highest major category score for Manhattan.

Utility Systems:

- * Utility Systems were not scored as they were determined to be beyond the control of the local government agency.

Lot Requirements:

- * Manhattan had the largest Minimum Lot Size requirement of the four case study jurisdictions evaluated.
- * Flexibility scores were generally low which lowered Cost/Affordability scores.
- * Although Excessiveness scores were quite low for most specific requirements, the minimum depth requirement of 100 ft. ranked highest for the four case study jurisdictions evaluated.
- * The Cost/Affordability score of (2.2) for Lot Requirements was raised somewhat as a result of high minimum frontage values. This, however, is of little importance given a minimum width requirement of 75 ft.

Dwelling Unit and Development Type Requirements:

- * Three of four development types would require special approval.

* Dwelling Unit Height received a Flexibility score of (3.0) as the specific requirement provides flexibility for multiple building stories.

* Manhattan was one of only two jurisdictions with Unit Coverage requirements.

* The Flexibility score for Allowed Development Type(s) is an overall score for the entire sub-category. Manhattan's score of (3.0) was identical to the values assigned to both Overland Park and Topeka.

Parking Requirements

* The Cost/Affordability score of (1.5) for Parking Requirements was Manhattan's lowest major category score.

Dedication Requirements:

* No scores were assigned to Rights-of-Way dedications as such scores would be of little value without consideration of relevant specific requirements. (Note: Specific requirements were previously assigned values.)

* The lack of Open Space requirements heavily influenced the Cost/Affordability score of (3.0) for Dedication Requirements. This value tied for the second highest major category score for Manhattan.

Other Requirements:

* Off-Site Improvements were not scored as specific development plans could not be considered at this point.

* The lack of specific requirements for several of the sub-categories heavily influenced the Cost/Affordability score of (3.0) for other requirements. This value tied for the second highest major category score for Manhattan.

Quantitative Evaluation Matrix

Figures 12 and 13 respectively, are the Quantitative Evaluation Matrix and summary graphic for Manhattan, Kansas. The matrix is designed to determine the actual cost of specific requirements, and/or categories of requirements, in relationship to its impact on housing affordability. Costs have been determined via application to the "test" development situation. (See "Methodology" chapter for details.)

QUANTITATIVE EVALUATION MATRIX

Jurisdiction: Manhattan, Kansas

REQUIREMENT DESCRIPTION	SPECIFIC REQUIREMENT	QUANTITIES: LIN. FT./NOTES	QUANTITY: TOTAL	UNIT(S)	COST: PRICE/UNIT	COST: UNIT TOTAL	CATEGORY TOTAL COST
* STREET SYSTEMS							
ACCESS:							
Right-Of-Way Width	50.00	0.00	0.00	sq. ft.	\$0.13	\$0.00	
Pavement Width	27.00	0.00	0.00	sq. ft.	\$1.45	\$0.00	
Pavement Width	0.00	0.00	0.00	sq. ft.	\$1.45	\$0.00	
Curbing (vertical)	yes	0.00	0.00	lin. ft.	\$1.15	10.00	
Curbing (rolled)	yes	0.00	0.00	lin. ft.	\$1.15	\$0.00	
COLLECTOR: (PRIMARY)							
Right-Of-Way Width	60.00	813.30	48,798.00	sq. ft.	\$0.13	\$6,343.74	
Pavement Width	27.00	813.30	21,959.10	sq. ft.	\$1.45	\$31,840.70	
Pavement Width	0.00	813.30	0.00	sq. ft.	\$1.45	10.00	
Curbing (vertical)	yes	1,626.60	1,626.60	lin. ft.	\$1.15	\$1,870.59	
Curbing (rolled)	yes	1,626.60	1,626.60	lin. ft.	\$1.15	\$1,870.59	
SUB-COLLECTOR: (SECONDARY)							
Right-Of-Way Width	50.00	1,589.00	79,450.00	sq. ft.	\$0.13	\$10,328.50	
Pavement Width	27.00	1,589.00	42,903.00	sq. ft.	\$1.45	\$62,209.35	
Pavement Width	0.00	1,589.00	0.00	sq. ft.	\$1.45	10.00	
Curbing (vertical)	yes	2,761.00	2,761.00	lin. ft.	\$1.15	13,175.15	
Curbing (rolled)	yes	2,761.00	2,761.00	lin. ft.	\$1.15	13,175.15	
LOCAL: (LINE)							
Right-Of-Way Width	50.00	0.00	0.00	sq. ft.	10.13	10.00	
Pavement Width	27.00	0.00	0.00	sq. ft.	\$1.45	10.00	
Pavement Width	0.00	0.00	0.00	sq. ft.	\$1.45	10.00	
Curbing (vertical)	yes	0.00	0.00	lin. ft.	\$1.15	10.00	
Curbing (rolled)	yes	0.00	0.00	lin. ft.	\$1.15	10.00	
LOOP/CUL-DE-SAC: (PLACE)							
(Stem) Right-Of-Way Width	50.00	VALUES INCLUDE	90,100.00	sq. ft.	10.13	\$11,713.00	*
(Stem) Pavement Width	27.00	TOTALS FOR ALL	56,403.00	sq. ft.	\$1.45	\$81,784.35	
(Stem) Pavement Width	0.00	(9) NINE LOOP/	0.00	sq. ft.	\$1.45	10.00	
(Terminus) Right-Of-Way Width	50.00	CUL-DE-SACS!	90,125.00	sq. ft.	10.13	\$11,716.25	
(Term.) Pvm't. Width (cir. radius)	35.50	SEE APPENDIX	19,785.95	sq. ft.	\$1.45	128,689.63	
(Term.) Pvm't. Width (looped)	27.00	"A"	31,482.00	sq. ft.	\$1.45	145,648.90	
(Term.) Pvm't. Width (looped)	0.00	FOR FURTHER	0.00	sq. ft.	\$1.45	10.00	
Curbing (vertical)	yes	DETAIL!	7,263.75	lin. ft.	\$1.15	18,353.31	
Curbing (rolled)	yes		7,263.75	lin. ft.	\$1.15	18,353.31	
EXCAVATION:							
	site specific	(CONSTANT!)	12,465.00	c.y.	13.32	\$41,383.80	
COMPACTION:							
	site specific	(CONSTANT!)	3,354.00	c.y.	12.17	\$7,278.18	
							\$352,335.45
PEDESTRIAN SYSTEMS							
SIDEWALKS:							
Width	4.00						
Location(s)							
peripheral	4.00	0.00	0.00	sq. ft.	\$1.63	10.00	
collector streets	4.00	720.50	2,882.00	sq. ft.	\$1.63	14,697.66	*
sub-collector streets	4.00	1,459.50	5,838.00	sq. ft.	\$1.63	19,515.94	
local streets	4.00	0.00	0.00	sq. ft.	\$1.63	10.00	
loop/cul-de-sac streets	4.00	0.00	0.00	sq. ft.	\$1.63	10.00	
mid-block	4.00	0.00	0.00	sq. ft.	\$1.63	10.00	
							\$14,213.60
UTILITY SYSTEMS							
STORM SEWERS:							
Open (Surface)	(SEE APPENDIX	"B" FOR	DETAILED COST	BREAKDOWNS!			
Closed (Underground)						\$120,284.94	
SANITARY SEWERS:							
Main Lines	(SEE APPENDIX	"B" FOR	DETAILED COST	BREAKDOWNS!			
Laterals						\$147,045.25	
WATER/FIRE SYSTEMS:							
Public Water	(SEE APPENDIX	"B" FOR	DETAILED COST	BREAKDOWNS!			
Private Water							
Fire Protection							
							191,330.17
STREET LIGHTING:							
Requirement(s)	(SEE APPENDIX	"B" FOR	DETAILED COST	BREAKDOWNS!			
							\$358,660.36

Figure 12 (continued next page)

LOT REQUIREMENTS							
MINIMUM SIZE:	10,000.00		1,039,709.00	sq. ft.	10.13	\$135,162.17	1
MINIMUM FRONTAGE:							
Standard Lot	none						
Cul-De-Sac Lot	none						
MINIMUM WIDTH:	75.00		(VALUES REFLECTED IN		SETBACK CALC'S	BELOW!)	
MINIMUM DEPTH:	100.00		(VALUES REFLECTED IN		SETBACK CALC'S	BELOW!)	
YARD SETBACKS:		NOTE					
Front Yard	25.00	SETBACK COSTS	1,875.00	sq. ft.	10.13	1243.75	
Side Yards (2)two/lot	8.00	ARE INCLUDED	1,600.00	sq. ft.	10.13	\$208.00	
Rear Yard	25.00	IN LOT COSTS	1,875.00	sq. ft.	10.13	1243.75	
Side Yard (Corner Lot)	25.00	ABOVE! (FOR	2,500.00	sq. ft.	10.13	1325.00	
		EXAMPLE ONLY!)					\$135,162.17
DWELLING UNIT DEVELOPMENT TYPE REQUIREMENTS							
UNIT REQUIREMENTS:							
Unit Height	35 ft.		N/A	N/A	N/A	N/A	
Unit Coverage	30% max.		N/A	N/A	N/A	N/A	
ALLOWED DEVELOPMENT TYPE(S):							
Single Family Detached	yes		(COSTS RELATED	TO SINGLE	FAMILY DET'D.	(ONLY!)	
Planned Unit Development	yes		(COSTS RELATED	TO SINGLE	FAMILY DET'D.	(ONLY!)	
Cluster Housing	yes w/p.u.d.		(COSTS RELATED	TO SINGLE	FAMILY DET'D.	(ONLY!)	
Zero Lot Line Housing	yes w/p.u.d.		(COSTS RELATED	TO SINGLE	FAMILY DET'D.	(ONLY!)	N/A
PARKING REQUIREMENTS							
OFF-STREET PARKING:							
Spaces Required	2.00		73,840.00	sq. ft.	11.63	\$120,359.20	1 \$120,359.20
DEDICATION REQUIREMENTS							
RIGHTS-OF-WAY:		NOTE:					
Streets	yes	COSTS INCLUDED	308,473.00	sq. ft.	10.13	\$40,101.49	
Sidewalks	yes	IN "STREET	8,720.00	sq. ft.	10.13	\$1,133.60	
		SYSTEMS" ABOVE!					
OPEN SPACE:							
Area Required	none		75,545.80	sq. ft.	10.13	19,820.95	*
EASEMENTS:		NOTE:					
Type(s)		COSTS INCLUDED					
k.p.&l. gas - (constant)	k.p.&l. gas	IN "LOT COSTS"	14,500.00	sq. ft.	10.13	\$1,885.00	
utility	yes	ABOVE! (FOR					
drainage, avigation	yes	EXAMPLE ONLY!)					
Width(s)							
16 ft. utility	16.00	6,685.00	106,960.00	sq. ft.	10.13	\$13,904.80	
							19,820.95
OTHER REQUIREMENTS							
LANDSCAPING:		NOTE:					
Individual Lot	none	LANDSCAPING					
landscape package		COSTS HAVE	104.00	per d.u.	1938.00	197,552.00	1
Open Space	none	BEEN INCLUDED					
(street) trees		FOR REALISM!	104.00	(2) per d.u.	\$330.00	134,320.00	1
(island) trees			5.00	(3) per isl.	1495.00	12,475.00	1
seeding			105,890.80	sq. ft.	10.04	14,235.63	1
OFF-SITE IMPROVEMENTS:	site specific,						
Type(s) Required	street/sanitary						
	& storm sewer						
	possible.						
EROSION CONTROL:	yes		(NOT UTILIZED	4/IN THE TEST	DEVELOPMENT!)		
UNDERGROUND UTILITIES:	encouraged	NOTE:					
		OVERHEAD USED	104.00	per d.u.	10.00	10.00	
		IN TEST DEV'NT!					
SURVEY COSTS:	yes		104.00	per d.u.	1270.00	128,080.00	1
FLOOD PLANE AREAS:	yes		(NOT RELEVANT	TO THE TEST	DEVELOPMENT!)		
							\$166,662.63
TOTAL IMPROVEMENT COSTS:						\$1,157,214.36	

Figure 12

MANHATTAN, KANSAS

Category Cost Percentages

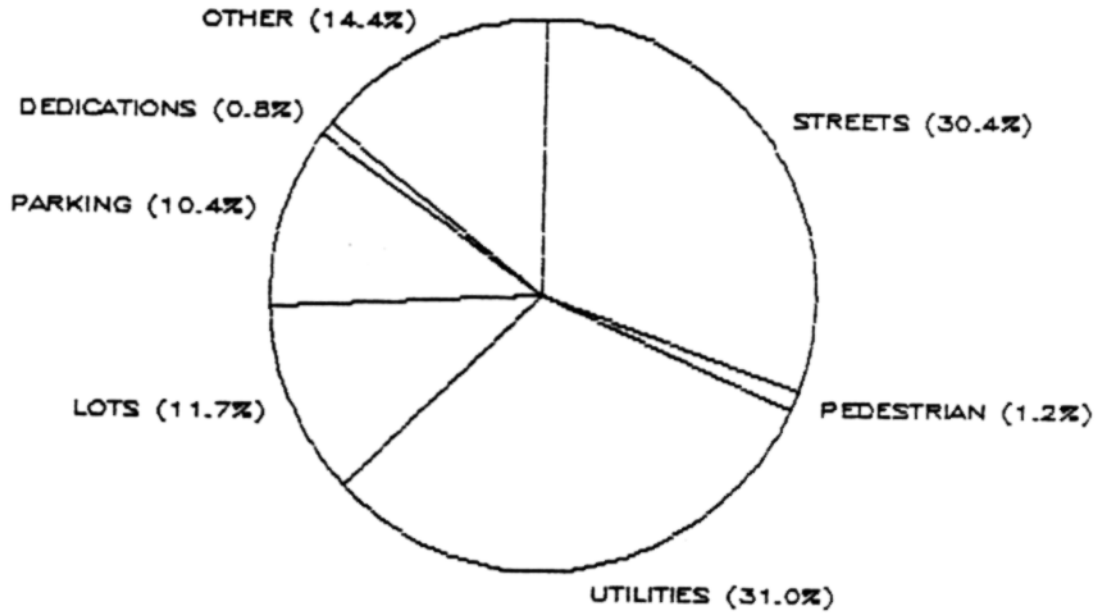


Figure 13

Observations:

Street Systems:

- * Street System requirements accounted for 30.4% of total improvement costs, second only to Utility Systems.
- * Total costs for Street System requirements amounted to \$3,387.84 per dwelling unit.
- * Pavement costs were always the highest sub-category cost, accounting for more than the combined cost of the other requirements within a specific sub-category.

Pedestrian Systems:

- * Pedestrian System requirements accounted for only 1.2% of total improvement costs.
- * Total costs for Pedestrian System requirements amounted to \$136.66 per dwelling unit.

Utility Systems:

- * Utility System requirements accounted for 31% of total improvement costs. This was the highest major category cost.
- * Total costs for Utility System requirements amounted to \$3,448.65 per dwelling unit.
- * Sanitary Sewers were the most expensive utility system improvement, accounting for nearly 41% of the total cost.

Lot Requirements:

- * Lot requirements accounted for 11.7% of total improvement costs. (note: these are raw land costs)
- * The total costs for Lot Requirements amounted to \$1,299.63 per dwelling unit.
- * The total cost of land devoted to Yard Setbacks for standard interior lots amounted to \$695.50 per dwelling unit. This area and subsequent value represents 53.5% of both total cost and usable lot square footage.

Dwelling Unit and Development Type Requirements:

- * No Costs were assigned to this major category of requirements.

Parking Requirements:

- * Parking Requirements accounted for 10.4% of total improvement costs.

* Total costs for Parking Requirements amounted to \$1,157.30 per dwelling unit. This cost was affected by setback, right-of-way and pavement width requirements.

Dedication Requirements:

* Dedication Requirements accounted for only 0.8% of total improvement costs, the lowest major category cost. This resulted from the fact that Open Space costs were the only costs considered. Other sub-category costs were previously considered within other categories.

* Total costs for Open Space dedication requirements amounted to only \$94.43 per dwelling unit. (It should be noted that no open space was actually required, however, the "test" development did include the square footage indicated.)

* Right-of-Way and Easement dedications accounted for 9.87 acres of land. This represented 31.8% of the total site acreage, with a combined total cost of \$55,891.29.

Other Requirements:

* Other Requirements accounted for 14.4% of total improvement costs.

* Total costs for Other Requirements amounted to \$1,602.52 per dwelling unit.

* Individual Lot landscaping accounted for 58.5% of the per dwelling unit costs associated with Other Requirements. The remaining percentage was split between Open Space landscaping and Survey costs.

Test Dwelling Unit and Costs

As previously indicated, home no. 8323, designed by Bloodgood Architects was selected as the "test" dwelling unit. Per square foot construction costs, including "service utility" hookups were estimated at \$55.00. The "test" dwelling unit offers 1,246 square feet of living space, dictating a construction cost of \$68,530.00.

Actual Cost Scenerio

Per lot improvement cost:	\$ <u>11,127.06</u>
Dwelling unit construction cost:	\$ 68,530.00
Total finished cost:	\$ <u>79,657.06</u>

Down payment [10% * :	[7,965.70
Financed amount [30 yr. fixed:	# 71,691.36
Settlement fees [4% *** :	\$ 2,867.65
Basic monthly payment [11.5% **	\$ 709.74
M.G.I.C. insurance [.375% /mo. *** :	# 22.40
Taxes [an effective rate of 1.3% /mo.*** :	# 77.66
Standard insurance [\$25.00/mo.:	# 25.00
Total Monthly payment:	\$ <u>834.80</u>
Annual payment:	\$ 10,017.60
Qualifying monthly income **** :	[3,339.20
Qualifying annual income **** :	# <u>40,070.40</u>

* 10% down payment on total finished cost of home
 ** 11.5% interest rate for 30 yr. fixed rate mortgage
 *** percentages apply to financed amount
 **** by definition, 25% of gross income

Overland Park, Kansas

Located in Eastern Kansas, on the southwest side of the Kansas City Metropolitan area, Overland Park has become known as "Executive Country". The 1980 census figures show Overland Park's population at 81,784, with surrounding Johnson County's population 270,269.

Community services available to residents of Overland Park include: (1) hospital, (4) additional within Johnson County, more than (40) churches of various denominations, a wide variety of recreational opportunities including; (41) public tennis courts, (5) public swimming pools, (2) nearby public golf courses, (2) private country clubs and Clinton Reservoir located 35 miles from Overland Park. Lodging and convention facilities are available in (8) area hotels and motels, and (14) financial institutions are available to area residents.

Overland Park is home to Johnson County Community Junior College. In addition, there are (57) elementary schools, (47) public and (10) private, (10) public junior high schools and (10) high schools, (5) public and (5) private.

Six major manufacturers combine with numerous other major employers to provide a wide variety of employment opportunities for Overland Park-Johnson County residents.

"Overland Park has adopted the slogan "Executive Country", projecting the image of a new area having lots of green space, and devoted to the development of a quality of life highly attractive to the executive type employment in office buildings, professional groups, etc. The area is especially education-conscious, and has

developed national recognition of its superior education system."
(Kansas D.E.D., 1982)

Preliminary Evaluation Matrix

Figures 14 and 15 respectively, are the Preliminary Evaluation Matrix and summary graphic for Overland Park, Kansas. The matrix is designed to determine the relative degree of flexibility and/or excessiveness of a specific requirement, and/or category of requirements, with respect to its impact on the cost and/or affordability of housing. (Note: Requirements, or categories of requirements with the highest scoring values will be the most flexible, least excessive and have the greatest potential for lower costs and higher levels of affordability. Whereas, the lowest scoring values will be the least flexible, most excessive and have the greatest potential for higher costs and lower levels of affordability—See "Methodology" chapter for details.)

PRELIMINARY EVALUATION MATRIX

Jurisdiction: Overland Park, Kansas

REQUIREMENT DESCRIPTION	SPECIFIC REQUIREMENT	FLEXIBILITY SCORE	EXCESSIVENESS SCORE	COST/AFFORDABILITY SCORE
STREET SYSTEMS				
ACCESS:				
Right-Of-Way Width	60.00	1.0	1.0	
Pavement Width	24.00	1.0	3.0	
Pavement Width	0.00	N/A	N/A	1.8
Curbing (vertical)	yes	2.0	2.0	
Curbing (rolled)	yes	2.0	2.0	
COLLECTOR: (PRIMARY)				
Right-Of-Way Width	80.00	1.0	1.0	
Pavement Width	36.00	1.0	3.0	
Pavement Width	0.00	N/A	N/A	1.8
Curbing (vertical)	yes	2.0	2.0	
Curbing (rolled)	yes	2.0	2.0	
SUB-COLLECTOR: (SECONDARY)				
Right-Of-Way Width	60.00	1.0	3.0	
Pavement Width	36.00	1.0	2.0	
Pavement Width	0.00	N/A	N/A	1.9
Curbing (vertical)	yes	2.0	2.0	
Curbing (rolled)	yes	2.0	2.0	
LOCAL: (LANE)				
Right-Of-Way Width	50.00	1.0	3.0	
Pavement Width	28.00	1.0	3.0	
Pavement Width	0.00	N/A	N/A	2.0
Curbing (vertical)	yes	2.0	2.0	
Curbing (rolled)	yes	2.0	2.0	
LOOP/COLL-DE-SPC: (PLACE)				
(Steep) Right-Of-Way Width	50.00	1.0	3.0	
(Steep) Pavement Width	28.00	1.0	2.0	
(Steep) Pavement Width	0.00	N/A	N/A	
(Terminus) Right-Of-Way Width	50.00	1.0	0.0	
(Terr.) Pav't. Width (cir. radius)	39.00	1.0	2.0	1.7
(Terr.) Pav't. Width (looped)	28.00	1.0	2.0	
(Terr.) Pav't. Width (looped)	0.00	N/A	N/A	
Curbing (vertical)	yes	2.0	2.0	
Curbing (rolled)	yes	2.0	2.0	
EXCEPTION:				
	site specific	(SEE	EXCEPTION	"C")
COMPLETION:				
	site specific	(SEE	EXCEPTION	"C")
				1.8

Figure 14 (continued next page)

* PEDESTRIAN SYSTEMS					
SIDEWALKS:					
Width	4 FT. WIDTH				
Location(s)	REQUIRED	2.0	2.0	2.0	
peripheral	BOTH SIDES	(OVERALL	CATEGORY	SCORE)	
collector streets	COLLECTOR				
sub-collector streets	SUB-COLLECTOR				
local streets	ONE SIDE				
loop/cul-de-sac streets	LOCAL				
sid-block					2.0
* UTILITY SYSTEMS					
STORM SEWERS:					
Open (Surface)	REQUIRED	(SEE	EXCEPTION	"A")	
Closed (Underground)					
SANITARY SEWERS:					
Main Lines	REQUIRED	(SEE	EXCEPTION	"A")	
Laterals					
WATER/FIRE SYSTEMS:					
Public Water	REQUIRED	(SEE	EXCEPTION	"A")	
Private Water					
Fire Protection					
STREET LIGHTING:					
Requirement(s)	REQUIRED	(SEE	EXCEPTION	"A")	
					N/A
* LOT REQUIREMENTS					
MINIMUM SIZE:	1000.00	1.0	2.0	1.5	
MINIMUM FRONTAGE:					
Standard Lot	none	5.0	0.0	2.3	
Cul-De-Sac Lot	(35 ft. on a 50 ft. radius)	1.0	1.0		
MINIMUM WIDTH:	70.00	1.0	2.0	1.5	
MINIMUM DEPTH:	115.00	1.0	2.0	1.5	
YARD SETBACKS:					
Front Yard	30.00	1.0	1.0		
Side Yards (2)two/lot	7.00	1.0	2.0	1.5	
Rear Yard	25.00	1.0	2.0		
Side Yard (Corner Lot)	15.00	1.0	3.0		
					1.7
* DWELLING UNIT DEVELOPMENT TYPE REQUIREMENTS					
UNIT REQUIREMENTS:					

Figure 14 (continued next page)

Unit Height	2.5 stories	3.0	0.0	1.7
Unit Coverage	yes (see zoning)	1.0	1.0	
ALLOWED DEVELOPMENT TYPE(S):				
Single Family Detached	yes			
Planned Unit Development	yes w/ p.u.d.			
Cluster Housing	yes w/ p.u.d.	3.0	N/A	3.0
Zero Lot Line Housing	yes w/ p.u.d.	(OVERALL SCORE)		2.4
* PARKING REQUIREMENTS				
OFF-STREET PARKING:				1.5
Spaces Required	2.00	1.0	2.0	1.5
* DEDICATION REQUIREMENTS				
RIGHTS-OF-WAY:		(SEE EXCEPTION "B" REFER TO "STREET SYSTEM" REQUIREMENTS ABOVE!)	(SEE EXCEPTION "B" & REFER TO "STREET SYSTEM" REQUIREMENTS ABOVE!)	(SEE EXCEPTION "B" REFER TO "STREET SYSTEM" REQUIREMENTS ABOVE!)
Streets	yes			
Sidewalks	yes			
OPEN SPACE:				
Area Required	none	5.0	5.0	5.0
EASEMENTS:				
Type(s)				
k.p. ll. gas - (constant)	k.p. ll. gas			
utility	yes			
Width(s)				
10 ft. utility	10.00	1.0	4.0	2.5
				3.8
* OTHER REQUIREMENTS				
LANDSCAPING:				
Individual Lot landscape package	none	5.0	0.0	5.0
Open Space (street) trees (island) trees seeding	none	5.0	0.0	5.0
OFF-SITE IMPROVEMENTS:				
Type(s) Required	site specific streets possible	(SEE EXCEPTION	"C")	
EROSION CONTROL:	none	5.0	5.0	5.0
UNDERGROUND UTILITIES:	yes	1.0	1.0	1.0
SURVEY COSTS:	none	5.0	5.0	5.0

Figure 14 (continued next page)

FLOOD PLANE AREAS:	yes	1.0	0.0	1.0
				3.7
			OVERALL SCORE:	2.4

Figure 14

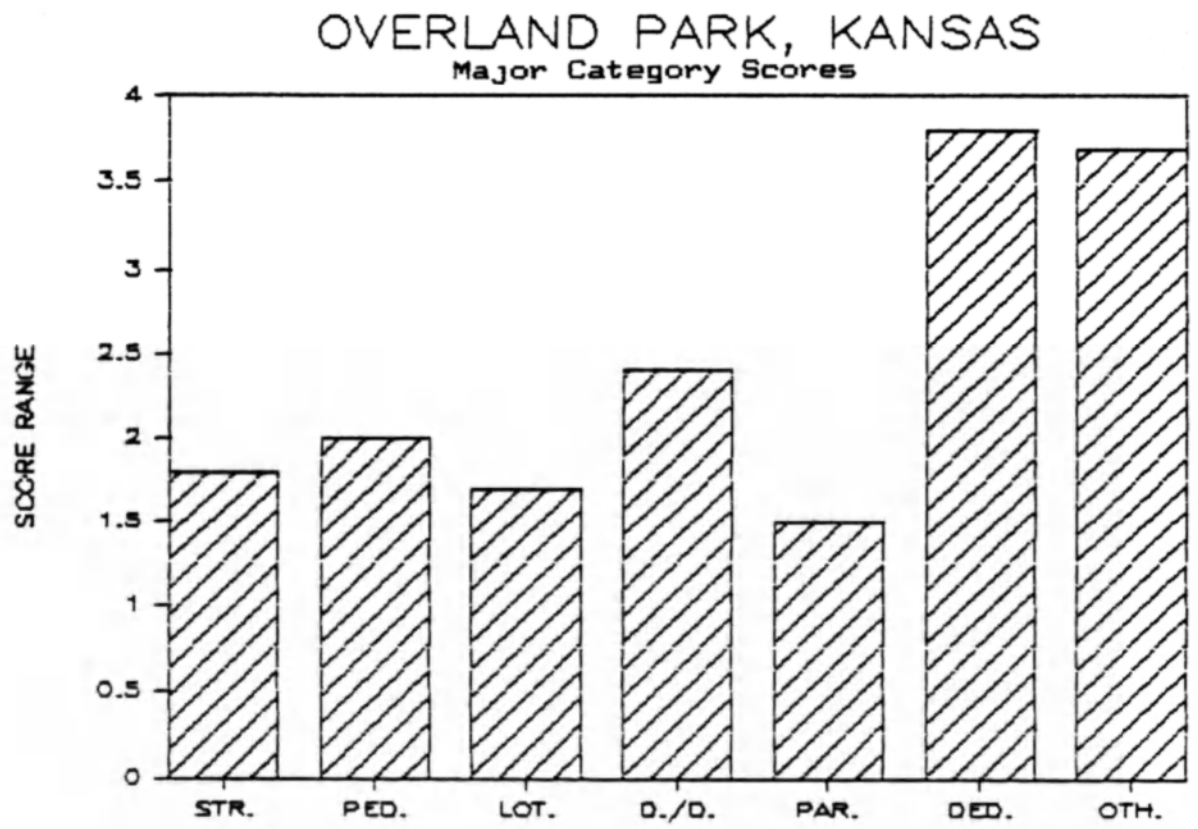


Figure 15

Observations

Street Systems:

- * Street pavement widths in Overland Park varied from a low of 24 feet for Access streets, to a high of 36 feet for both Collector and Sub-Collector streets.
- * Right-of-Way widths also varied from a low of 50 feet for Local and Loop/Cul-de-sac streets, to a high of 80 feet for Collector streets.
- * Flexibility scores were generally low which lowered Cost/Affordability scores at the sub-category and major category levels.
- * Excessiveness scores were only slightly higher with only (5) of (22) scores exceeding a value of (2.0) two.
- * The Cost/Affordability score of (1.8) for Street Systems is a good reflection of all sub-category values.
- * The Street System major category score of (1.8) was the third lowest score for all of Overland Park's major categories.

Pedestrian Systems:

- * Overland Park's Pedestrian System score of (2.0) ranked third, or next to lowest, of the four case study jurisdictions evaluated.

Utility Systems:

- * Utility Systems were not scored as they were determined to be beyond the control of the local government agency.

Lot Requirements:

- * Overland Park was one of only two jurisdictions with Minimum Frontage requirements.
- * Flexibility scores were all quite low with the exception of the Minimum Frontage value of (5.0), for Standard Lots. This, however, is of little importance given a Minimum Width requirement of 70 ft.
- * Yard Setback scores for Overland Park included both the lowest and the highest excessiveness values assigned to the four case study jurisdictions.
- * The Minimum Frontage value of (5.0) described above had the affect of raising the Cost/Affordability scores at both the sub-category and major category levels.

Dwelling Unit and Development Type Requirements:

- * Three of four development types would require special approval.
- * Dwelling Unit Height received a Flexibility score of (3.0) as the specific requirement provides flexibility for multiple building stories.
- * Overland Park was one of only two jurisdictions with unit coverage requirements.
- * The Flexibility score for Allowed Development Type(s) is an overall score for the entire sub-category. Overland Park's score of (3.0) was identical to the values assigned to both Manhattan and Topeka.

Parking Requirements:

- * The Cost/Affordability score of (1.5) for Parking Requirements was Overland Park's lowest major category score.

Dedication Requirements:

- * No scores were assigned to Rights-of-Way dedications, as such scores would be of little value without consideration of relevant specific requirements. (Note: Specific requirements were previously assigned values.)
- * The lack of Open Space requirements heavily influenced the Cost/Affordability score of (3.8) for Dedication Requirements. This score was Overland Park's highest major category score.

Other Requirements:

- * Off-Site Improvements were not scored as specific development plans could not be considered at this point.
- * The lack of specific requirements for several of the sub-categories heavily influenced the Cost/Affordability score of (3.7) for Other Requirements. This score was the second highest major category score for Overland Park.

Quantitative Evaluation Matrix

Figures 16 and 17 respectively, are the Quantitative Evaluation Matrix and summary graphic for Overland Park, Kansas. The matrix is designed to determine the actual cost of specific requirements, and/or categories of requirements, in relationship to its impact on housing affordability. Costs have been

determined via applicataion to the "test" development situation.

(See "Methodology" chapter for details.)

QUANTITATIVE EVALUATION MATRIX

Jurisdiction: Overland Park, Kansas

REQUIREMENT DESCRIPTION	SPECIFIC REQUIREMENT	QUANTITIES: LIN. FT./NOTES	QUANTITY: TOTAL	UNIT(S)	COST: PRICE/UNIT	COST: UNIT TOTAL	CATEGORY TOTAL COST
* STREET SYSTEMS							
ACCESS:							
Right-Of-Way Width	60.00	0.00	0.00	sq. ft.	\$0.13	\$0.00	
Pavement Width	24.00	0.00	0.00	sq. ft.	\$1.45	\$0.00	
Pavement Width	0.00	0.00	0.00	sq. ft.	\$1.45	\$0.00	
Curbing (vertical)	yes	0.00	0.00	lin. ft.	\$1.15	\$0.00	
Curbing (rolled)	yes	0.00	0.00	lin. ft.	\$1.15	\$0.00	
COLLECTOR: (PRIMARY)							
Right-Of-Way Width	80.00	813.30	65,064.00	sq. ft.	\$0.13	\$8,458.32	*
Pavement Width	36.00	813.30	29,278.80	sq. ft.	\$1.45	\$42,454.26	*
Pavement Width	0.00	813.30	0.00	sq. ft.	\$1.45	\$0.00	
Curbing (vertical)	yes	1,626.60	1,626.60	lin. ft.	\$1.15	\$1,870.59	*
Curbing (rolled)	yes	1,626.60	1,626.60	lin. ft.	\$1.15	\$1,870.59	*
SUB-COLLECTOR: (SECONDARY)							
Right-Of-Way Width	60.00	1,589.00	95,340.00	sq. ft.	\$0.13	\$12,394.20	*
Pavement Width	36.00	1,589.00	57,204.00	sq. ft.	\$1.45	\$82,945.80	*
Pavement Width	0.00	1,589.00	0.00	sq. ft.	\$1.45	\$0.00	
Curbing (vertical)	yes	2,761.00	2,761.00	lin. ft.	\$1.15	\$3,175.15	*
Curbing (rolled)	yes	2,761.00	2,761.00	lin. ft.	\$1.15	\$3,175.15	*
LOCAL: (LANE)							
Right-Of-Way Width	50.00	0.00	0.00	sq. ft.	\$0.13	\$0.00	
Pavement Width	28.00	0.00	0.00	sq. ft.	\$1.45	\$0.00	
Pavement Width	0.00	0.00	0.00	sq. ft.	\$1.45	\$0.00	
Curbing (vertical)	yes	0.00	0.00	lin. ft.	\$1.15	\$0.00	
Curbing (rolled)	yes	0.00	0.00	lin. ft.	\$1.15	\$0.00	
LOOP/CUL-DE-SAC: (PLACE)							
(Stem) Right-Of-Way Width	50.00	*NOTE: VALUES INCLUDE	87,850.00	sq. ft.	\$0.13	\$11,420.50	*
(Stem) Pavement Width	28.00	TOTALS FOR ALL	57,358.00	sq. ft.	\$1.45	\$83,169.10	*
(Stem) Pavement Width	0.00	(9) NINE LOOP/	0.00	sq. ft.	\$1.45	\$0.00	
(Terminus) Right-Of-Way Width	50.00	CUL-DE-SACS!	90,125.00	sq. ft.	\$0.13	\$11,716.25	*
(Term.) Pvm't. Width (cir. radius)	39.00	SEE APPENDIX	23,879.70	sq. ft.	\$1.45	\$34,625.57	*
(Term.) Pvm't. Width (looped)	28.00	"A"	32,648.00	sq. ft.	\$1.45	\$47,339.60	*
(Term.) Pvm't. Width (looped)	0.00	FOR FURTHER	0.00	sq. ft.	\$1.45	\$0.00	
Curbing (vertical)	yes	DETAIL!	7,245.70	lin. ft.	\$1.15	\$8,332.55	*
Curbing (rolled)	yes		7,245.70	lin. ft.	\$1.15	\$8,332.55	*
EXCAVATION: site specific *NOTE: (CONSTANT!) 12,465.00 c.y. \$3.32 \$41,383.80 *							
COMPACTION: site specific (CONSTANT!) 3,354.00 c.y. \$2.17 \$7,278.18 *							
							\$396,563.87
* PEDESTRIAN SYSTEMS							
SIDEWALKS:							
Width	4.00						
Location(s)							
peripheral	4.00	0.00	0.00	sq. ft.	\$1.63	\$0.00	
collector streets	4.00	1,441.00	5,764.00	sq. ft.	\$1.63	\$9,395.32	*
sub-collector streets	4.00	2,919.00	11,676.00	sq. ft.	\$1.63	\$19,031.88	*
local streets	4.00	0.00	0.00	sq. ft.	\$1.63	\$0.00	
loop/cul-de-sac streets	4.00	3,150.35	12,601.40	sq. ft.	\$1.63	\$20,540.28	*
mid-block	4.00	0.00	0.00	sq. ft.	\$1.63	\$0.00	
							\$48,967.48
* UTILITY SYSTEMS							
STORM SEWERS: (SEE APPENDIX "B" FOR DETAILED COST BREAKDOWNS!)							
Open (Surface)							
Closed (Underground)						\$120,284.94	*
SANITARY SEWERS: (SEE APPENDIX "B" FOR DETAILED COST BREAKDOWNS!)							
Main Lines							
Laterals						\$147,045.25	*
WATER/FIRE SYSTEMS: (SEE APPENDIX "B" FOR DETAILED COST BREAKDOWNS!)							
Public Water							
Private Water							
Fire Protection						\$91,330.17	*
STREET LIGHTING: (SEE APPENDIX "B" FOR DETAILED COST BREAKDOWNS!)							
Requirement(s)							
							\$358,660.36

Figure 16 (continued next page)

* LOT REQUIREMENTS							
MINIMUM SIZE:	8000.00		1,009,803.00	sq. ft.	\$0.13	\$131,274.39	*
MINIMUM FRONTAGE:							
Standard Lot	none						
Cul-De-Sac Lot	(35 ft. on a 50 ft. radius)						
MINIMUM WIDTH:	70.00		(VALUES REFLECTED IN	SETBACK CALC'S	BELOW!)		
MINIMUM DEPTH:	115.00	*NOTE:	(VALUES REFLECTED IN	SETBACK CALC'S	BELOW!)		
YARD SETBACKS:		AVERAGE DEPTH!					
Front Yard	30.00	*NOTE:					
Side Yards (2)two/lot	7.00	SETBACK COSTS	2,100.00	sq. ft.	\$0.13	\$273.00	
Rear Yard	25.00	ARE INCLUDED	1,610.00	sq. ft.	\$0.13	\$209.30	
Side Yard (Corner Lot)	15.00	IN LOT COSTS	1,750.00	sq. ft.	\$0.13	\$227.50	
		ABOVE! (FOR	1,725.00	sq. ft.	\$0.13	\$224.25	
		EXAMPLE ONLY!)					\$131,274.39
* DWELLING UNIT & DEVELOPMENT TYPE REQUIREMENTS							
UNIT REQUIREMENTS:							
Unit Height	2.5 stories		N/A	N/A	N/A	N/A	
Unit Coverage	yes		N/A	N/A	N/A	N/A	
ALLOWED DEVELOPMENT TYPE(S):							
Single Family Detached	yes		(COSTS RELATED	TO SINGLE	FAMILY DET'D.	(ONLY!)	
Planned Unit Development	yes w/ p.u.d.		(COSTS RELATED	TO SINGLE	FAMILY DET'D.	(ONLY!)	
Cluster Housing	yes w/ p.u.d.		(COSTS RELATED	TO SINGLE	FAMILY DET'D.	(ONLY!)	
Zero Lot Line Housing	yes w/ p.u.d.		(COSTS RELATED	TO SINGLE	FAMILY DET'D.	(ONLY!)	N/A
* PARKING REQUIREMENTS							
OFF-STREET PARKING:							
Spaces Required	2.00		100,300.00	sq. ft.	\$1.63	\$163,489.00	* \$163,489.00
* DEDICATION REQUIREMENTS							
RIGHTS-OF-WAY:		*NOTE:					
Streets	yes	COSTS INCLUDED	338,379.00	sq. ft.	\$0.13	\$43,989.27	
Sidewalks	yes	IN "STREET	30,073.40	sq. ft.	\$0.13	\$3,909.54	
		SYSTEMS" ABOVE!					
OPEN SPACE:							
Area Required	none		75,545.80	sq. ft.	\$0.13	\$9,820.95	*
EASEMENTS:		*NOTE:					
Type(s)		COSTS INCLUDED					
k.p.&l. gas - (constant)	k.p.&l. gas	IN "LOT COSTS"	14,500.00	sq. ft.	\$0.13	\$1,885.00	
utility	yes	ABOVE! (FOR					
		EXAMPLE ONLY!)					
Width(s)							
10 ft. utility	10.00	6,685.00	66,850.00	sq. ft.	\$0.13	\$8,690.50	
							\$9,820.95
* OTHER REQUIREMENTS							
LANDSCAPING:		*NOTE:					
Individual Lot	none	LANDSCAPING					
landscape package		COSTS HAVE	126.00	per d.u.	\$838.00	\$105,588.00	*
Open Space	none	BEEN INCLUDED					
(street) trees		FOR REALISM!	126.00	(2) per d.u.	\$330.00	\$41,580.00	*
(island) trees			5.00	(3) per isl.	\$495.00	\$2,475.00	*
seeding			103,632.30	sq. ft.	\$0.04	\$4,145.29	*
OFF-SITE IMPROVEMENTS:							
Type(s) Required	site specific, streets possible.						
EROSION CONTROL:	none						
UNDERGROUND UTILITIES:	yes		126.00	per d.u.	\$500.00	\$63,000.00	*
SURVEY COSTS:	none	*NOTE:	126.00	per d.u.	\$270.00	\$34,020.00	*
		INCLUDED FOR					
		REALISM!					
FLOOD PLANE AREAS:	yes		(NOT RELEVANT	TO THE TEST	DEVELOPMENT!)		\$250,808.29
TOTAL IMPROVEMENT COSTS:						\$1,359,584.35	

Figure 16

OVERLAND PARK, KANSAS

Category Cost Percentages

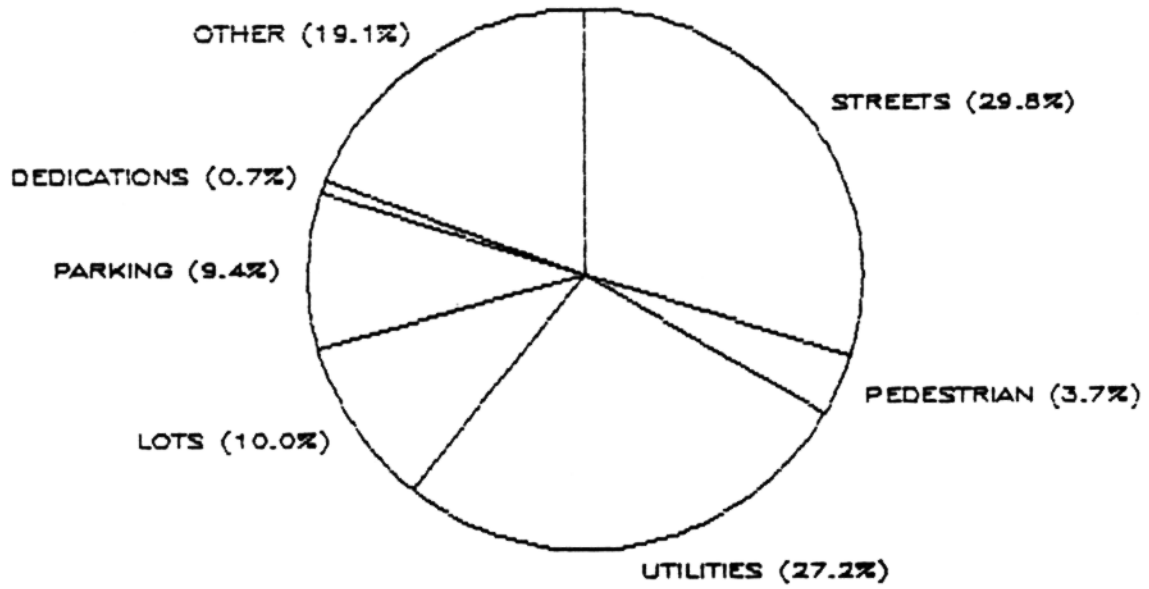


Figure 17

Observations

Street Systems:

- * Street System requirements accounted for 29.8% of total improvement costs, the highest major category cost percentage.
- * Total costs for Street System requirements amounted to \$3,147.33 per dwelling unit.
- * Pavement costs were always the highest sub-category cost, accounting for more than the combined cost of other requirements within a specific sub-category.

Pedestrian Systems:

- * Pedestrian System requirements accounted for 3.7% of total improvement costs.
- * Total costs for Pedestrian System requirements amounted to \$388.63 per dwelling unit.

Utility Systems:

- * Utility System requirements accounted for 27.2% of total improvement costs. This was the second highest major category cost.
- * Total cost for Utility System requirements amounted to \$2,846.51 per dwelling unit.
- * Sanitary Sewers were the most expensive utility system improvement, accounting for nearly 41% of the total cost.

Lot Requirements:

- * Lot Requirements accounted for 10% of total improvement costs. (note: these are raw land costs)
- * Total costs for Lot Requirements amounted to \$1,041.86 per dwelling unit.
- * The total cost of land devoted to Yard Setbacks for standard interior lots amounted to \$709.80 per dwelling unit. This area and subsequent value represents 68.2% of both total cost and usable lot square footage.

Dwelling Unit and Development Type Requirements:

- * No costs were assigned to this category of requirements.

Parking Requirements:

- * Parking Requirements accounted for 9.4% of total improvement costs.

* Total costs for Parking Requirements amounted to \$1,297.53 per dwelling unit. This cost was affected by setback, right-of-way and pavement width requirements.

Dedication Requirements:

* Dedication Requirements accounted for only 0.7% of total improvement costs, the lowest major category cost. This resulted from the fact that Open Space costs were the only costs considered. Other sub-category costs were previously considered within other categories.

* Total costs for Open Space dedication requirements amounted to only \$77.94 per dwelling unit. (It should be noted that no open space was actually required, however, the "test" development did include the square footage indicated.)

* Right-of-Way and Easement dedications accounted for 9.64 acres of land. This represented 31.1% of the total site acreage, with a combined total cost of \$54,564.77.

Other Requirements:

* Other Requirements accounted for 19.1% of total improvement costs.

* Total costs for Other Requirements amounted to \$1,990.54 per dwelling unit.

* Per dwelling unit percentage breakdowns for Other Requirements are as follows:

Individual Lot Landscaping	42.1%
Open Space Landscaping	19.2%
Underground Utilities	25.1%
Survey Costs	13.6%

Test Dwelling Unit and Costs

As previously indicated, home no. 8323, designed by Bloodgood Architects was selected as the "test" dwelling unit. Per square foot construction costs, including, "service utility" hookups were estimated at \$55.00. The "test" dwelling unit offers 1,246 square feet of living space, dictating a construction cost of \$68,530.00.

Actual Cost Scenerio

Per lot improvement cost:	\$ <u>10,790.35</u>
Dwelling unit construction cost:	\$ <u>68,530.00</u>

Total finished cost:	\$ <u>79,320.35</u>
Down payment @ 10% * :	\$ 7,932.03
Financed amount @ 30 yr. fixed:	\$ 71,388.32
Settlement fees @ 4% *** :	\$ 2,855.53
Basic monthly payment @ 11.5% ** :	\$ 706.74
M.G.I.C. insurance @ .375% /mo.*** :	\$ 22.30
Taxes @ effective rate of 1.3% /mo. *** :	\$ 77.33
Standard insurance @ \$25.00/mo.:	\$ 25.00
Total monthly payment:	\$ <u>831.37</u>
Annual payment:	\$ 9,976.44
Qualifying monthly income **** :	\$ 3,325.48
Qualifying annual income **** :	\$ <u>39,905.76</u>

* 10% down payment on total finished cost of home
** 11.5% interest rate for 30 yr. fixed rate mortgage
*** percentages apply to financed amount
**** by definition, 25% of gross income

Topeka, Kansas

Located in Northeastern Kansas, approximately 58 miles west of Kansas City, Topeka is the State's Capitol and the county seat of Shawnee County. The 1980 census figures show the City of Topeka having a population of 115,266, with Shawnee County comprising 154,916 residents.

Topeka offers its residents a variety of community services including: (9) hospitals, nearly (150) churches of various demoninations, a wide variety of recreational opportunities including; (42) public tennis courts, (6) public swimming pools, (3) nearby public golf courses, (3) private country clubs and Perry Reservoir located 15 miles from Topeka. Lodging and convention facilities are available in (20) area hotels and motels, and (19) financial institutions serve the Topeka-Shawnee County residents.

Topeka is home to Washburn University and Kaw Area Vocational-Technical School. In addition, there are (37) elementary schools, (27) public and (10) private, (6) public junior high schools and (4) high schools, (3) public and (1) private.

Eleven major manufacturers combine with numerous other major employers to provide a wide variety of employment opportunities to Topeka-Shawnee County residents. (Kansas D.E.D., 1982)

Additionally, Topeka offers many historic and cultural amenities to visitors and residents alike including; the World Famous Topeka Zoo, the Combat Air Museum, the Ward-Meade Home and Botanical Gardens, community concerts, theater, and over (20) art galleries.

Preliminary Evaluation Matrix

Figures 18 and 19 respectively, are the Preliminary Evaluation Matrix and summary graphic for Topeka, Kansas. The matrix is designed to determine the relative degree of flexibility and/or excessiveness of a specific requirement, and/or category of requirements, with respect to its impact on the cost and/or affordability of housing. (Note: Requirements, or categories of requirements with the highest scoring values will be the most flexible, least excessive and have the greatest potential for lower costs and higher levels of affordability. Whereas, the lowest scoring values will be the least flexible, most excessive and have the greatest potential for higher costs and lower levels of affordability—See "Methodology" chapter for details.)

PRELIMINARY EVALUATION MATRIX

Jurisdiction: Topeka, Kansas

REQUIREMENT DESCRIPTION	SPECIFIC REQUIREMENT	FLEXIBILITY SCORE	EXCESSIVENESS SCORE	COST/AFFORDABILITY SCORE
* STREET SYSTEMS				
ACCESS:				
Right-Of-Way Width	60.00	1.0	1.0	
Pavement Width (v.c.)	29.00	2.0	1.0	
Pavement Width (r.c.)	30.00	N/A	N/A	1.4
Curbing (vertical)	(see pvmt.)	2.0	1.0	
Curbing (rolled)	(see pvmt.)	2.0	1.0	
COLLECTOR: (PRIMARY)				
Right-Of-Way Width	70.00	1.0	2.0	
Pavement Width (v.c.)	41.00	1.0	1.0	
Pavement Width (r.c.)	0.00	N/A	N/A	1.1
Curbing (vertical)	yes	1.0	1.0	
Curbing (rolled)	no	1.0	1.0	
SUB-COLLECTOR: (SECONDARY)				
Right-Of-Way Width	70.00	1.0	1.0	
Pavement Width (v.c.)	37.00	2.0	1.0	
Pavement Width (r.c.)	38.00	N/A	N/A	1.4
Curbing (vertical)	(see pvmt.)	2.0	1.0	
Curbing (rolled)	(see pvmt.)	2.0	1.0	
LOCAL: (LANE)				
Right-Of-Way Width	60.00	1.0	2.0	
Pavement Width (v.c.)	29.00	2.0	2.0	
Pavement Width (r.c.)	30.00	N/A	N/A	1.6
Curbing (vertical)	(see pvmt.)	2.0	1.0	
Curbing (rolled)	(see pvmt.)	2.0	1.0	
LOOP/CUL-DE-SAC: (PLACE)				
(Stem) Right-Of-Way Width	60.00	1.0	1.0	
(Stem) Pvm't. Width ((15 d.u.)	27 v.c. 28 r.c.	2.0	3.0	
(Stem) Pvm't. Width (>15 d.u.)	29 v.c. 30 r.c.	N/A	N/A	
(Terminus) Right-Of-Way Width	50.00	1.0	0.0	
(Term.) Pvm't. Width (cir. radius)	45.00	1.0	1.0	1.6
(Term.) Pvm't. Width ((15 d.u.)	27 v.c. 28 r.c.	2.0	3.0	
(Term.) Pvm't. Width (>15 d.u.)	29 v.c. 30 r.c.	N/A	N/A	
Curbing (vertical)	(see pvmt.)	2.0	1.0	
Curbing (rolled)	(see pvmt.)	2.0	1.0	
EXCAVATION:				
	site specific	(SEE	EXCEPTION	"C")
COMPACTION:				
	site specific	(SEE	EXCEPTION	"C")
				1.4

Figure 18 (continued next page)

* PEDESTRIAN SYSTEMS					
SIDEWALKS:					
Width	4 FT. WIDTH				
Location(s)	REQUIRED	1.0	1.0	1.0	
peripheral	ALL STREETS	(OVERALL	CATEGORY	SCORE)	
collector streets					
sub-collector streets					
local streets					
loop/cul-de-sac streets					
mid-block					
					1.0
* UTILITY SYSTEMS					
STORM SEWERS:					
Open (Surface)	REQUIRED	(SEE	EXCEPTION	"A")	
Closed (Underground)					
SANITARY SEWERS:					
Main Lines	REQUIRED	(SEE	EXCEPTION	"A")	
Laterals					
WATER/FIRE SYSTEMS:					
Public Water	REQUIRED	(SEE	EXCEPTION	"A")	
Private Water					
Fire Protection					
STREET LIGHTING:					
Requirement(s)	NOT REQUIRED	(SEE	EXCEPTION	"A")	
					N/A
* LOT REQUIREMENTS					
MINIMUM SIZE:					
	6500.00	1.0	3.0	2.0	
MINIMUM FRONTAGE:					
Standard Lot	none	5.0	0.0	5.0	
Cul-De-Sac Lot	none	5.0	5.0		
MINIMUM WIDTH:					
	50.00	1.0	4.0	2.5	
MINIMUM DEPTH:					
	110.00	1.0	3.0	2.0	
YARD SETBACKS:					
Front Yard	30.00	1.0	1.0		
Side Yards (2)two/lot	7.00	1.0	2.0	1.1	
Rear Yard	30.00	1.0	1.0		
Side Yard (Corner Lot)	30.00	1.0	1.0		
					2.5
* DWELLING UNIT & DEVELOPMENT					
TYPE REQUIREMENTS					
UNIT REQUIREMENTS:					

Figure 18 (continued next page)

Unit Height	12.5 st./35 ft.	3.0	0.0	4.3
Unit Coverage	none	5.0	5.0	
ALLOWED DEVELOPMENT TYPE(S):				
Single Family Detached	yes			
Planned Unit Development	yes w/ c.u.p.			
Cluster Housing	yes w/ c.u.p.	3.0	N/A	3.0
Zero Lot Line Housing	yes w/ c.u.p.	(OVERALL SCORE)		3.7
* PARKING REQUIREMENTS				
OFF-STREET PARKING:				
Spaces Required	1.00	1.0	3.0	2.0
* DEDICATION REQUIREMENTS				
		(SEE EXCEPTION "B" & REFER TO "STREET SYSTEM" REQUIREMENTS ABOVE!)	(SEE EXCEPTION "B" & REFER TO "STREET SYSTEM" REQUIREMENTS ABOVE!)	(SEE EXCEPTION "B" & REFER TO "STREET SYSTEM" REQUIREMENTS ABOVE!)
RIGHTS-OF-WAY:				
Streets	yes			
Sidewalks	yes			
OPEN SPACE:				
Area Required	not encouraged	5.0	5.0	5.0
EASEMENTS:				
Type(s)				
k.p.&l. gas - (constant)	k.p.&l. gas			
utility	yes			
drainage	yes			
Width(s)				
12 ft. utility	12.00	1.0	3.0	2.0
16 ft. utility	16.00			
* OTHER REQUIREMENTS				
LANDSCAPING:				
Individual Lot	none	5.0	0.0	5.0
landscape package				
Open Space	none	5.0	0.0	5.0
(street) trees				
(island) trees				
seeding				
OFF-SITE IMPROVEMENTS:				
Type(s) Required	site specific street/sanitary & storm sewer possible	(SEE EXCEPTION "C")		
EROSION CONTROL:				
	none	5.0	5.0	5.0
UNDERGROUND UTILITIES:				
	encouraged	5.0	5.0	5.0
SURVEY COSTS:				
	yes	1.0	1.0	1.0

Figure 18 (continued next page)

FLOOD PLANE AREAS:	yes	1.0	0.0	1.0
				3.7
OVERALL SCORE:				2.5

Figure 18

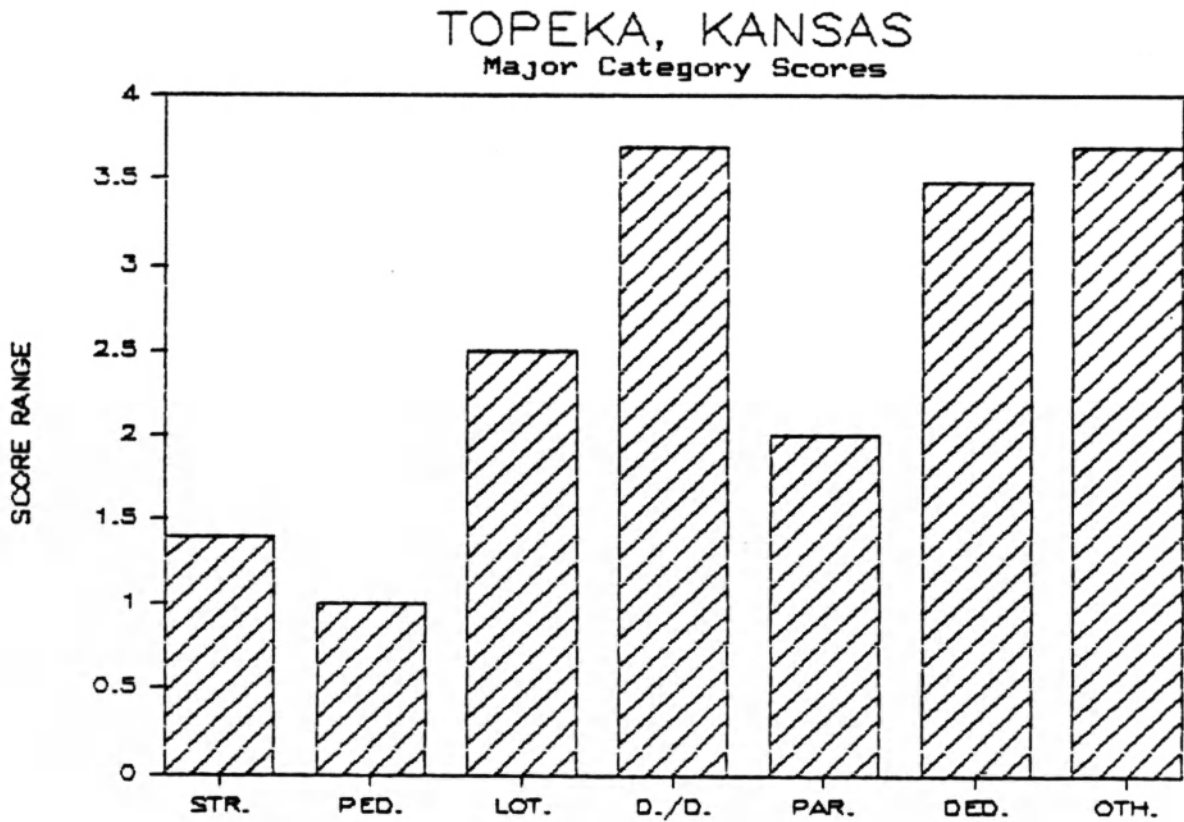


Figure 19

Observations

Street Systems:

- * Topeka maintains an unusual system of pavement width requirements based upon the type of curbing utilized. Vertical curbing allows narrower pavement widths than does rolled curbing.
- * For the sub-category of Loop/Cul-de-sac streets, pavement width is further determined by the number of dwelling units fronting the particular street.
- * Street pavement widths varied from a low of 27 feet for Loop/Cul-de-sac streets with vertical curbing, to a high of 41 feet for Collector Streets, which only allowed vertical curbing.
- * Right-of-Way widths accommodated little variance providing generally 60-70 foot widths.
- * Flexibility scores were generally low, which lowered Cost/Affordability scores at the sub-category and major category levels.
- * Excessiveness scores were also quite low with only (2) of (22) scores exceeding a value of (2.0) two.
- * The Cost/Affordability score of (1.1) for Collector Streets was the lowest sub-category score.
- * The Cost/Affordability score of (1.4) for Street Systems is a good reflection of all sub-category values.
- * The Street System major category score of (1.4) was the next-to-lowest score for all of Topeka's major categories.

Pedestrian Systems:

- * Topeka's Pedestrian System score of (1.0) ranked fourth or lowest of the four case study jurisdictions evaluated. This was also Topeka's lowest major category score.

Utility Systems:

- * Utility Systems were not scored as they were determined to be beyond the control of the local government agency.

Lot Requirements:

- * Flexibility scores were quite low with the exception of the Minimum Frontage value of (5.0). This, however, is of little importance given a Minimum Width requirement of 50 ft.
- * Flexibility and Excessiveness scores were both quite low for the sub-category of Yard Setback requirements. This resulted in the lowest sub-category Cost/Affordability score within the major category of Lot Requirements.

* The Minimum Frontage value of (5.0) described above raised the Cost/Affordability score at the major category level.

Dwelling Unit and Development Type Requirements:

- * Three of four development types would require special approval.
- * Dwelling Unit Height received a Flexibility score of (3.0) as the specific requirement provides flexibility for multiple building stories.
- * The Flexibility score for Allowed Development Type(s) is an overall score for the entire sub-category. Topeka's score of (3.0) was identical to the values assigned to both Manhattan and Overland Park.
- * The Cost/Affordability score of (3.7) for Dwelling Unit and Development Type Requirements tied with the major category of Other Requirements for the highest major category score for Topeka.

Parking Requirements:

* Interestingly, Off-Street Parking requirements were not addressed by Topeka's zoning or subdivision ordinance requirements. As a result, a minimum of one space was included as an attempt to be realistic about single-family development parking situations.

Dedication Requirements:

- * No scores were assigned to Rights-of-Way dedications, as such scores would be of little value without consideration of relevant specific requirements. (Note: Specific requirements were previously assigned values.)
- * The lack of Open Space requirements heavily influenced the Cost/Affordability score of (3.5) for Dedication Requirements. This score was Topeka's second highest major category score.

Other Requirements:

- * Off-Site Improvements were not scored as specific development plans could not be considered at this point.
- * The lack of specific requirements for several of the sub-categories heavily influenced the Cost/Affordability score of (3.7) for Other Requirements. This value tied Dwelling Unit and Development Type requirements for the highest major category score for Topeka.

Quantitative Evaluation Matrix

Figures 20 and 21 respectively, are the Quantitative Evaluation Matrix and summary graphic for Topeka, Kansas. The matrix is designed to determine the actual cost of specific requirements, and/or categories of requirements, in relationship to its impact on housing affordability. Costs have been determined via application to the "test" development situation. (See "Methodology" chapter for details.)

QUANTITATIVE EVALUATION MATRIX

Jurisdiction: Topeka, Kansas

REQUIREMENT DESCRIPTION	SPECIFIC REQUIREMENT	QUANTITIES: LIN. FT./NOTES	QUANTITY: TOTAL	UNIT(S)	COST: PRICE/UNIT	COST: UNIT TOTAL	CATEGORY TOTAL COST
* STREET SYSTEMS							
ACCESS:							
Right-Of-Way Width	60.00	0.00	0.00	sq. ft.	\$0.13	\$0.00	
Pavement Width (v.c.)	29.00	0.00	0.00	sq. ft.	\$1.45	\$0.00	
Pavement Width (r.c.)	30.00	0.00	0.00	sq. ft.	\$1.45	\$0.00	
Curbing (vertical)	(see pvmt.)	0.00	0.00	lin. ft.	\$1.15	\$0.00	
Curbing (rolled)	(see pvmt.)	0.00	0.00	lin. ft.	\$1.15	\$0.00	
COLLECTOR: (PRIMARY)							
Right-Of-Way Width	70.00	813.30	56,931.00	sq. ft.	\$0.13	\$7,401.03	B
Pavement Width (v.c.)	41.00	813.30	33,345.30	sq. ft.	\$1.45	\$48,350.68	B
Pavement Width (r.c.)	0.00	813.30	0.00	sq. ft.	\$1.45	\$0.00	
Curbing (vertical)	yes	1,626.60	1,626.60	lin. ft.	\$1.15	\$1,870.59	L
Curbing (rolled)	no	1,626.60	1,626.60	lin. ft.	\$1.15	\$1,870.59	G
SUB-COLLECTOR: (SECONDARY)							
Right-Of-Way Width	70.00	1,589.00	111,230.00	sq. ft.	\$0.13	\$14,459.90	B
Pavement Width (v.c.)	37.00	1,589.00	58,793.00	sq. ft.	\$1.45	\$85,249.85	L
Pavement Width (r.c.)	38.00	1,589.00	60,382.00	sq. ft.	\$1.45	\$87,553.90	G
Curbing (vertical)	(see pvmt.)	2,761.00	2,761.00	lin. ft.	\$1.15	\$3,175.15	L
Curbing (rolled)	(see pvmt.)	2,761.00	2,761.00	lin. ft.	\$1.15	\$3,175.15	G
LOCAL: (LANE)							
Right-Of-Way Width	60.00	0.00	0.00	sq. ft.	\$0.13	\$0.00	
Pavement Width (v.c.)	29.00	0.00	0.00	sq. ft.	\$1.45	\$0.00	
Pavement Width (r.c.)	30.00	0.00	0.00	sq. ft.	\$1.45	\$0.00	
Curbing (vertical)	(see pvmt.)	0.00	0.00	lin. ft.	\$1.15	\$0.00	
Curbing (rolled)	(see pvmt.)	0.00	0.00	lin. ft.	\$1.15	\$0.00	
LOOP/CUL-DE-SAC: (PLACE)							
(Stem) Right-Of-Way Width	60.00	VALUES INCLUDE	102,720.00	sq. ft.	\$0.13	\$13,353.60	B
(Stem) Pvm't. Width ((15 d.u.)	27 v.c. 28 r.c.	TOTALS FOR ALL	56,378.00	sq. ft.	\$1.45	\$81,748.10	L
(Stem) Pvm't. Width ((15 d.u.)	29 v.c. 30 r.c.	(9) NINE LOOP/	58,422.00	sq. ft.	\$1.45	\$84,711.90	G
(Terminus) Right-Of-Way Width	50.00	CUL-DE-SACS!	90,125.00	sq. ft.	\$0.13	\$11,716.25	B
(Term.) Pvm't. Width (cir. radius)	45.00	SEE APPENDIX	(inc'd. below)	sq. ft.	\$1.45	\$0.00	
(Term.) Pvm't. Width ((15 d.u.)	27 v.c. 28 r.c.	"A"	64,074.50	sq. ft.	\$1.45	\$92,908.03	L
(Term.) Pvm't. Width ((15 d.u.)	29 v.c. 30 r.c.	FOR FURTHER	65,240.50	sq. ft.	\$1.45	\$94,598.73	G
Curbing (vertical)	(see pvmt.)	DETAIL!	7,412.00	lin. ft.	\$1.15	\$8,523.80	L
Curbing (rolled)	(see pvmt.)		7,412.00	lin. ft.	\$1.15	\$8,523.80	G
EXCAVATION:							
	site specific	(CONSTANT!)	12,465.00	c.y.	\$3.32	\$41,383.80	B
COMPACTION:							
	site specific	(CONSTANT!)	3,354.00	c.y.	\$2.17	\$7,278.18	B
							LESSER TOTAL:
							\$417,418.96
							GREATER TOTAL:
							\$424,377.51
* PEDESTRIAN SYSTEMS							
SIDEWALKS:							
Width	4.00						
Location(s)							
peripheral	4.00	0.00	0.00	sq. ft.	\$1.63	\$0.00	
collector streets	4.00	1,441.00	5,764.00	sq. ft.	\$1.63	\$9,395.32	*
sub-collector streets	4.00	2,919.00	11,676.00	sq. ft.	\$1.63	\$19,031.88	*
local streets	4.00	0.00	0.00	sq. ft.	\$1.63	\$0.00	
loop/cul-de-sac streets	4.00	6,442.00	25,768.00	sq. ft.	\$1.63	\$42,001.84	*
mid-block	4.00	0.00	0.00	sq. ft.	\$1.63	\$0.00	
							\$70,429.04
* UTILITY SYSTEMS							
STORM SEWERS:							
Open (Surface)	(SEE APPENDIX	"B" FOR	DETAILED COST	BREAKDOWNS!)		\$120,284.94	*
Closed (Underground)							
SANITARY SEWERS:							
Main Lines	(SEE APPENDIX	"B" FOR	DETAILED COST	BREAKDOWNS!)		\$147,045.25	*
Laterals							
WATER/FIRE SYSTEMS:							
Public Water	(SEE APPENDIX	"B" FOR	DETAILED COST	BREAKDOWNS!)			
Private Water							
Fire Protection							
STREET LIGHTING:							
Requirement(s)	(SEE APPENDIX	"B" FOR	DETAILED COST	BREAKDOWNS!)		\$91,330.17	*
							\$358,660.36

97

Figure 20 (continued next page)

* LOT REQUIREMENTS							
MINIMUM SIZE:	6500.00		987,176.00	sq. ft.	\$0.13	\$128,332.88	*
MINIMUM FRONTAGE:							
Standard Lot	none						
Cul-De-Sac Lot	none						
MINIMUM WIDTH:	50.00	*NOTE:	(VALUES REFLECTED IN	SETBACK CALC'S	(BELOW!)		
		@ BLDG. LINE!					
MINIMUM DEPTH:	110.00		(VALUES REFLECTED IN	SETBACK CALC'S	(BELOW!)		
YARD SETBACKS:		*NOTE:					
Front Yard	30.00	SETBACK COSTS	1,500.00	sq. ft.	\$0.13	\$195.00	
Side Yards (2)two/lot	7.00	ARE INCLUDED	1,540.00	sq. ft.	\$0.13	\$200.20	
Rear Yard	30.00	IN LOT COSTS	1,500.00	sq. ft.	\$0.13	\$195.00	
Side Yard (Corner Lot)	30.00	ABOVE! (FOR	3,300.00	sq. ft.	\$0.13	\$429.00	
		EXAMPLE ONLY!)					\$128,332.88
* DWELLING UNIT & DEVELOPMENT TYPE REQUIREMENTS							
UNIT REQUIREMENTS:							
Unit Height	2.5 st./35 ft.		N/A	N/A	N/A	N/A	
Unit Coverage	none		N/A	N/A	N/A	N/A	
ALLOWED DEVELOPMENT TYPE(S):							
Single Family Detached	yes	(COSTS RELATED	TO SINGLE	FAMILY DET'D.	(ONLY!)		
Planned Unit Development	yes w/ c.u.p.	(COSTS RELATED	TO SINGLE	FAMILY DET'D.	(ONLY!)		
Cluster Housing	yes w/ c.u.p.	(COSTS RELATED	TO SINGLE	FAMILY DET'D.	(ONLY!)		
Zero Lot Line Housing	yes w/ c.u.p.	(COSTS RELATED	TO SINGLE	FAMILY DET'D.	(ONLY!)		N/A
* PARKING REQUIREMENTS							
OFF-STREET PARKING:		*NOTE:					
Spaces Required	none	ONE SPACE /					
	1.00	D.U. INCLUDED	62,320.00	sq. ft.	\$1.63	\$101,581.60	*
		FOR REALISM!					\$101,581.60
* DEDICATION REQUIREMENTS							
RIGHTS-OF-WAY:		*NOTE:					
Streets	yes	COSTS INCLUDED	361,006.00	sq. ft.	\$0.13	\$46,930.78	
Sidewalks	yes	IN "STREET	43,308.00	sq. ft.	\$0.13	\$5,630.04	
		SYSTEMS" ABOVE!					
OPEN SPACE:							
Area Required	not encouraged		75,545.80	sq. ft.	\$0.13	\$9,820.95	*
EASEMENTS:		*NOTE:					
Type(s)		COSTS INCLUDED					
k.p.&l. gas - (constant)	k.p.&l. gas	IN "LOT COSTS"	14,500.00	sq. ft.	\$0.13	\$1,885.00	
utility	yes	ABOVE! (FOR					
drainage	yes	EXAMPLE ONLY!)					
Width(s)							
12 ft. utility	12.00	4,575.00	54,900.00	sq. ft.	\$0.13	\$7,137.00	
16 ft. utility	16.00	2,110.00	33,760.00	sq. ft.	\$0.13	\$4,388.80	
							\$9,820.95
* OTHER REQUIREMENTS							
LANDSCAPING:		*NOTE:					
Individual Lot	none	LANDSCAPING					
landscape package		COSTS HAVE	152.00	per d.u.	\$763.00	\$115,976.00	*
Open Space	none	BEEN INCLUDED					
(street) trees		FOR REALISM!	152.00	(?) per d.u.	\$330.00	\$50,160.00	*
(island) trees			5.00	(3) per isl.	\$495.00	\$2,475.00	*
seeding			102,332.00	sq. ft.	\$0.04	\$4,093.28	*
OFF-SITE IMPROVEMENTS:							
Type(s) Required	site specific,						
	street/sanitary						
	& storm sewer						
	possible.						
EROSION CONTROL:	none						
UNDERGROUND UTILITIES:	encouraged	*NOTE:					
		OVERHEAD USED	152.00	per d.u.	\$0.00	\$0.00	
		IN TEST DEV'NT!					
SURVEY COSTS:	yes		152.00	per d.u.	\$270.00	\$41,040.00	*
FLOOD PLANE AREAS:	yes		(NOT REREVANT	TO THE TEST	DEVELOPMENT!)		\$213,744.28
TOTAL IMPROVEMENT COSTS:						(LESSER TOTAL)	\$1,299,988.07
						(GREATER TOTAL)	\$1,306,946.62

Figure 20

TOPEKA, KANSAS

Category Cost Percentages

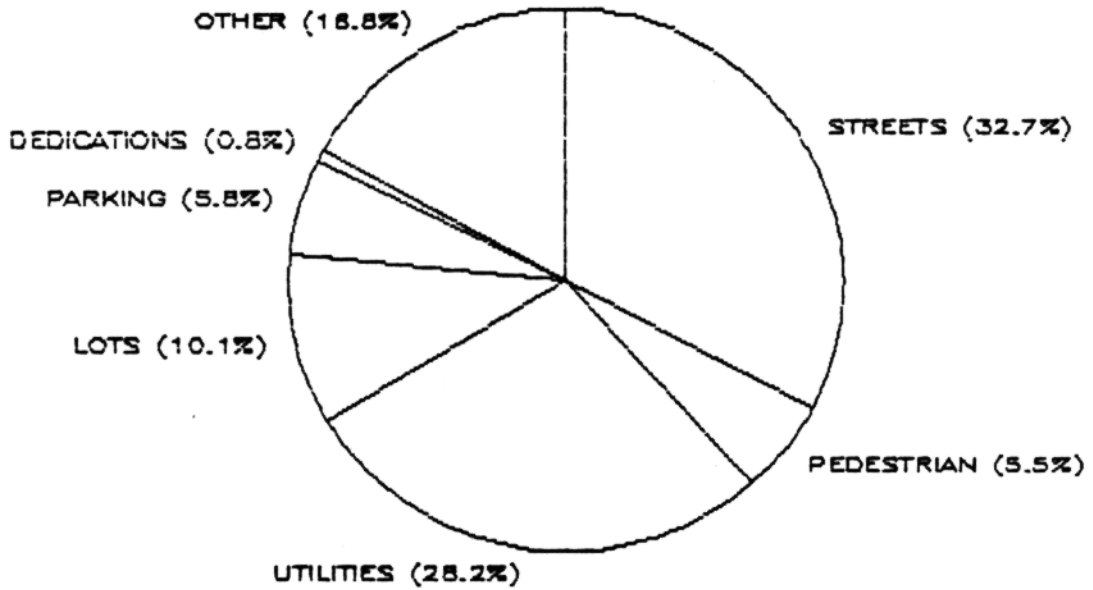


Figure 21

Observations

Street Systems:

- * Street System requirements accounted for 32.7% of total improvement costs, the highest major category cost percentage.
- * Total costs for Street System requirements amounted to \$2,746.17 per dwelling unit.
- * Pavement costs were always the highest sub-category cost, accounting for more than the combined cost of other requirements within a specific sub-category.

Pedestrian Systems:

- * Pedestrian System requirements accounted for 5.5% of total improvement costs.
- * Total costs for Pedestrian System requirements amounted to \$463.34 per dwelling unit.

Utility Systems:

- * Utility System requirements accounted for 28.2% of total improvement costs. This was the second highest major category cost.
- * Total cost for Utility System requirements amounted to \$2,359.60 per dwelling unit.
- * Sanitary Sewers were the most expensive utility system improvement, accounting for nearly 41% of the total cost.

Lot Requirements:

- * Lot Requirements accounted for 10.1% of total improvement costs. (note: these are raw land costs)
- * Total costs for Lot Requirements amounted to \$844.29 per dwelling unit.
- * The total cost of land devoted to Yard Setbacks for standard interior lots amounted to \$590.20 per dwelling unit. This area and subsequent value represents 69.8% of both total cost and usable lot square footage.

Dwelling Unit and Development Type Requirements:

- * No costs were assigned to this category of requirements.

Parking Requirements:

- * Parking Requirements accounted for 5.8% of total improvement costs.

* Total costs for Parking Requirements amounted to \$668.30 per dwelling unit. This cost was affected by setback, right-of-way and pavement width requirements.

Dedication Requirements:

* Dedication Requirements accounted for only 0.8% of total improvement costs, the lowest major category cost. This resulted from the fact that Open Space costs were the only costs considered. Other sub-category costs were previously considered within other categories.

* Total costs for Open Space dedication requirements amounted to only \$64.61 per dwelling unit. (It should be noted that no open space was actually required, however, the "test" development did include the square footage indicated.)

* Right-of-Way and Easement dedications accounted for 10.65 acres of land. This represented 34.4% of the total site acreage, with a combined total cost of \$60,341.58.

Other Requirements:

* Other Requirements accounted for 16.8% of total improvement costs.

* Total costs for Other Requirements amounted to \$1,406.21 per dwelling unit.

* Individual Lot landscaping accounted for 54.2% of the per dwelling unit costs associated with Other Requirements. The remaining percentage was split between Open Space landscaping and Survey Costs.

Test Dwelling Unit and Costs

As previously indicated, home no. 8323, designed by Bloodgood Architects was selected as the "test" dwelling unit. Per square foot construction costs, including "service utility" hookups were estimated at \$55.00. The "test" dwelling unit offers 1,246 square feet of living space, dictating a construction cost of \$68,530.00.

Actual Cost Scenerio

Per lot improvemenet cost:	\$ 8,552.55
Dwelling unit construction cost:	\$ 68,530.00
Total finished cost:	\$ <u>77,082.55</u>
Down payment @ 10% * :	\$ 7,708.25

Financed amount @ 30 yr. fixed:	# 69,374.30
Settlement fees @ 4% *** :	\$ 2,774.97
Basic monthly payment @ 11.5% ** :	\$ 686.80
M.G.I.C insurance @ .375% /mo. *** :	\$ 21.67
Taxes @ effective rate of 1.3% /mo. *** :	\$ 75.15
Standard insurance @ \$25.00/mo.:	\$ 25.00
Total monthly payment:	\$ <u>808.62</u>
Annual payment:	\$ 9,703.44
Qualifying monthly income **** :	\$ 3,234.48
Qualifying annual income **** :	\$ <u>38,813.76</u>

* 10% down payment on total finished cost of home
** 11.5% interest rate for 30 Yr. fixed rate mortgage
*** percentages apply to financed amount
**** by definition, 25% of gross income

Wichita, Kansas

Located in South Central Kansas, approximately 45 miles north of the Oklahoma border, Wichita is the county seat of Sedgwick County. The 1980 census figures show the City of Wichita having a population of 279,835, with Sedgwick County encompassing some 367,094 residents.

Wichita offers a wide variety of community services to its residents including: (7) hospitals, more than (450) churches of various demonimations, a wide variety of recreational opportunities including: (74) public tennis courts, (13) public swimming pools, (8) nearby public golf courses, (3) private country clubs and Cheney Reservoir located 30 miles from Wichita. Lodging and convention facilities are available in (78) area hotels and motels, and (28) financial institutions serve the Wichita-Sedgwick County residents.

Wichita is home to Wichita State University, Kansas Newman College, Friends University and Wichita Area Vocational-Technical School. In addition, there are (98) elementary schools, (75) public and (23) private, (19) junior high schools, (17) public and (2) private, and (14) high schools, (8) public and (6) private.

Twelve major manufacturers combine with numerous other major employers to provide a wide variety of employment opportunities to Wichita-Sedgwick County residents. A large number of these industries and businesses are associated with Wichita's commercial and military aircraft industry. (Kansas D.E.D., 1982)

Wichita's rich historical heritage and cultural amenities provide points of interest and activities to area visitors and residents. These include; several art museums and associations,

dance companies, earth-space centers, historical museums, a symphony orchestra, music theater and jazz festival, community theaters, and the Sedgwick County Zoo.

Preliminary Evaluation Matrix

Figures 22 and 23 respectively, are the Preliminary Evaluation Matrix and summary graphic for Wichita, Kansas. The matrix is designed to determine the relative degree of flexibility and/or excessiveness of a specific requirement, and/or category of requirements, with respect to its impact on the cost and/or affordability of housing. (Note: Requirements, or categories of requirements with the highest scoring values will be the most flexible, least excessive and have the greatest potential for lower costs and higher levels of affordability. Whereas, the lowest scoring values will be the least flexible, most excessive and have the greatest potential for higher costs and lower levels of affordability—See "Methodology" chapter for details.)

PRELIMINARY EVALUATION MATRIX				
Jurisdiction: Wichita, Kansas				
REQUIREMENT DESCRIPTION	SPECIFIC REQUIREMENT	FLEXIBILITY SCORE	EXCESSIVENESS SCORE	COST/AFFORD'ITY SCORE
* STREET SYSTEMS				
ACCESS:				
Right-Of-Way Width	58.00	1.0	2.0	
Pavement Width	29.00	1.0	1.0	
Pavement Width	0.00	N/A	N/A	1.6
Curbing (vertical)	yes	2.0	2.0	
Curbing (rolled)	yes	2.0	2.0	
COLLECTOR: (PRIMARY)				
Right-Of-Way Width	66.00	1.0	3.0	
Pavement Width	37.00	1.0	2.0	
Pavement Width	0.00	N/A	N/A	1.9
Curbing (vertical)	yes	2.0	2.0	
Curbing (rolled)	yes	2.0	2.0	
SUB-COLLECTOR: (SECONDARY)				
Right-Of-Way Width	64.00	1.0	2.0	
Pavement Width	35.00	1.0	3.0	
Pavement Width	0.00	N/A	N/A	1.9
Curbing (vertical)	yes	2.0	2.0	
Curbing (rolled)	yes	2.0	2.0	
LOCAL: (LANE)				
Right-Of-Way Width	64.00	1.0	1.0	
Pavement Width	35.00	1.0	1.0	
Pavement Width	0.00	N/A	N/A	1.5
Curbing (vertical)	yes	2.0	2.0	
Curbing (rolled)	yes	2.0	2.0	
LOOP/CUL-DE-SAC: (PLACE)				
(Stem) Right-Of-Way Width	58.00	1.0	2.0	
(Stem) Pavement Width	29.00	1.0	1.0	
(Stem) Pavement Width	0.00	N/A	N/A	
(Terminus) Right-Of-Way Width	50.00	1.0	0.0	
(Term.) Pvm't. Width (cir. radius)	35.00	1.0	4.0	1.6
(Term.) Pvm't. Width (looped)	29.00	1.0	1.0	
(Term.) Pvm't. Width (looped)	0.00	N/A	N/A	
Curbing (vertical)	yes	2.0	2.0	
Curbing (rolled)	yes	2.0	2.0	
EXCAVATION:				
	site specific	(SEE	EXCEPTION	"C")
COMPACTION:				
	site specific	(SEE	EXCEPTION	"C")
				1.7

Figure 22 (continued next page)

* PEDESTRIAN SYSTEMS					
SIDEWALKS:					
Width	4 FT. WIDTH				
Location(s)	REQUIRED	3.0	3.0	3.0	
peripheral	BOTH SIDES	(OVERALL	CATEGORY	SCORE)	
collector streets	COLLECTOR &				
sub-collector streets	SUB-COLLECTOR				
local streets	ONE SIDE W/				
loop/cul-de-sac streets	1/8 D.U.'S				
mid-block					3.0
* UTILITY SYSTEMS					
STORM SEWERS:					
Open (Surface)	REQUIRED	(SEE	EXCEPTION	"A")	
Closed (Underground)					
SANITARY SEWERS:					
Main Lines	REQUIRED	(SEE	EXCEPTION	"A")	
Laterals					
WATER/FIRE SYSTEMS:					
Public Water	REQUIRED	(SEE	EXCEPTION	"A")	
Private Water					
Fire Protection					
STREET LIGHTING:					
Requirement(s)	NOT REQUIRED	(SEE	EXCEPTION	"A")	
					N/A
* LOT REQUIREMENTS					
MINIMUM SIZE:	6000.00	1.0	4.0		2.5
MINIMUM FRONTAGE:					
Standard Lot	none	5.0	0.0		2.3
Cul-De-Sac Lot	(not (50% width @ setb'k)	1.0	1.0		
MINIMUM WIDTH:	60.00	1.0	3.0		2.0
MINIMUM DEPTH:	150.00	1.0	1.0		1.0
YARD SETBACKS:					
Front Yard	25.00	1.0	2.0		
Side Yards (2)two/lot	6.00	1.0	3.0		1.8
Rear Yard	25.00	1.0	2.0		
Side Yard (Corner Lot)	15.00	1.0	3.0		1.9
* DWELLING UNIT & DEVELOPMENT TYPE REQUIREMENTS					
UNIT REQUIREMENTS:					

Figure 22 (continued next page)

Unit Height	3 st./35 ft.	3.0	0.0	4.3
Unit Coverage	none	5.0	5.0	
ALLOWED DEVELOPMENT TYPE(S):				
Single Family Detached	yes			
Planned Unit Development	w/c.u.p. 20+ac.			
Cluster Housing	yes w/c.u.p.	2.0	N/A	2.0
Zero Lot Line Housing	yes w/c.u.p.	(OVERALL SCORE)		3.2
* PARKING REQUIREMENTS				
OFF-STREET PARKING:				1.0
Spaces Required	4.00	1.0	1.0	1.0
* DEDICATION REQUIREMENTS				
		(SEE EXCEPTION "B" & REFER TO "STREET SYSTEM" REQUIREMENTS ABOVE!)	(SEE EXCEPTION "B" & REFER TO "STREET SYSTEM" REQUIREMENTS ABOVE!)	(SEE EXCEPTION "B" & REFER TO "STREET SYSTEM" REQUIREMENTS ABOVE!)
RIGHTS-OF-WAY:				
Streets	yes			
Sidewalks	yes			
OPEN SPACE:				
Area Required	site specific	4.0	4.0	4.0
EASEMENTS:				
Type(s)				
k.p.&l. gas - (constant)	k.p.&l. gas			
utility	yes			
drainage	yes			
Width(s)				
20 ft. utility	20.00	1.0	2.0	1.5
10 ft. utility	10.00			
				2.8
* OTHER REQUIREMENTS				
LANDSCAPING:				
Individual Lot	none	5.0	0.0	5.0
landscape package				
Open Space	none	5.0	0.0	5.0
(street) trees				
(island) trees				
seeding				
OFF-SITE IMPROVEMENTS:				
Type(s) Required	site specific drainage possible	(SEE EXCEPTION	"C")	
EROSION CONTROL:	yes	1.0	1.0	1.0
UNDERGROUND UTILITIES:	yes	1.0	1.0	1.0
SURVEY COSTS:	yes	1.0	1.0	1.0

Figure 22 (continued next page)

FLOOD PLANE AREAS:	yes	1.0	0.0	1.0
				2.3
OVERALL SCORE:				2.3

Figure 22

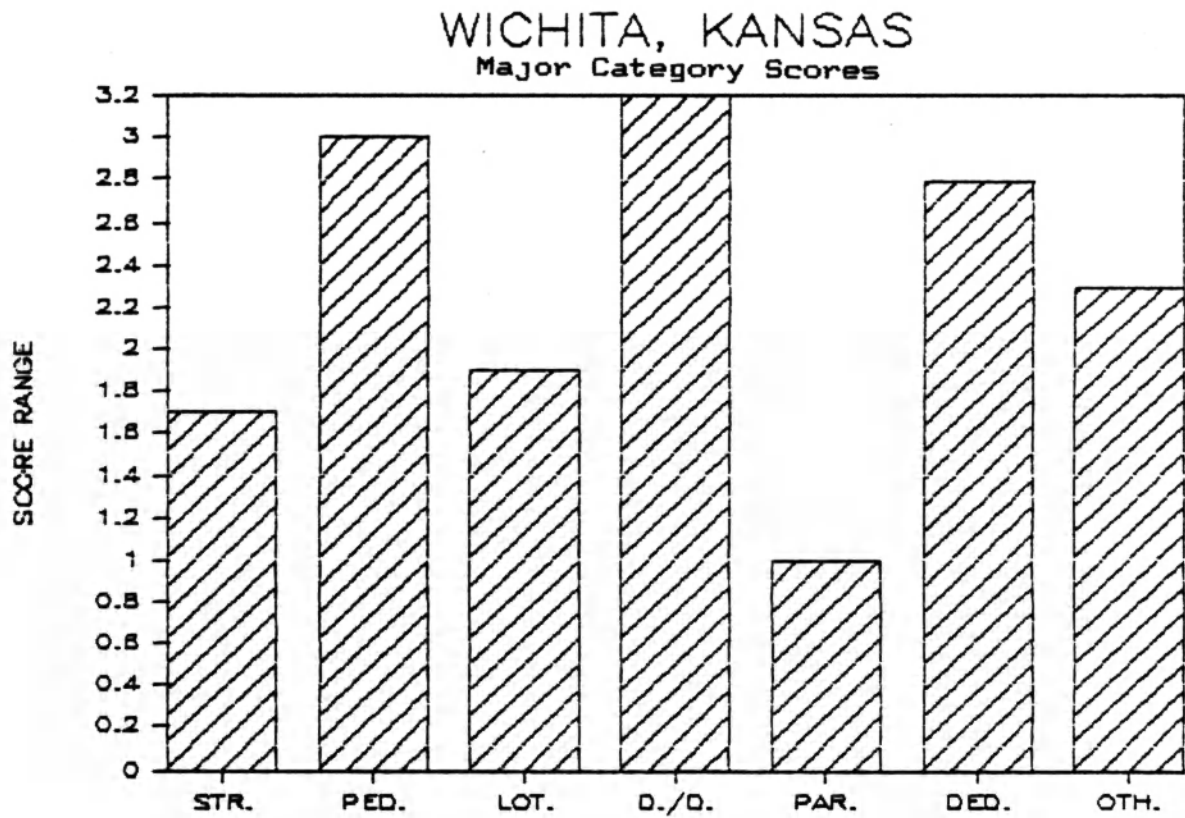


Figure 23

Observations

Street Systems:

- * Street pavement widths in Wichita varied from a low of 29 feet for Access and Loop/Cul-de-sac streets, to a high of 37 feet for collector streets.
- * Right-of-Way widths also varied from a low of 58 feet for Access and Loop/Cul-de-sac streets to a high of 66 feet for collector streets.
- * Flexibility scores were generally low, which lowered Cost/Affordability scores at the sub-category and major category levels.
- * Excessiveness scores were also low with only (3) of (22) scores exceeding a value of (2.0) two. However, the specific requirement of 35 feet for Terminus Pavement Width (Circular Radius), received the highest score of the four case study jurisdictions evaluated.
- * The Cost/Affordability score of (1.7) for Street Systems is a fair reflection of all sub-category values.
- * The Street System major category score of (1.7) was the next-to-lowest score for all of Wichita's major categories.

Pedestrian Systems:

- * Wichita's Pedestrian System score of (3.0) was second only to Manhattan's score. The value was also the second highest major category score for Wichita.

Utility Systems:

- * Utility Systems were not scored as they were determined to be beyond the control of the local government agency.

Lot Requirements:

- * Wichita allowed the smallest Minimum Lot Size of the four case study jurisdictions evaluated.
- * Wichita was one of only two jurisdictions with Minimum Frontage requirements.
- * Flexibility scores were quite low with the exception of the Minimum Frontage value of (5.0), for Standard Lots. This, however, is of little importance given a Minimum Width requirement of 60 ft.
- * Excessiveness scores of 2.0-3.0 for Yard Setback requirements raised the Cost/Affordability score for that sub-category.

* The Minimum Frontage value of (5.0) described above raised the Cost/Affordability score at the sub-category level, which had the same affect on the major category score, but to a lesser degree.

Dwelling Unit and Development Type Requirements:

* Three of four development types would require special approvals. Planned Unit Developments required a minimum parcel size of 20 acres. This accounted for the lower overall score for the sub-category, which was the lowest of the four case study jurisdictions evaluated.

* Dwelling Unit Height received a Flexibility score of (3.0) as the specific requirement provides flexibility for multiple building stories.

* The flexibility score for Allowed Development Type(s) is an overall score for the entire sub-category. Wichita received the lowest sub-category flexibility score of the four case study jurisdictions evaluated.

* The Cost/Affordability score of (3.2) for Dwelling Unit and Development Type Requirements was the highest major category score for Wichita.

Parking Requirements:

* Although the four spaces required allowed for two spaces within a garage, this requirement was the least flexible and most excessive parking requirement of the four case study jurisdictions evaluated. The major category score of (1.0) was also the lowest major category score for Wichita.

Dedication Requirements:

* No scores were assigned to Rights-of-Way dedications, as such scores would be of little value without consideration of relevant specific requirements. (Note: Specific requirements were previously assigned values.)

* Although Wichita's Open Space score of (4.0) was slightly lower as a result of the "site specific" requirement, the score still greatly influenced the Cost/Affordability score for the major category.

Other Requirements:

* Off-Site Improvements were not scored as specific development plans could not be considered at this point.

* Wichita's Cost/Affordability score of (2.3) for Other Requirements was the lowest of the four case study jurisdictions evaluated. This resulted from specifying requirements for many of the sub-categories that were not specified in the other three case study jurisdictions.

Quantitative Evaluation Matrix

Figures 24 and 25 respectively, are the Quantitative Evaluation Matrix and summary graphic for Wichita, Kansas. The matrix is designed to determine the actual cost of specific requirements, and/or categories of requirements, with respect to its impact on housing affordability. Costs have been determined via application to the "test" development situation. (See "Methodology" chapter for details.)

QUANTITATIVE EVALUATION MATRIX

Jurisdiction: Wichita, Kansas

REQUIREMENT DESCRIPTION	SPECIFIC REQUIREMENT	QUANTITIES: LIN. FT./NOTES	QUANTITY: TOTAL	UNIT(S)	COST: PRICE/UNIT	COST: UNIT TOTAL	CATEGORY TOTAL COST
* STREET SYSTEMS							
ACCESS:							
Right-Of-Way Width	58.00	0.00	0.00	sq. ft.	\$0.13	\$0.00	
Pavement Width	29.00	0.00	0.00	sq. ft.	\$1.45	\$0.00	
Pavement Width	0.00	0.00	0.00	sq. ft.	\$1.45	\$0.00	
Curbing (vertical)	yes	0.00	0.00	lin. ft.	\$1.15	\$0.00	
Curbing (rolled)	yes	0.00	0.00	lin. ft.	\$1.15	\$0.00	
COLLECTOR: (PRIMARY)							
Right-Of-Way Width	66.00	813.30	53,677.80	sq. ft.	\$0.13	\$6,978.11	*
Pavement Width	37.00	813.30	30,092.10	sq. ft.	\$1.45	\$43,633.55	*
Pavement Width	0.00	813.30	0.00	sq. ft.	\$1.45	\$0.00	
Curbing (vertical)	yes	1,626.60	1,626.60	lin. ft.	\$1.15	\$1,870.59	*
Curbing (rolled)	yes	1,626.60	1,626.60	lin. ft.	\$1.15	\$1,870.59	*
SUB-COLLECTOR: (SECONDARY)							
Right-Of-Way Width	64.00	1,589.00	101,696.00	sq. ft.	\$0.13	\$13,220.48	*
Pavement Width	35.00	1,589.00	55,615.00	sq. ft.	\$1.45	\$80,641.75	*
Pavement Width	0.00	1,589.00	0.00	sq. ft.	\$1.45	\$0.00	
Curbing (vertical)	yes	2,761.00	2,761.00	lin. ft.	\$1.15	\$3,175.15	*
Curbing (rolled)	yes	2,761.00	2,761.00	lin. ft.	\$1.15	\$3,175.15	*
LOCAL: (LANE)							
Right-Of-Way Width	64.00	0.00	0.00	sq. ft.	\$0.13	\$0.00	
Pavement Width	35.00	0.00	0.00	sq. ft.	\$1.45	\$0.00	
Pavement Width	0.00	0.00	0.00	sq. ft.	\$1.45	\$0.00	
Curbing (vertical)	yes	0.00	0.00	lin. ft.	\$1.15	\$0.00	
Curbing (rolled)	yes	0.00	0.00	lin. ft.	\$1.15	\$0.00	
LOOP/CUL-DE-SAC: (PLACE)							
(Stem) Right-Of-Way Width	58.00	*NOTE: VALUES INCLUDE	100,862.00	sq. ft.	\$0.13	\$13,112.06	*
(Stem) Pavement Width	29.00	TOTALS FOR ALL	59,537.00	sq. ft.	\$1.45	\$86,328.65	*
(Stem) Pavement Width	0.00	(9) NINE LOOP/	0.00	sq. ft.	\$1.45	\$0.00	
(Terminus) Right-Of-Way Width	50.00	CUL-DE-SACS!	90,125.00	sq. ft.	\$0.13	\$11,716.25	*
(Term.) Pvm't. Width (cir. radius)	35.00	SEE APPENDIX	19,232.50	sq. ft.	\$1.45	\$27,887.13	*
(Term.) Pvm't. Width (looped)	29.00	"A"	33,814.00	sq. ft.	\$1.45	\$49,030.30	*
(Term.) Pvm't. Width (looped)	0.00	FOR FURTHER	0.00	sq. ft.	\$1.45	\$0.00	
Curbing (vertical)	yes	DETAIL!	7,129.20	lin. ft.	\$1.15	\$8,198.58	*
Curbing (rolled)	yes		7,129.20	lin. ft.	\$1.15	\$8,198.58	*
EXCAVATION:							
	site specific	*NOTE: (CONSTANT!)	12,465.00	c.y.	\$3.32	\$41,383.80	*
COMPACTION:							
	site specific	(CONSTANT!)	3,354.00	c.y.	\$2.17	\$7,278.18	*
							\$394,454.57
* PEDESTRIAN SYSTEMS							
SIDEWALKS:							
Width	4.00						
Location(s)							
peripheral	4.00	0.00	0.00	sq. ft.	\$1.63	\$0.00	
collector streets	4.00	1,441.00	5,764.00	sq. ft.	\$1.63	\$9,395.32	*
sub-collector streets	4.00	2,919.00	11,676.00	sq. ft.	\$1.63	\$19,031.88	*
local streets	4.00	0.00	0.00	sq. ft.	\$1.63	\$0.00	
loop/cul-de-sac streets	4.00	0.00	0.00	sq. ft.	\$1.63	\$0.00	
mid-block	4.00	0.00	0.00	sq. ft.	\$1.63	\$0.00	
							\$28,427.20
* UTILITY SYSTEMS							
STORM SEWERS:							
Open (Surface)	(SEE APPENDIX	"B" FOR	DETAILED COST	BREAKDOWNS!			
Closed (Underground)						\$120,284.94	*
SANITARY SEWERS:							
Main Lines	(SEE APPENDIX	"B" FOR	DETAILED COST	BREAKDOWNS!			
Laterals						\$147,045.25	*
WATER/FIRE SYSTEMS:							
Public Water	(SEE APPENDIX	"B" FOR	DETAILED COST	BREAKDOWNS!			
Private Water							
Fire Protection						\$91,330.17	*
STREET LIGHTING:							
Requirement(s)	(SEE APPENDIX	"B" FOR	DETAILED COST	BREAKDOWNS!			
							\$358,660.36

112

Figure 24 (continued next page)

* LOT REQUIREMENTS							
MINIMUM SIZE:	6000.00		1,001,821.20	sq. ft.	\$0.13	\$130,236.76	*
MINIMUM FRONTAGE:							
Standard Lot	none						
Cul-De-Sac Lot	(not (50% width @ setb'k))						
MINIMUM WIDTH:	60.00	*NOTE:	(VALUES REFLECTED IN		SETBACK CALC'S	BELOW!)	
		AT SETB'K. LINE!					
MINIMUM DEPTH:	150.00	*NOTE:	(VALUES REFLECTED IN		SETBACK CALC'S	BELOW!)	
		(= 2.5 X WIDTH!)					
YARD SETBACKS:		*NOTE					
Front Yard	25.00	SETBACK COSTS	1,500.00	sq. ft.	\$0.13	\$195.00	
Side Yards (2)two/lot	6.00	ARE INCLUDED	1,800.00	sq. ft.	\$0.13	\$234.00	
Rear Yard	25.00	IN LOT COSTS	1,500.00	sq. ft.	\$0.13	\$195.00	
Side Yard (Corner Lot)	15.00	ABOVE! (FOR	2,250.00	sq. ft.	\$0.13	\$292.50	
		EXAMPLE ONLY!)					\$130,236.76
* DWELLING UNIT & DEVELOPMENT TYPE REQUIREMENTS							
UNIT REQUIREMENTS:							
Unit Height	3 st./35 ft.		N/A	N/A	N/A	N/A	
Unit Coverage	none		N/A	N/A	N/A	N/A	
ALLOWED DEVELOPMENT TYPE(S):							
Single Family Detached	yes		(COSTS RELATED	TO SINGLE	FAMILY DET'D.	(ONLY!)	
Planned Unit Development	w/c.u.p. 20+ac.		(COSTS RELATED	TO SINGLE	FAMILY DET'D.	(ONLY!)	
Cluster Housing	yes w/c.u.p.		(COSTS RELATED	TO SINGLE	FAMILY DET'D.	(ONLY!)	
Zero Lot Line Housing	yes w/c.u.p.		(COSTS RELATED	TO SINGLE	FAMILY DET'D.	(ONLY!)	
							N/A
* PARKING REQUIREMENTS							
OFF-STREET PARKING:							
Spaces Required	4.00	*NOTE:	125,200.00	sq. ft.	\$1.63	\$204,076.00	*
		(2) GARAGE,					\$204,076.00
		(2) DRIVEWAY!					
* DEDICATION REQUIREMENTS							
		*NOTE: (MAY INCLUDE PARKS, SCHOOLS, PUBLIC FACILITIES, DRAINAGE &/OR PLAYGROUNDS!)					
RIGHTS-OF-WAY:		*NOTE:					
Streets	yes	COSTS INCLUDED	346,360.80	sq. ft.	\$0.13	\$45,026.90	
Sidewalks	yes	IN "STREET	29,872.00	sq. ft.	\$0.13	\$3,883.36	
		SYSTEMS" ABOVE!					
OPEN SPACE:							
Area Required	site specific		75,545.80	sq. ft.	\$0.13	\$9,820.95	*
EASEMENTS:		*NOTE:					
Type(s)		COSTS INCLUDED					
k.p.&l. gas - (constant)	k.p.&l. gas	IN "LOT COSTS"	14,500.00	sq. ft.	\$0.13	\$1,885.00	
utility	yes	ABOVE! (FOR					
drainage	yes	EXAMPLE ONLY!)					
Width(s)							
20 ft. utility	20.00	4,423.00	88,460.00	sq. ft.	\$0.13	\$11,499.80	
10 ft. utility	10.00	2,262.00	22,620.00	sq. ft.	\$0.13	\$2,940.60	
							\$9,820.95
* OTHER REQUIREMENTS							
LANDSCAPING:		*NOTE:					
Individual Lot	none	LANDSCAPING					
landscape package		COSTS HAVE	167.00	per d.u.	\$738.00	\$123,246.00	*
Open Space	none	BEEN INCLUDED					
(street) trees		FOR REALISM!	167.00	(2) per d.u.	\$330.00	\$55,110.00	*
(island) trees			5.00	(3) per isl.	\$495.00	\$2,475.00	*
seeding			103,013.80	sq. ft.	\$0.04	\$4,120.55	*
OFF-SITE IMPROVEMENTS:							
Type(s) Required	site specific,						
	drainage						
	possible.						
EROSION CONTROL:	yes		(NOT UTILIZED	W/IN THE TEST	DEVELOPMENT!)		
UNDERGROUND UTILITIES:	yes		167.00	per d.u.	\$500.00	\$83,500.00	*
SURVEY COSTS:	yes		167.00	per d.u.	\$270.00	\$45,090.00	*
FLOOD PLANE AREAS:	yes		(NOT RELEVANT	TO THE TEST	DEVELOPMENT!)		
							\$313,541.55
TOTAL IMPROVEMENT COSTS:						\$1,439,217.40	

Figure 24

WICHITA, KANSAS

Category Cost Percentages

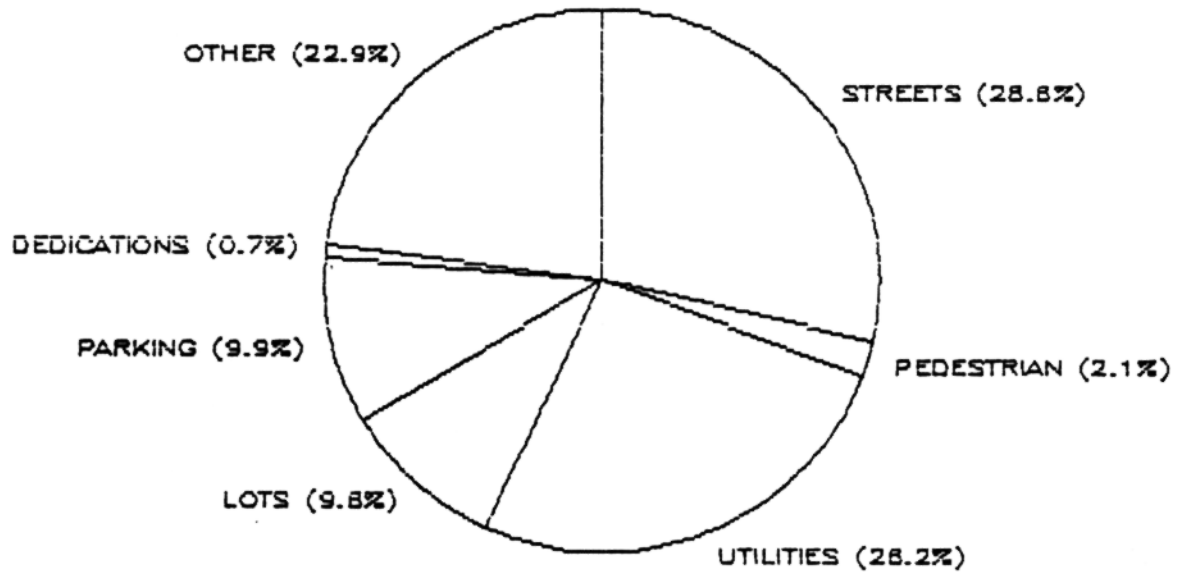


Figure 25

Observations

Street Systems:

- * Street System requirements accounted for 28.6% of total improvement costs, the highest major category cost percentage.
- * Total costs for Street System requirements amounted to \$2,362.00 per dwelling unit.
- * Pavement costs were always the highest sub-category cost, accounting for more than the combined cost of other requirements within a specific sub-category.

Pedestrian Systems:

- * Pedestrian System requirements accounted for 2.1% of total improvement costs.
- * Total costs for Pedestrian System requirements amounted to \$170.22 per dwelling unit.

Utility Systems:

- * Utility System requirements accounted for 26.2% of total improvement costs. This was the second highest major category cost.
- * Total cost for Utility System requirements amounted to \$2,147.66 per dwelling unit.
- * Sanitary Sewers were the most expensive utility system improvement, accounting for nearly 41% of the total cost.

Lot Requirements:

- * Lot Requirements accounted for 9.6% of total improvement costs. (note: these are raw land costs)
- * Total costs for Lot Requirements amounted to \$779.86 per dwelling unit.
- * The total cost of land devoted to Yard Setbacks for standard interior lots amounted to \$624.00 per dwelling unit. This area and subsequent value represents 80% of total cost and usable lot square footage.

Dwelling Unit and Development Type Requirements:

- * No costs were assigned to this category of requirements.

Parking Requirements:

- * Parking Requirements accounted for 9.9% of total improvement costs.

* Total costs for Parking Requirements amounted to \$1,222.01 per dwelling unit. This cost was affected by setback, right-of-way and pavement width requirements.

Dedication Requirements:

* Dedication Requirements accounted for only 0.7% of total improvement costs, the lowest major category cost. This resulted from the fact that Open Space costs were the only costs considered. Other sub-category costs were previously considered within other categories.

* Total costs for Open Space dedication requirements amounted to only \$58.80 per dwelling unit. (It should be noted that no open space was actually required, however, the "test" development did include the square footage indicated.)

* Right-of-Way and Easement dedications accounted for 10.83 acres of land. This represented 35% of total site acreage, with a combined total cost of \$61,352.30

Other Requirements:

* Other Requirements accounted for 22.9% of total improvement costs. This category cost percentage was very close to both Street and Utility System cost percentages.

* Total costs for Other Requirements amounted to \$1,877.49 per dwelling unit.

* Per dwelling unit percentage breakdowns for Other Requirements are as follows:

Individual Lot Landscaping	39.3%
Open Space Landscaping	19.7%
Underground Utilities	26.6%
Survey Costs	14.4%

Test Dwelling Unit and Costs

As previously indicated, home no. 8323, designed by Bloodgood Architects was selected as the "test" dwelling unit. Per square foot construction costs, including "service utility" hookups were estimated at \$55.00. The "test" dwelling unit offers 1,246 square feet of living space, dictating a construction cost of \$68,530.00.

Actual Cost Scenerio

Per lot improvement cost:	\$ <u>8,618.06</u>
Dwelling unit construction cost:	\$ <u>68,530.00</u>

Total finished cost:	\$ <u>77,148.06</u>
Down Payment @ 10% * :	\$ 7,714.80
Financed amount @ 30 yr. fixed:	\$ 69,433.26
Settlement fees @ 4% *** :	\$ 2,777.33
Basic monthly payment @ 11.5% ** :	\$ 687.39
M.G.I.C. insurance @ .375% /mo. *** :	\$ 21.69
Taxes @ effective rate of 1.3% /mo. *** :	\$ 75.21
Standard insurance @ \$25.00/mo.:	\$ 25.00
Total monthly payment:	\$ <u>809.29</u>
Annual payment:	\$ 9,711.48
Qualifying monthly income **** :	\$ 3,237.16
Qualifying annual income **** :	\$ <u>38,845.92</u>

- * 10% down payment on total finished cost of home
- ** 11.5% interest rate for 30 yr. fixed rate mortgage
- *** percentages apply to financed amount
- **** by definition, 25% of gross income

Summary Observations (Manhattan, Overland Park, Topeka, Wichita)

The following figures contain summary information concerning the previous four case study jurisdictions:

Figure 26, entitled "Preliminary Comparisons: Major Category Scores", contains the major category scores for seven of the eight major categories of requirements, as well as the "overall score" for each case study jurisdiction. These scoring values were determined via the Preliminary Evaluation Matrix. The major category of Utility Systems was not assigned values and was therefore not included. Figure 27, entitled "Preliminary Comparisons Overall Scores" displays graphically the overall score values for each case study jurisdiction. (Note: These values are the averages of the major category scores.) Figure 28, entitled "Preliminary Comparisons Major Category Scores (Breakdowns)", displays graphically the sum of the major category score values, "broken down" into individual major category scoring values. (ie: streets, pedestrian, lots, dwelling unit & development type, parking, dedication and other requirements—from bottom to top respectively.) Once again, the major category of Utility Systems was not assigned values and was therefore not included in the graphic display(s).

Figure 29, entitled "Cost Comparisons: Major Category Requirements", contains the major category costs for seven of the eight major categories of requirements, as well as the "total cost" for each case study jurisdiction. These costs were determined via the Quantitative Evaluation Matrix. The major category of Dwelling Unit & Development Type Requirements was not assigned costs and was therefore not included. Figure 30,

entitled "Cost Comparisons Total Improvement Costs", displays graphically the total improvement costs for each case study jurisdiction. Figure 31, entitled "Cost Comparisons Major Category Costs (Breakdowns)", displays graphically the sum of the major category costs, (ie: total improvement cost), "broken down" into individual major category costs. (ie: streets, pedestrian, utilities, lots, parking, dedication and other requirements—from bottom to top respectively.) Once again, the major category of Dwelling Unit & Development Type Requirements was not assigned costs and was therefore not included in the graphic display(s).

PRELIMINARY COMPARISONS: MAJOR CATEGORY SCORES								
STUDY AREA	STREETS	PEDESTRIAN	LOTS	D.U./D.T.	PARKING	DEDICATIONS	OTHER	OVERALL SCORE
MANHATTAN	2.1	4.0	2.2	2.4	1.5	3.0	3.0	2.6
OVERLAND PARK	1.8	2.0	1.7	2.4	1.5	3.8	3.7	2.4
TOPEKA	1.4	1.0	2.5	3.7	2.0	3.5	3.7	2.5
WICHITA	1.7	3.0	1.9	3.2	1.0	2.8	2.3	2.3

Figure 26

PRELIMINARY COMPARISONS

Overall Scores

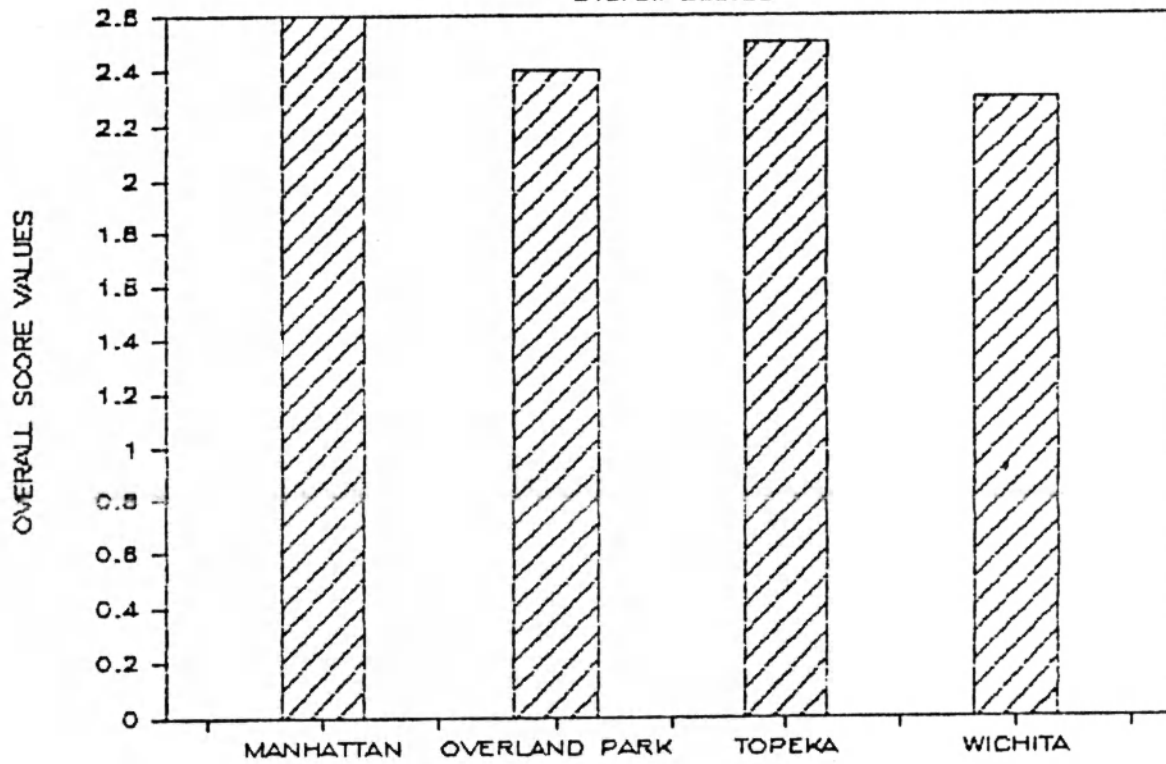


Figure 27

PRELIMINARY COMPARISONS

Major Category Scores (Breakdowns)

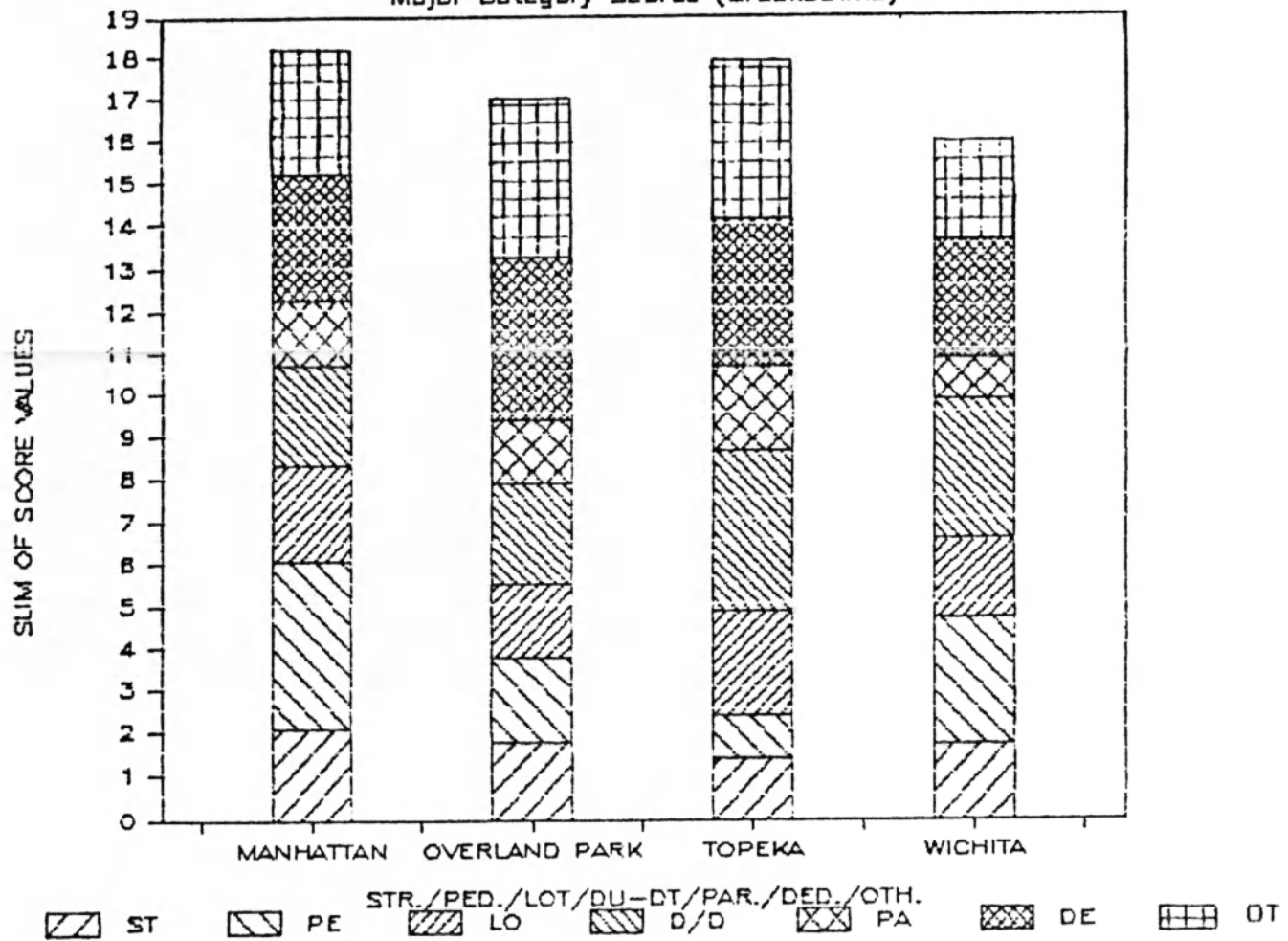


Figure 28

COST COMPARISONS: MAJOR CATEGORY REQUIREMENTS

STUDY AREA	STREETS	PEDESTRIAN	UTILITIES	LOTS	PARKING	DEDICATIONS	OTHER	TOTAL COST
MANHATTAN	\$352,335.45	\$14,213.60	\$358,660.36	\$135,162.17	\$120,359.20	\$9,820.95	\$166,662.63	\$1,157,214.36
OVERLAND PARK	\$396,563.87	\$48,967.48	\$358,660.36	\$131,274.39	\$163,489.00	\$9,820.95	\$250,808.29	\$1,359,584.35
TOPEKA	\$417,418.96	\$70,429.04	\$358,660.36	\$128,332.88	\$101,581.60	\$9,820.95	\$213,744.28	\$1,299,988.07
WICHITA	\$394,454.57	\$28,427.20	\$358,660.36	\$130,236.76	\$204,076.00	\$9,820.95	\$313,541.55	\$1,439,217.40

Figure 29

COST COMPARISONS

Total Improvement Costs

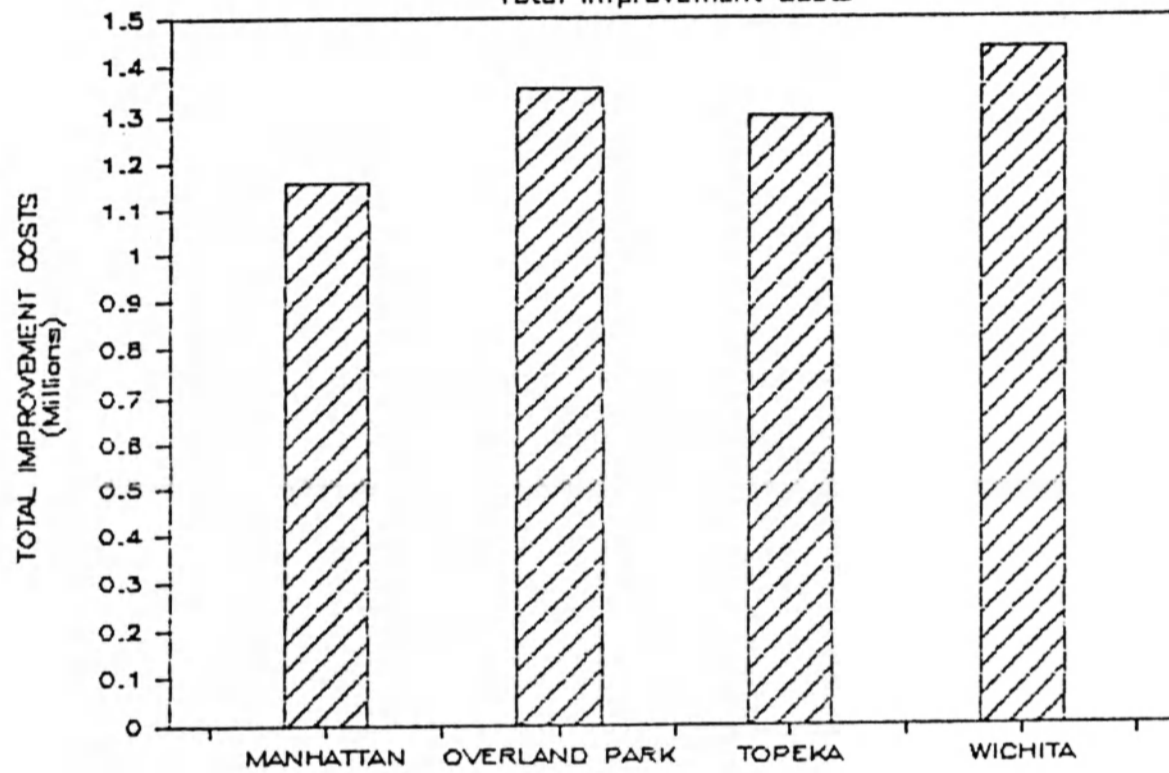


Figure 30

COST COMPARISONS

Major Category Costs (Breakdowns)

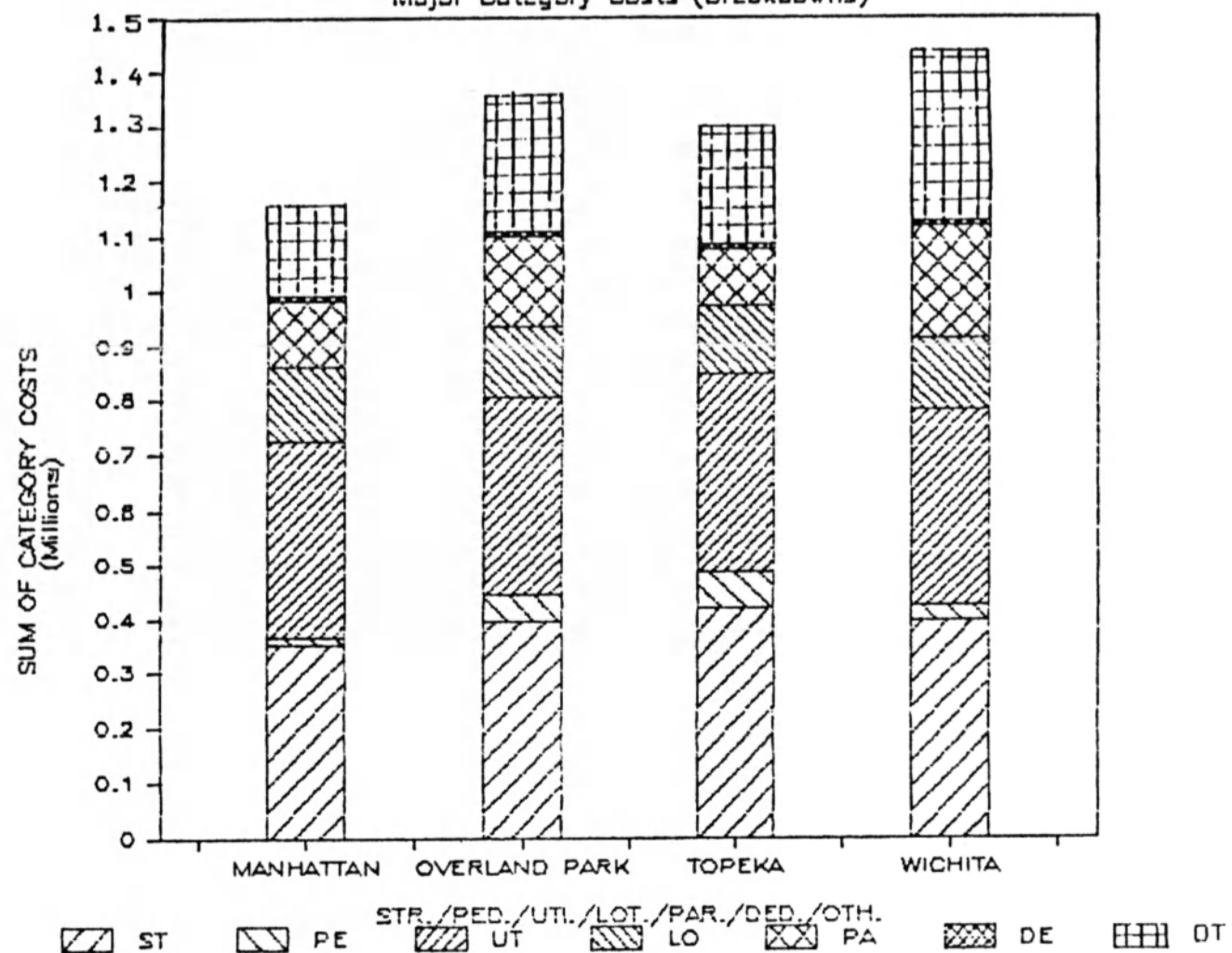


Figure 31

The preceding summary information, together with previous data, were utilized in the development of the following observations:

Street Systems:

* Manhattan received the highest preliminary score for Street Systems, followed by Overland Park, Wichita and Topeka respectively.

* Manhattan provided the lowest cost for Street Systems, followed by Wichita, Overland Park and Topeka respectively.

* There appears to be a fairly strong relationship between the P.E.M. scores and the J.E.M. costs for Street System Requirements.

Pedestrian Systems:

* Manhattan received the highest preliminary score for Pedestrian Systems, followed by Wichita, Overland Park and Topeka respectively.

* Manhattan provided the lowest cost for Pedestrian Systems, followed by Wichita, Overland Park and Topeka respectively.

* There appears to be a very strong relationship between the P.E.M. scores and the Q.E.M. costs for Pedestrian System Requirements.

Utility Systems:

* Preliminary scores were not assigned to this major category of requirements, as such systems were determined to be beyond the control of the local government agency.

* Utility costs were intentionally held constant for each of the four case study jurisdictions evaluated.

Lot Requirements:

* Topeka received the highest preliminary score for Lot Requirements, followed by Manhattan, Wichita and Overland Park respectively.

* Topeka provided the lowest cost for Lot Requirements, followed by Wichita, Overland Park and Manhattan, respectively.

* The relationship between the P.E.M. scores and the J.E.M. costs appears strong for Topeka, but is not reflected for the other three study jurisdictions.

Dwelling Unit and Development Type Requirements:

- * Topeka received the highest preliminary score for this major category, followed by Wichita, with Manhattan and Overland Park tied for the lowest score.
- * Dwelling Unit and Development Type Requirements were not assigned Costs due to the non-applicable nature of the specific requirements.

Parking Requirements:

- * Topeka received the highest preliminary score for Parking Requirements, followed by Manhattan and Overland Park which tied for the next highest score and Wichita with the lowest score.
- * Topeka provided the lowest cost for Parking Requirements, followed by Manhattan, Overland Park and Wichita respectively.
- * There appears to be a fairly strong relationship between the P.E.M. scores and the D.E.M. cost for Parking Requirements.

Dedication Requirements:

- * Overland Park received the highest preliminary score for Dedication Requirements, followed by Topeka, Manhattan and Wichita respectively.
- * Dedication costs turned out to be identical for the following reasons: (1) Open Space costs were the only sub-category costs considered for this major category, as all other sub-category costs were previously considered within other major categories, (2) Due to the location of the "variably sized" open space within the "test" development (ie: within the street right-of-ways), these areas were considered to be part of the other sub-categories and major categories. Thus, the "fixed area" open spaces remained constant for each case study jurisdiction, which resulted in identical costs. Therefore, the relationship between P.E.M. scores and D.E.M. cost could not be determined.

Other Requirements:

- * Overland Park and Topeka tied for the highest preliminary score for Other Requirements, followed by Manhattan and Wichita respectively.
- * Manhattan provided the lowest cost for Other Requirements, followed by Topeka, Overland Park and Wichita respectively.
- * The relationship between the P.E.M. scores and the D.E.M. costs appears to be inconsistent for Other Requirements.

Overall Observations:

- * Manhattan received the highest overall preliminary score and provided the lowest total development cost.
- * Topeka received the second highest overall preliminary score and provided the second lowest total development cost.
- * Overland Park received the third highest overall preliminary score and provided the third lowest total development cost.
- * Wichita received the lowest overall preliminary score and provided the highest development cost.
- * A comparison of P.E.M. scores and Q.E.M. costs reveals a very strong inverse relationship. That is, as P.E.M. scores increase, Q.E.M. costs decrease.

Actual Cost Scenerio Observations:

- * Manhattan's regulations provided the highest total finished cost of \$79,657.06. This cost also dictated the highest total monthly payment of \$834.80, and the highest qualifying annual income of \$40,070.40.
- * Wichita's regulations provided the second highest total finished cost of \$77,148.06. This also dictated the second highest total monthly payment of \$809.29, and the second highest qualifying annual income of \$38,845.92.
- * Overland Park's regulations provided the third highest total finished cost of \$79,320.35. This cost also dictated the third highest total monthly payment of \$831.37, and the third highest qualifying annual income of \$39,905.76
- * Topeka's regulations provided the lowest total finished cost of \$77,082.55. This cost also dictated the lowest total monthly payment of \$808.62, and the lowest qualifying annual income of \$38,813.76.
- * The difference in total finished cost, total monthly payment and qualifying annual income between Mnahattan, the most expensive jurisdiction, and Topeka the least expensive jurisdiction are respectively as follows: \$2,574.51, \$26.18, and \$1,256.64.

Demonstration "A" and "B"

As previously discussed, demonstration requirements have been developed in an effort to determine the potential cost effectiveness related to increased flexibility and decreased excessiveness within zoning and subdivision ordinance requirements. Demonstration "A" and "B" requirements have, therefore, incorporated increased levels of flexibility and/or decreased levels of excessiveness, while maintaining basic protection of public health, safety and welfare.

Be reminded that most of the specific requirements found in the Demonstration "A" and "B" case studies are identical. However, significant differences between the two occur within the major category of "Street Systems". These differences have been incorporated to reflect the differing views of professionals and professional organizations with respect to efficiencies in handling storm water runoff and the need for street curbing requirements. Specifically, Demonstration "A" eliminates all street curbing requirements and utilizes grass-lined "natural" swales to handle storm water runoff. This particular aspect of the Demonstration "A" requirements has cost implications within six of the eight major categories of requirements. Briefly, this particular aspect obviously eliminates the costs associated with curbing, but necessitates increased right-of-ways for swale construction. It substantially reduces the cost of Storm Sewer infrastructure, but decreases the amount of buildable land, and necessitates increases in Parking, Dedication and Other Requirements.

On the other hand, Demonstration "B" utilizes street curbing, but significantly reduces right-of-way widths as a result. This particular aspect of the Demonstration "B" requirements also has cost implications in six of eight major categories of requirements. Briefly, this particular aspect includes curbing costs, but reduces the cost associated with unnecessarily wide right-of-way widths. Storm sewer costs are not reduced, but there is more buildable land available, as well as reductions in Parking, Dedication and Other Requirements.

It is important to understand, however, that differences between the requirements of Demonstration "A" and "B" occur in only one major category (ie: Street Systems). This category is only one of eight, in an overall set of more flexible, less excessive requirements which must be considered holistically in terms of its impact on housing affordability. Therefore, many "minor" cost increases necessitated by some particular aspect of the Demonstration "A" and "B" requirements are likely to be offset by one or more of the other requirements within the particular case study.

Demonstration "A"

Quantitative Evaluation Matrix

Figures 32 and 33 respectively, are the Quantitative Evaluation Matrix and summary graphic for the Demonstration "A" case study. The matrix is designed to determine the actual cost of specific requirements, and/or categories of requirements, in relationship to its impact on housing affordability. Costs have been determined via application to the "test" development situation. (See "Methodology" chapter for details.)

QUANTITATIVE EVALUATION MATRIX

Jurisdiction: Demonstration "A"

REQUIREMENT DESCRIPTION	SPECIFIC REQUIREMENT	QUANTITIES: LIN. FT./NOTES	QUANTITY: TOTAL	UNIT(S)	COST: PRICE/UNIT	COST: UNIT TOTAL	CATEGORY TOTAL COST
* STREET SYSTEMS							
ACCESS:							
Right-Of-Way Width	58.00	0.00	0.00	sq. ft.	\$0.13	\$0.00	
Pavement Width	24.00	0.00	0.00	sq. ft.	\$1.45	\$0.00	
Pavement Width	0.00	0.00	0.00	sq. ft.	\$1.45	\$0.00	
Curbing (vertical)	none	0.00	0.00	lin. ft.	\$1.15	\$0.00	
Curbing (rolled)	none	0.00	0.00	lin. ft.	\$1.15	\$0.00	
COLLECTOR: (PRIMARY)							
Right-Of-Way Width	58.00	813.30	47,171.40	sq. ft.	\$0.13	\$6,132.28	*
Pavement Width	28.00	813.30	22,772.40	sq. ft.	\$1.45	\$33,019.98	*
Pavement Width	0.00	813.30	0.00	sq. ft.	\$1.45	\$0.00	
Curbing (vertical)	none	0.00	0.00	lin. ft.	\$1.15	\$0.00	*
Curbing (rolled)	none	0.00	0.00	lin. ft.	\$1.15	\$0.00	
SUB-COLLECTOR: (SECONDARY)							
Right-Of-Way Width	58.00	1,589.00	92,162.00	sq. ft.	\$0.13	\$11,981.06	*
Pavement Width	24.00	1,589.00	38,136.00	sq. ft.	\$1.45	\$55,297.20	*
Pavement Width	0.00	1,589.00	0.00	sq. ft.	\$1.45	\$0.00	
Curbing (vertical)	none	0.00	0.00	lin. ft.	\$1.15	\$0.00	*
Curbing (rolled)	none	0.00	0.00	lin. ft.	\$1.15	\$0.00	
LOCAL: (LANE)							
Right-Of-Way Width	40.00	0.00	0.00	sq. ft.	\$0.13	\$0.00	
Pavement Width	20.00	0.00	0.00	sq. ft.	\$1.45	\$0.00	
Pavement Width	0.00	0.00	0.00	sq. ft.	\$1.45	\$0.00	
Curbing (vertical)	none	0.00	0.00	lin. ft.	\$1.15	\$0.00	
Curbing (rolled)	none	0.00	0.00	lin. ft.	\$1.15	\$0.00	
LOOP/CUL-DE-SAC: (PLACE)							
(Stem) Right-Of-Way Width	40.00	*NOTE: VALUES INCLUDE	70,640.00	sq. ft.	\$0.13	\$9,183.20	*
(Stem) Pavement Width	20.00	TOTALS FOR ALL	42,050.00	sq. ft.	\$1.45	\$60,972.50	*
(Stem) Pavement Width	0.00	(9) NINE LOOP/	0.00	sq. ft.	\$1.45	\$0.00	
(Terminus) Right-Of-Way Width	40.00	CUL-DE-SACS!	75,995.00	sq. ft.	\$0.13	\$9,879.35	*
(Term.) Pvm't. Width (cir. radius)	30.00	SEE APPENDIX	14,130.00	sq. ft.	\$1.45	\$20,488.50	*
(Term.) Pvm't. Width (looped)	20.00	"A"	23,320.00	sq. ft.	\$1.45	\$33,814.00	*
(Term.) Pvm't. Width (looped)	0.00	FOR FURTHER	0.00	sq. ft.	\$1.45	\$0.00	
Curbing (vertical)	none	DETAIL!	0.00	lin. ft.	\$1.15	\$0.00	*
Curbing (rolled)	none		0.00	lin. ft.	\$1.15	\$0.00	
EXCAVATION:							
	site specific	*NOTE: (CONSTANT!)	12,465.00	c.y.	\$3.32	\$41,383.80	*
COMPACTION:							
	site specific	(CONSTANT!)	3,354.00	c.y.	\$2.17	\$7,278.18	*
							\$289,430.05
* PEDESTRIAN SYSTEMS							
SIDEWALKS:							
Width	4.00						
Location(s)							
peripheral	4.00	0.00	0.00	sq. ft.	\$1.63	\$0.00	
collector streets	4.00	720.50	2,882.00	sq. ft.	\$1.63	\$4,697.66	*
sub-collector streets	4.00	1,459.50	5,838.00	sq. ft.	\$1.63	\$9,515.94	*
local streets	4.00	0.00	0.00	sq. ft.	\$1.63	\$0.00	
loop/cul-de-sac streets	4.00	0.00	0.00	sq. ft.	\$1.63	\$0.00	
mid-block	4.00	0.00	0.00	sq. ft.	\$1.63	\$0.00	
							\$14,213.60
* UTILITY SYSTEMS							
STORM SEWERS:							
Open (Surface)	(SEE APPENDIX	"B" FOR	DETAILED COST	BREAKDOWNS!)			
Closed (Underground)						\$25,791.04	*
SANITARY SEWERS:							
Main Lines	(SEE APPENDIX	"B" FOR	DETAILED COST	BREAKDOWNS!)		\$147,045.25	*
Laterals							
WATER/FIRE SYSTEMS:							
Public Water	(SEE APPENDIX	"B" FOR	DETAILED COST	BREAKDOWNS!)			
Private Water							
Fire Protection						\$91,330.17	*
STREET LIGHTING:							
Requirement(s)	(SEE APPENDIX	"B" FOR	DETAILED COST	BREAKDOWNS!)			
							\$264,166.46

101

Figure 32 (continued next page)

* LOT REQUIREMENTS							
MINIMUM SIZE:	5,000.00	*NOTE: AVG. SIZE!	1,062,213.60	sq. ft.	\$0.13	\$138,087.77	*
MINIMUM FRONTAGE:	none	*NOTE:					
Standard Lot		14 ft. MIN.					
Cul-De-Sac Lot	14.00	FLAG LOT ONLY!					
MINIMUM WIDTH:	50.00		(VALUES REFLECTED IN	SETBACK CALC'S	BELOW!)		
MINIMUM DEPTH:	100.00		(VALUES REFLECTED IN	SETBACK CALC'S	BELOW!)		
YARD SETBACKS:		*NOTE					
Front Yard	15.00	SETBACK COSTS	750.00	sq. ft.	\$0.13	\$97.50	
Side Yards (2)two/lot	5.00	ARE INCLUDED	1,000.00	sq. ft.	\$0.13	\$130.00	
Rear Yard	15.00	IN LOT COSTS	750.00	sq. ft.	\$0.13	\$97.50	
Side Yard (Corner Lot)	15.00	ABOVE! (FOR	1,500.00	sq. ft.	\$0.13	\$195.00	
		EXAMPLE ONLY!)					\$138,087.77
* DWELLING UNIT & DEVELOPMENT TYPE REQUIREMENTS							
UNIT REQUIREMENTS:							
Unit Height	35 ft.	*NOTE:	N/A	N/A	N/A	N/A	
Unit Coverage	none	DETERMINED BY	N/A	N/A	N/A	N/A	
		SETBACKS!					
ALLOWED DEVELOPMENT TYPE(S):		*NOTE:					
Single Family Detached	yes	ALL OPTIONS	(COSTS RELATED	TO SINGLE	FAMILY DET'D.	(ONLY!)	
Planned Unit Development	yes	AVAILABLE,	(COSTS RELATED	TO SINGLE	FAMILY DET'D.	(ONLY!)	
Cluster Housing	yes	W/OUT SPECIAL	(COSTS RELATED	TO SINGLE	FAMILY DET'D.	(ONLY!)	
Zero Lot Line Housing	yes	APPROVAL(S)!	(COSTS RELATED	TO SINGLE	FAMILY DET'D.	(ONLY!)	
							N/A
* PARKING REQUIREMENTS							
OFF-STREET PARKING:		*NOTE:					
Spaces Required	4.00	(2) GARAGE	100,700.00	sq. ft.	\$1.63	\$164,141.00	*
		(2) DRIVEWAY					\$164,141.00
* DEDICATION REQUIREMENTS							
RIGHTS-OF-WAY:		*NOTE:					
Streets	yes	COSTS INCLUDED	285,968.40	sq. ft.	\$0.13	\$37,175.89	
Sidewalks	yes	IN "STREET	8,720.00	sq. ft.	\$0.13	\$1,133.60	
		SYSTEMS" ABOVE!					
OPEN SPACE:							
Area Required	none		75,545.80	sq. ft.	\$0.13	\$9,820.95	*
EASEMENTS:		*NOTE:					
Type(s)		COSTS INCLUDED					
k.p.&l. gas - (constant)	k.p.&l. gas	IN "LOT COSTS"	14,500.00	sq. ft.	\$0.13	\$1,885.00	
utility	yes	ABOVE! (FOR					
drainage, avigation	yes	EXAMPLE ONLY!)					
Width(s)							
10 ft. utility	10.00	6,685.00	66,850.00	sq. ft.	\$0.13	\$8,690.50	
	(easement width						
	based upon						
	actual need)						\$9,820.95
* OTHER REQUIREMENTS							
LANDSCAPING:		*NOTE:					
Individual Lot	encouraged for	LANDSCAPING					
landscape package	developments	COSTS HAVE	212.00	per d.u.	\$688.00	\$145,856.00	*
Open Space	with lots of	BEEN INCLUDED					
(street) trees	5000 sq. ft.	FOR REALISM!	212.00	(2) per d.u.	\$330.00	\$69,960.00	*
(island) trees	or less.		5.00	(3) per isl.	\$495.00	\$2,475.00	*
seeding			108,850.30	sq. ft.	\$0.04	\$4,354.01	*
OFF-SITE IMPROVEMENTS:							
Type(s) Required	site specific,						
	based upon X						
	directly attri-						
	buted to new						
	development.						
EROSION CONTROL:	yes		(NOT UTILIZED	W/IN THE TEST	DEVELOPMENT!)		
UNDERGROUND UTILITIES:	encouraged	*NOTE:					
		OVERHEAD USED	212.00	per d.u.	\$0.00	\$0.00	
		IN TEST DEV'NT!					
SURVEY COSTS:	yes		212.00	per d.u.	\$270.00	\$57,240.00	*
FLOOD PLANE AREAS:	yes		(NOT RELEVANT	TO THE TEST	DEVELOPMENT!)		
							\$279,885.01
TOTAL IMPROVEMENT COSTS:						\$1,159,744.85	

Figure 32

DEMONSTRATION "A"

Category Cost Percentages

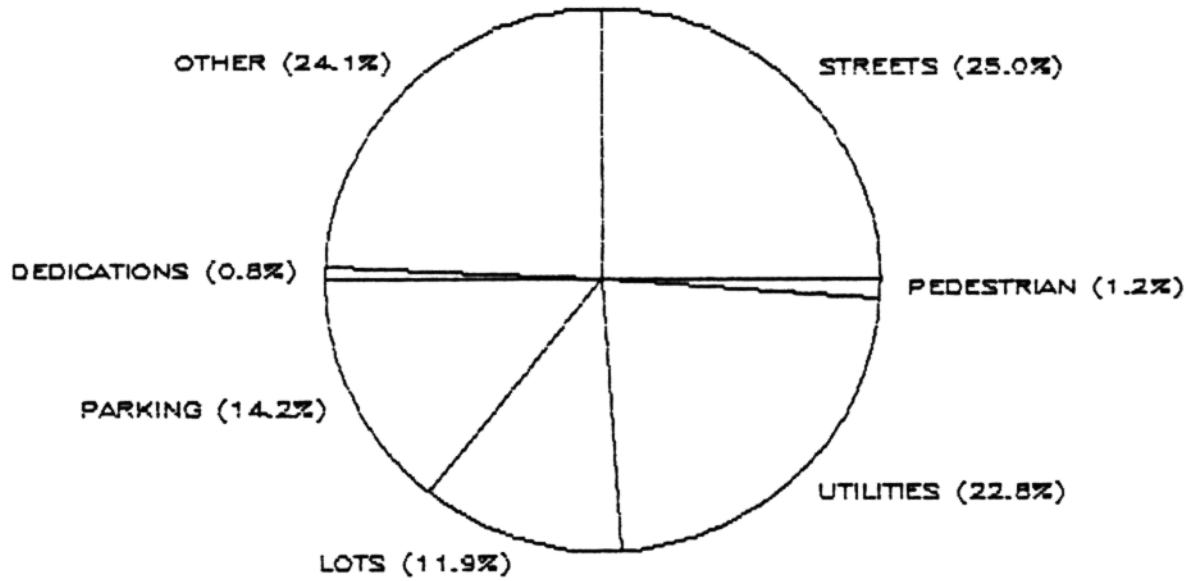


Figure 33

Observations

Street Systems:

- * Street System requirements accounted for 25% of total improvement costs, the highest major category cost percentage. This major category was quite close to both utilities and Other Requirements which all three combined, represents nearly 75% of total improvement costs.
- * Total costs for Street System requirements amounted to \$1,365.23 per dwelling unit.
- * Pavement costs were always the highest sub-category cost.

Pedestrian Systems:

- * Pedestrian System requirements accounted for 1.2% of total improvement costs.
- * Total costs for Pedestrian System requirements amounted to \$67.04 per dwelling unit.

Utility Systems:

- * Utility System requirements accounted for 22.8% of total improvement costs. This was the third highest percentage cost. This major category was quite close to both Street and Other requirements which all three combined, represents nearly 75% of total improvement costs.
- * Total cost for Utility System requirements amounted to \$1,246.06 per dwelling unit.
- * Sanitary Sewers were the most expensive utility system improvement, accounting for nearly 56% of the total cost.

Lot Requirements:

- * Lot Requirements accounted for 11.9% of total improvement costs. (note: these are raw land costs)
- * Total costs for Lot Requirements amounted to \$651.35 per dwelling unit.
- * The total cost of land devoted to Yard Setbacks for standard interior lots amounted to \$325.00 per dwelling unit. This area and subsequent value represents 50% of both total cost and usable lot square footage.

Dwelling Unit and Development Type Requirements:

- * No costs were assigned to this category of requirements.

Parking Requirements:

- * Parking Requirements accounted for 14.2% of total improvement costs.
- * Total costs for Parking Requirements amounted to \$774.25 per dwelling unit. This cost was affected by setback, right-of-way and pavement width requirements.

Dedication Requirements:

- * Dedication Requirements accounted for only 0.8% of total improvement costs, the lowest major category cost. This resulted from the fact that Open Space costs were the only costs considered. Other sub-category costs were previously considered within other categories.
- * Total cost for Open Space dedication requirements amounted to only \$46.32 per dwelling unit. (It should be noted that no open space was actually required, however, the "test" development did include the square footage indicated.)
- * Right-of-Way and Easement dedications accounted for 8.43 acres of land. This represented 27.2% of total site acreage, with a combined total cost of \$47,751.39.

Other Requirements:

- * Other Requirements accounted for 24.1% of total improvement costs. This was the second highest major category cost. This major category was quite close to Street and Utility requirements which all three combined, represents nearly 75% of total improvement costs.
- * Total costs for Other Requirements amounted to \$1,320.21 per dwelling unit.
- * Individual Lot landscaping accounted for 52.1% of the per dwelling unit costs associated with Other Requirements. The remaining percentage was split between Open Space landscaping and Survey Costs.

Test Dwelling Unit and Costs

As previously indicated, home no. 8323, designed by Bloodgood Architects was selected as the "test" dwelling unit. Per square foot construction costs, including "service utility" hookups were estimated at \$55.00. The "test" dwelling unit offers 1,246 square feet of living space, dictating a construction cost of \$68,530.00.

Actual Cost Scenerio

Per lot improvement cost:	\$	<u>5,470.49</u>
Dwelling unit construction cost:	\$	<u>68,530.00</u>
Total finished unit cost:	\$	<u>74,000.49</u>
Down payment @ 10% * :	\$	7,400.05
Financed amount @ 30 yr. fixed:	\$	66,600.44
Settlement fees @ 4% *** :	\$	2,664.01
Basic monthly payment @ 11.5% ** :	\$	659.34
M.G.I.C. insurance @ .375% /mo. *** :	\$	20.81
Taxes @ effective rate of 1.3% / mo.*** :	\$	72.15
Standard insurance @ \$25.00/mo. :	\$	25.00
Total monthly payment:	\$	<u>777.30</u>
Annual payment:	\$	<u>9,327.60</u>
Qualifying monthly income **** :	\$	3,109.20
Qualifying annual income **** :	\$	<u>37,310.40</u>

- * 10% down payment on total finished cost of home
- ** 11.5% interest rate for 30 yr. fixed rate mortgage
- *** percentages apply to financed amount
- **** by definition, 25% of gross income

Demonstration "B"

Quantitative Evaluation Matrix

Figures 34 and 35 respectively, are the Quantitative Evaluation Matrix and summary graphic for the Demonstration "B" case study. The matrix is designed to determine the actual cost of specific requirements, and/or categories of requirements, in relationship to its impact on housing affordability. Costs have been determined via application to a "test" development situation. (See "Methodology" chapter for details.)

QUANTITATIVE EVALUATION MATRIX							
Jurisdiction: Demonstration "B"							
REQUIREMENT DESCRIPTION	SPECIFIC REQUIREMENT	QUANTITIES: LIN. FT./NOTES	QUANTITY: TOTAL	UNIT(S)	COST: PRICE/UNIT	COST: UNIT TOTAL	CATEGORY TOTAL COST
* STREET SYSTEMS							
ACCESS:							
Right-Of-Way Width	30.00	0.00	0.00	sq. ft.	\$0.13	\$0.00	
Pavement Width	24.00	0.00	0.00	sq. ft.	\$1.45	\$0.00	
Pavement Width	0.00	0.00	0.00	sq. ft.	\$1.45	\$0.00	
Curbing (vertical)	yes	0.00	0.00	lin. ft.	\$1.15	\$0.00	
Curbing (rolled)	yes	0.00	0.00	lin. ft.	\$1.15	\$0.00	
COLLECTOR: (PRIMARY)							
Right-Of-Way Width	34.00	813.30	27,652.20	sq. ft.	\$0.13	\$3,594.79	*
Pavement Width	28.00	813.30	22,772.40	sq. ft.	\$1.45	\$33,019.98	*
Pavement Width	0.00	813.30	0.00	sq. ft.	\$1.45	\$0.00	
Curbing (vertical)	yes	1,626.60	1,626.60	lin. ft.	\$1.15	\$1,870.59	*
Curbing (rolled)	yes	1,626.60	1,626.60	lin. ft.	\$1.15	\$1,870.59	*
SUB-COLLECTOR: (SECONDARY)							
Right-Of-Way Width	30.00	1,589.00	47,670.00	sq. ft.	\$0.13	\$6,197.10	*
Pavement Width	24.00	1,589.00	38,136.00	sq. ft.	\$1.45	\$55,297.20	*
Pavement Width	0.00	1,589.00	0.00	sq. ft.	\$1.45	\$0.00	
Curbing (vertical)	yes	2,761.00	2,761.00	lin. ft.	\$1.15	\$3,175.15	*
Curbing (rolled)	yes	2,761.00	2,761.00	lin. ft.	\$1.15	\$3,175.15	*
LOCAL: (LANE)							
Right-Of-Way Width	26.00	0.00	0.00	sq. ft.	\$0.13	\$0.00	
Pavement Width	20.00	0.00	0.00	sq. ft.	\$1.45	\$0.00	
Pavement Width	0.00	0.00	0.00	sq. ft.	\$1.45	\$0.00	
Curbing (vertical)	yes	0.00	0.00	lin. ft.	\$1.15	\$0.00	
Curbing (rolled)	yes	0.00	0.00	lin. ft.	\$1.15	\$0.00	
LOOP/CUL-DE-SAC: (PLACE)							
(Stem) Right-Of-Way Width	26.00	*NOTE: VALUES INCLUDE	49,192.00	sq. ft.	\$0.13	\$6,394.96	*
(Stem) Pavement Width	20.00	TOTALS FOR ALL	42,050.00	sq. ft.	\$1.45	\$60,972.50	*
(Stem) Pavement Width	0.00	(9) NINE LOOP/	0.00	sq. ft.	\$1.45	\$0.00	
(Terminus) Right-Of-Way Width	33.00	CUL-DE-SACS!	67,972.30	sq. ft.	\$0.13	\$8,836.40	*
(Term.) Pvm't. Width (cir. radius)	30.00	SEE APPENDIX	14,130.00	sq. ft.	\$1.45	\$20,488.50	*
(Term.) Pvm't. Width (looped)	20.00	"A"	23,320.00	sq. ft.	\$1.45	\$33,814.00	*
(Term.) Pvm't. Width (looped)	0.00	FOR FURTHER	0.00	sq. ft.	\$1.45	\$0.00	
Curbing (vertical)	yes	DETAIL!	7,462.60	lin. ft.	\$1.15	\$8,581.99	*
Curbing (rolled)	yes		7,462.60	lin. ft.	\$1.15	\$8,581.99	*
EXCAVATION:							
	site specific	*NOTE: (CONSTANT!)	12,465.00	c.y.	\$3.32	\$41,383.80	*
COMPACTION:							
	site specific	(CONSTANT!)	3,354.00	c.y.	\$2.17	\$7,278.18	*
							\$290,905.14
* PEDESTRIAN SYSTEMS							
SIDEWALKS:							
Width	4.00						
Location(s)							
peripheral	4.00	0.00	0.00	sq. ft.	\$1.63	\$0.00	
collector streets	4.00	720.50	2,882.00	sq. ft.	\$1.63	\$4,697.66	*
sub-collector streets	4.00	1,459.50	5,838.00	sq. ft.	\$1.63	\$9,515.94	*
local streets	4.00	0.00	0.00	sq. ft.	\$1.63	\$0.00	
loop/cul-de-sac streets	4.00	0.00	0.00	sq. ft.	\$1.63	\$0.00	
mid-block	4.00	0.00	0.00	sq. ft.	\$1.63	\$0.00	
							\$14,213.60
* UTILITY SYSTEMS							
STORM SEWERS:							
Open (Surface)	(SEE APPENDIX	"B" FOR	DETAILED COST	BREAKDOWNS!)			
Closed (Underground)						\$120,284.94	*
SANITARY SEWERS:							
Main Lines	(SEE APPENDIX	"B" FOR	DETAILED COST	BREAKDOWNS!)			
Laterals						\$147,045.25	*
WATER/FIRE SYSTEMS:							
Public Water	(SEE APPENDIX	"B" FOR	DETAILED COST	BREAKDOWNS!)			
Private Water							
Fire Protection						\$91,330.17	*
STREET LIGHTING:							
Requirement (s)	(SEE APPENDIX	"B" FOR	DETAILED COST	BREAKDOWNS!)			
							\$358,660.36

135

Figure 34 (continued next page)

* LOT REQUIREMENTS							
MINIMUM SIZE:	5,000.00	*NOTE: AVG. SIZE!	1,555,725.50	sq. ft.	\$0.13	\$202,244.32	*
MINIMUM FRONTAGE:							
Standard Lot	none	*NOTE:					
Cul-De-Sac Lot	14.00	14 ft. MIN. !FLAG LOT ONLY!					
MINIMUM WIDTH:	50.00		(VALUES REFLECTED IN	SETBACK CALC'S	BELOW!)		
MINIMUM DEPTH:	100.00		(VALUES REFLECTED IN	SETBACK CALC'S	BELOW!)		
YARD SETBACKS:		*NOTE					
Front Yard	17.00	SETBACK COSTS	850.00	sq. ft.	\$0.13	\$110.50	
Side Yards (2)two/lot	5.00	ARE INCLUDED	1,000.00	sq. ft.	\$0.13	\$130.00	
Rear Yard	15.00	IN LOT COSTS	750.00	sq. ft.	\$0.13	\$97.50	
Side Yard (Corner Lot)	15.00	ABOVE! (FOR !EXAMPLE ONLY!)	1,500.00	sq. ft.	\$0.13	\$195.00	
							\$202,244.32
* DWELLING UNIT & DEVELOPMENT TYPE REQUIREMENTS							
UNIT REQUIREMENTS:							
Unit Height	35 ft.	*NOTE:	N/A	N/A	N/A	N/A	
Unit Coverage	none	DETERMINED BY SETBACKS!	N/A	N/A	N/A	N/A	
ALLOWED DEVELOPMENT TYPE(S):		*NOTE:					
Single Family Detached	yes	ALL OPTIONS	(COSTS RELATED	TO SINGLE	FAMILY DET'D.	(ONLY!)	
Planned Unit Development	yes	AVAILABLE,	(COSTS RELATED	TO SINGLE	FAMILY DET'D.	(ONLY!)	
Cluster Housing	yes	W/OUT SPECIAL	(COSTS RELATED	TO SINGLE	FAMILY DET'D.	(ONLY!)	
Zero Lot Line Housing	yes	APPROVAL(S)!	(COSTS RELATED	TO SINGLE	FAMILY DET'D.	(ONLY!)	
							N/A
* PARKING REQUIREMENTS							
OFF-STREET PARKING:		*NOTE:					
Spaces Required	4.00	(2) GARAGE (2) DRIVEWAY	94,280.00	sq. ft.	\$1.63	\$153,676.40	* \$153,676.40
* DEDICATION REQUIREMENTS							
RIGHTS-OF-WAY:		*NOTE:					
Streets	yes	COSTS INCLUDED	192,456.50	sq. ft.	\$0.13	\$25,019.35	
Sidewalks	yes	IN "STREET SYSTEMS" ABOVE!	8,720.00	sq. ft.	\$0.13	\$1,133.60	
OPEN SPACE:							
Area Required	none		75,545.80	sq. ft.	\$0.13	\$9,820.95	*
EASEMENTS:		*NOTE:					
Type(s)		COSTS INCLUDED					
k.p.&l. gas - (constant)	k.p.&l. gas	IN "LOT COSTS"	14,500.00	sq. ft.	\$0.13	\$1,885.00	
utility	yes	ABOVE! (FOR					
drainage, avigation	yes	!EXAMPLE ONLY!)					
Width(s)							
10 ft. utility	10.00	6,685.00	66,850.00	sq. ft.	\$0.13	\$8,690.50	
	(easement width based upon actual need)						\$9,820.95
* OTHER REQUIREMENTS							
LANDSCAPING:		*NOTE:					
Individual Lot	encouraged for	LANDSCAPING					
landscape package	developments	COSTS HAVE	231.00	per d.u.	\$688.00	\$158,928.00	*
Open Space	with lots of	BEEN INCLUDED					
(street) trees	5000 sq. ft.	FOR REALISM!	231.00	(2) per d.u.	\$330.00	\$76,230.00	*
(island) trees	or less		5.00	(3) per isl.	\$495.00	\$2,475.00	*
seeding			108,850.30	sq. ft.	\$0.04	\$4,354.01	*
OFF-SITE IMPROVEMENTS:							
Type(s) Required	site specific, based upon % directly attri- buted to new development.						
EROSION CONTROL:	yes		(NOT UTILIZED	W/IN THE TEST	DEVELOPMENT!)		
UNDERGROUND UTILITIES:	encouraged	*NOTE: OVERHEAD USED	231.00	per d.u.	\$0.00	\$0.00	
		IN TEST DEV'NT!					
SURVEY COSTS:	yes		231.00	per d.u.	\$270.00	\$62,370.00	*
FLOOD PLANE AREAS:	yes		(NOT RELEVANT	TO THE TEST	DEVELOPMENT!)		
							\$304,357.01
TOTAL IMPROVEMENT COSTS:						\$1,333,877.78	

Figure 34

DEMONSTRATION "B"

Category Cost Percentages

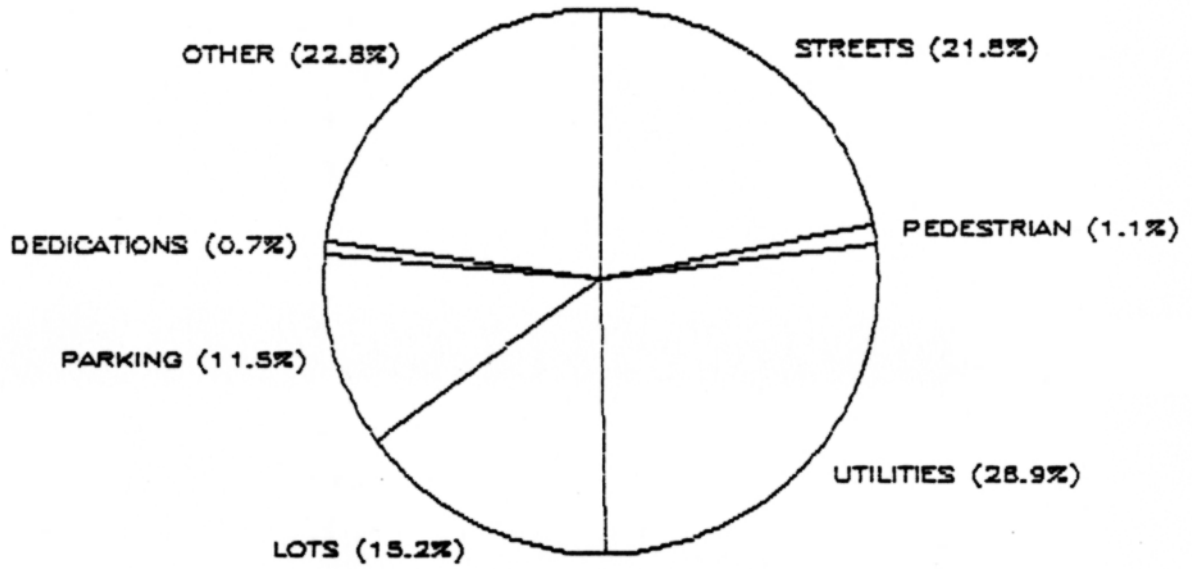


Figure 35

Observations

Street Systems:

* Street System requirements accounted for 21.8% of total improvement costs, the third highest major category cost percentage. This major category was close to both Utility and Other Requirements which all three combined, accounted for nearly 75% of total improvement costs.

* Total costs for Street System requirements amounted to \$1,259.32 per dwelling unit.

* Pavement costs were always the highest sub-category cost, accounting for more than the combined cost of other requirements within a specific sub-category.

Pedestrian Systems:

* Pedestrian System requirements accounted for 1.1% of total improvement costs.

* Total costs for Pedestrian System requirements amounted to \$61.53 per dwelling unit.

Utility Systems:

* Utility System requirements accounted for 26.9% of total improvement costs, the highest major category cost percentage. This major category was close to both Street and Other Requirements which all three combined, represents nearly 75% of total improvement costs.

* Total cost for Utility System requirements amounted to \$1,552.64 per dwelling unit.

* Sanitary Sewers were the most expensive utility system improvement, accounting for nearly 41% of the total cost.

Lot Requirements:

* Lot Requirements accounted for 15.2% of total improvement costs. (note: these are raw land costs)

* Total costs for Lot Requirements amounted to \$875.51 per dwelling unit.

* The total cost of land devoted to Yard Setbacks for standard interior lots amounted to \$338.00 per dwelling unit. This area and subsequent value represents 52% of both total cost and usable lot square footage.

Dwelling Unit and Development Type Requirements:

* No costs were assigned to this category of requirements.

Parking Requirements:

- * Parking Requirements accounted for 11.5% of total improvement costs.
- * Total costs for Parking Requirements amounted to \$665.26 per dwelling unit. This cost was affected by setback, right-of-way and pavement width requirements.

Dedication Requirements:

- * Dedication Requirements accounted for only 0.7% of total improvement costs, the lowest major category cost. This resulted from the fact that Open Space costs were the only costs considered. Other sub-category costs were previously considered within other categories.
- * Total cost for Open Space dedication requirements amounted to only \$42.51 per dwelling unit. (It should be noted that no open space was actually required, however, the "test" development did include the square footage indicated.)
- * Right-of-Way and Easement dedications accounted for 6.28 acres of land. This represented 20.2% of total site acreage, with a combined total cost of \$35,594.85.

Other Requirements:

- * Other Requirements accounted for 22.8% of total improvement costs. This was the second highest major category cost. This major category was close to Street and Utility Requirements which all three combined, represents nearly 75% of total improvement costs.
- * Total costs for Other Requirements amounted to \$1,317.56 per dwelling unit.
- * Individual Lot landscaping accounted for 52.2% of the per dwelling unit costs associated with Other Requirements. The remaining percentage was split between Open Space landscaping and survey costs.

Test Dwelling Unit and Costs

As previously indicated, home no. 8323, designed by Bloodgood Architects was selected as the "test" dwelling unit. Per square foot construction costs, including "service utility" hookups were estimated at \$55.00. The "test" dwelling unit offers 1,246 square feet of living space, dictating a construction cost of \$68,530.00.

Actual Cost Scenerio

Per lot improvement cost:	\$ <u>5,774.36</u>
Dwelling unit construction cost:	\$ 68,530.00
Total finished unit cost:	\$ <u>74,304.36</u>
Down payment @ 10% * :	\$ 7,430.44
Financed amount @ 30 yr. fixed:	\$ 66,873.92
Settlement fees @ 4% *** :	\$ 2,674.95
Basic monthly payment @ 11.5% ** :	\$ 662.05
M.G.I.C. insurance @ .375% /mo. *** :	\$ 20.89
Taxes @ effective rate of 1.3% /mo. *** :	\$ 72.44
Standard insurance @ \$25.00/mo.	\$ 25.00
Total monthly payment:	\$ <u>780.38</u>
Annual payment:	\$ 9,364.56
Qualifying monthly income **** :	\$ 3,121.52
Qualifying annual income **** :	\$ 37,458.24

- * 10% down payment on total finished cost of home
- ** 11.5% interest rate for 30 yr. fixed rate mortgage
- *** percentages apply to financed amount
- **** by definition, 25% of gross income

Final Summary Observations (all six case studies)

The following figures contain summary information concerning the previous six case studies:

Figure 36, entitled "Cost Comparisons: Major Category Requirements", contains the major category costs for seven of the eight major categories of requirements, as well as the "total cost" for all six case studies evaluated. These costs were determined via the Quantitative Evaluation Matrix. The major category of Dwelling Unit & Development Type Requirements was not assigned costs and was therefore not included. Figure 37, entitled "Cost Comparisons Total Improvement Costs", displays graphically the total improvement cost for all six case studies evaluated. Figure 38, entitled "Cost Comparisons Major Category Costs (Breakdowns)", displays graphically the sum of the major category costs, (ie: total improvement cost), "broken down" into individual major category costs. (ie: streets, pedestrian, utilities, lots, parking, dedication and other requirements—from bottom to top respectively.) Once again, the major category of Dwelling Unit & Development Type Requirements was not assigned costs and was therefore not included in the graphic display(s).

Figure 39, entitled "Cost Comparisons: Per Dwelling Unit", contains the per dwelling unit costs for seven of the eight major categories of requirements. These costs were obtained by dividing the specific major category costs by the total number of dwelling units. The major category of Dwelling Unit & Development Type Requirements was not assigned costs and was therefore not included. Figure 40, entitled "Cost Comparisons Per Dwelling Unit Improvement Costs", displays graphically the per dwelling unit

improvement costs for all six case studies evaluated. Figure 41, entitled "Cost Comparisons Per Dwelling Unit Costs (Breakdowns)", displays graphically the sum of the per dwelling unit costs, (ie: total per unit improvement cost), "broken down" into individual per dwelling unit major category costs. (ie: streets, pedestrian, utilities, lots, parking, dedication and other requirements-from bottom to top respectively.) Once again, the major category of Dwelling Unit & Development Type Requirements was not assigned costs and was therefore not included in the graphic display(s).

Figure 42, entitled "Overall Comparisons" contains overall information on densities, improvement costs and finance/income costs necessary for final comparative observations of the six case studies being evaluated.

COST COMPARISONS: MAJOR CATEGORY REQUIREMENTS

STUDY AREA	STREETS	PEDESTRIAN	UTILITIES	LOTS	PARKING	DEDICATIONS	OTHER	TOTAL COSTS
MANHATTAN	\$352,335.45	\$14,213.60	\$358,660.36	\$135,162.17	\$120,359.20	\$9,820.95	\$166,662.63	\$1,157,214.36
OVERLAND PARK	\$396,563.87	\$48,967.48	\$358,660.36	\$131,274.39	\$163,489.00	\$9,820.95	\$250,808.29	\$1,359,584.35
TOPEKA	\$417,418.96	\$70,429.04	\$358,660.36	\$128,332.88	\$101,581.60	\$9,820.95	\$213,744.28	\$1,299,988.07
WICHITA	\$394,454.57	\$28,427.20	\$358,660.36	\$130,236.76	\$204,076.00	\$9,820.95	\$313,541.55	\$1,439,217.40
DEMO "A"	\$289,430.05	\$14,213.60	\$264,166.46	\$138,087.77	\$164,141.00	\$9,820.95	\$279,885.01	\$1,159,744.85
DEMO "B"	\$290,905.14	\$14,213.60	\$358,660.36	\$202,244.32	\$153,676.40	\$9,820.95	\$304,357.01	\$1,333,877.78

Figure 36

COST COMPARISONS

Total Improvement Costs

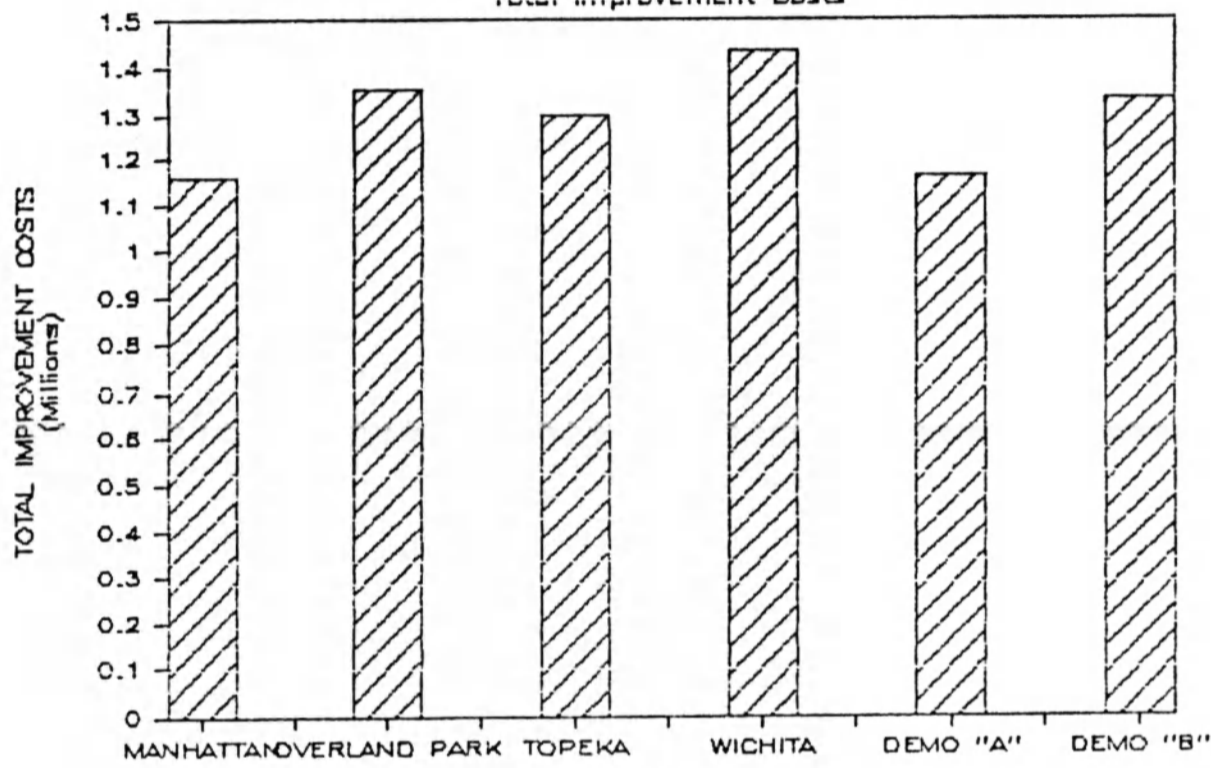


Figure 37

COST COMPARISONS

Major Category Costs (Breakdowns)

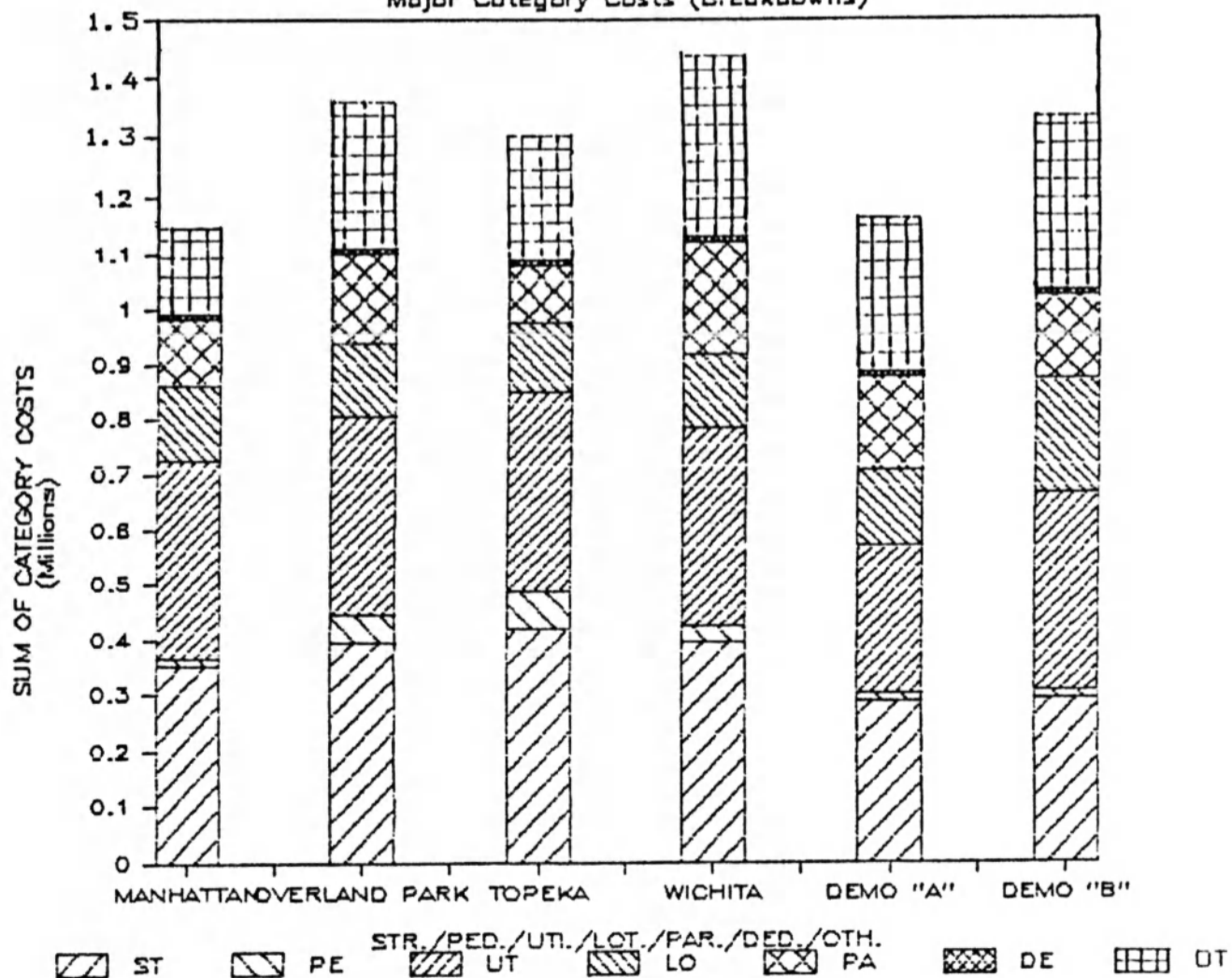


Figure 38

COST COMPARISONS: PER DWELLING UNIT

STUDY AREA	STREETS	PEDESTRIAN	UTILITIES	LOTS	PARKING	DEDICATIONS	OTHER	TOTAL COSTS
MANHATTAN	\$3,387.84	\$136.66	\$3,448.65	\$1,299.63	\$1,157.30	\$94.43	\$1,602.52	\$11,127.06
OVERLAND PARK	\$3,147.33	\$388.63	\$2,846.51	\$1,041.86	\$1,297.53	\$77.94	\$1,990.54	\$10,790.35
TOPEKA	\$2,746.17	\$463.34	\$2,359.60	\$844.29	\$668.30	\$64.61	\$1,406.21	\$8,552.55
WICHITA	\$2,362.00	\$170.22	\$2,147.66	\$779.86	\$1,222.01	\$58.80	\$1,877.49	\$8,618.06
DEMO "A"	\$1,365.23	\$67.04	\$1,246.06	\$651.35	\$774.25	\$46.32	\$1,320.21	\$5,470.49
DEMO "B"	\$1,259.32	\$61.53	\$1,552.64	\$875.51	\$665.26	\$42.51	\$1,317.56	\$5,774.36

Figure 39

COST COMPARISONS
Per Dwelling Unit Improvement Costs

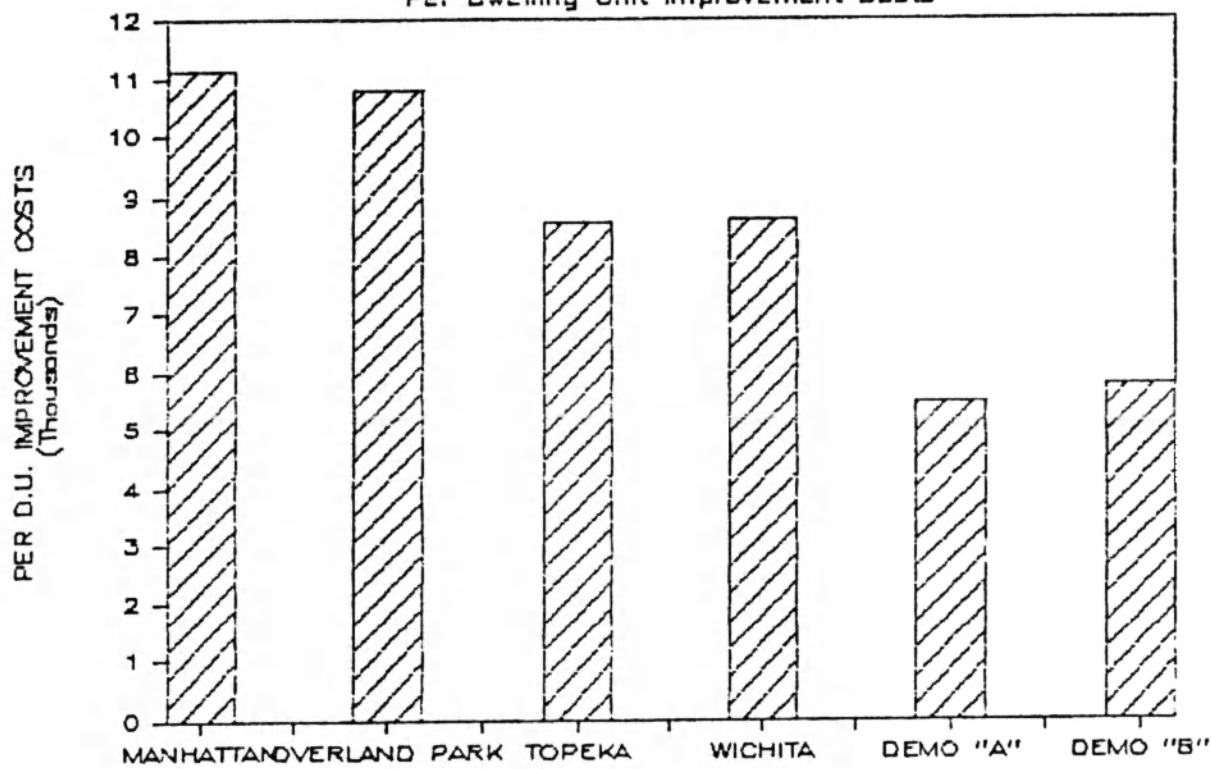


Figure 40

COST COMPARISONS
Per Dwelling Unit Costs (Breakdowns)

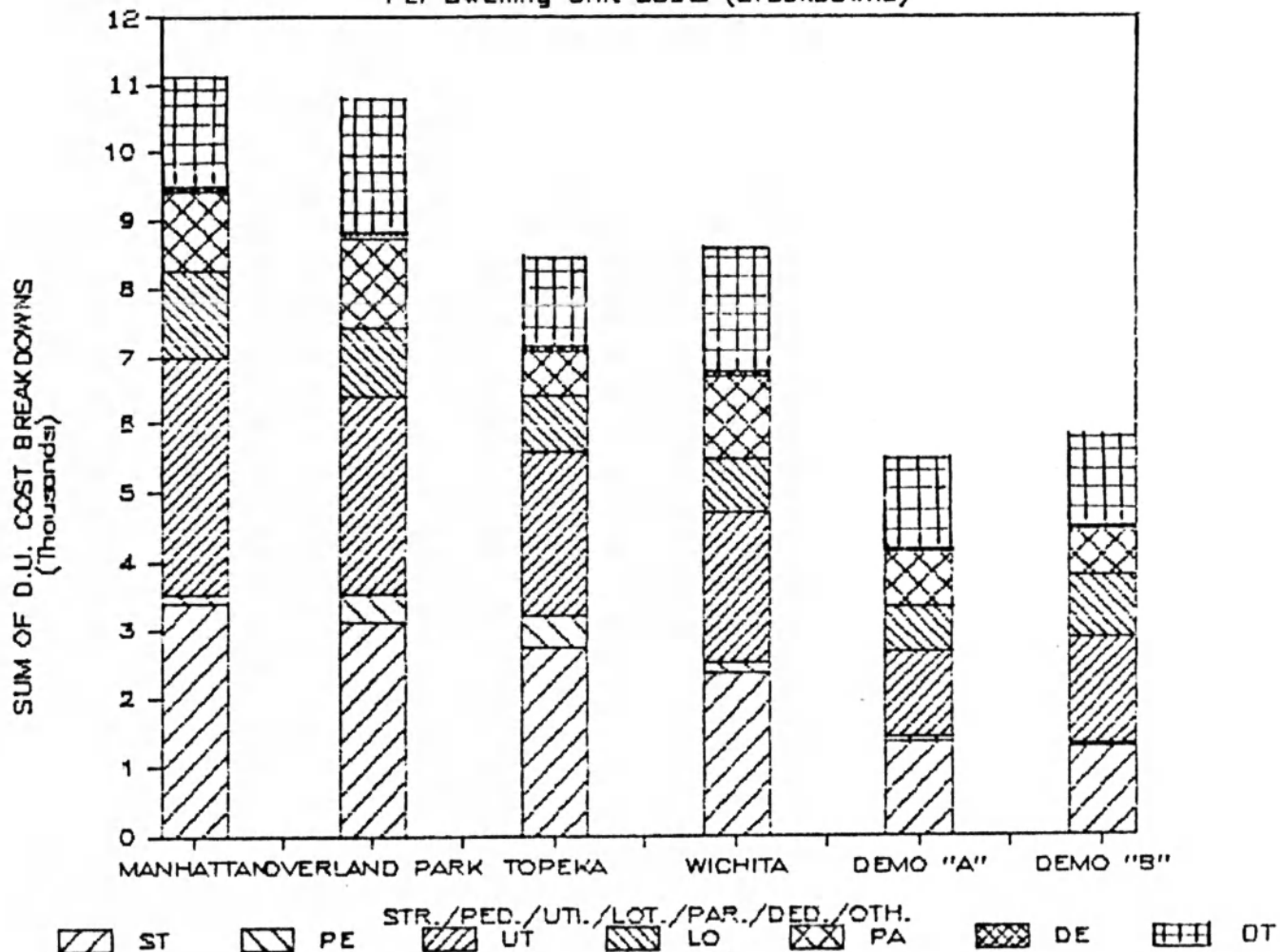


Figure 41

COST COMPARISONS: OVERALL COMPARISONS							
STUDY AREA	MIN. LOT SIZE	OVERALL DENSITY	TOT. DEV. COST	PER UNIT COST	FINISHED COST	MONTHLY PAYMENT	QUAL. INCOME
MANHATTAN	10,000 s. f.	104 d. u.	\$1,157,214.36	\$11,127.06	\$79,657.06	\$834.80	\$40,070.40
OVERLAND PARK	8,000 s. f.	126 d. u.	\$1,359,584.35	\$10,790.35	\$79,320.35	\$831.37	\$39,905.76
TOPEKA	6,500 s. f.	152 d. u.	\$1,299,988.07	\$8,552.55	\$77,082.55	\$808.62	\$38,813.76
WICHITA	6,000 s. f.	167 d. u.	\$1,439,217.40	\$8,618.06	\$77,148.06	\$809.29	\$38,845.92
DEMO "A"	5,000 s. f.	212 d. u.	\$1,159,744.85	\$5,470.49	\$74,000.49	\$777.30	\$37,310.40
DEMO "B"	5,000 s. f.	231 d. u.	\$1,333,877.78	\$5,774.36	\$74,304.36	\$780.38	\$37,458.24

Figure 42

The preceding summary information was utilized in the development of the following observations:

Street Systems:

* Manhattan's total category cost ranked third, but its per dwelling unit cost ranked sixth, which was the highest per unit cost.

* Overland Park's total category cost ranked fifth as did its per dwelling unit cost.

* Topeka's total category cost ranked sixth, the highest cost, but its per dwelling unit cost ranked fourth.

* Wichita's total category cost ranked fourth, but its per dwelling unit cost ranked third.

* Demonstration "A"'s total category cost ranked first, the lowest cost, but its per dwelling unit cost ranked second.

* Demonstration "B"'s total category cost ranked second, but its per dwelling unit cost ranked first, the lowest cost.

Pedestrian Systems:

* Manhattan's total category cost tied with Demonstration "A" and "B" for the number one ranking, which is the lowest cost, but its per dwelling unit cost ranked third.

* Overland Park's total category cost ranked fifth as did its per dwelling unit cost.

* Topeka's total category cost ranked sixth, the highest cost, as did its per dwelling unit cost.

* Wichita's total category cost ranked fourth as did its per dwelling unit cost.

* Demonstration "A"'s total category cost tied with Demonstration "B" and Manhattan for the number one ranking, which is the lowest cost, but its per dwelling unit cost ranked second.

* Demonstration "B"'s total category cost tied with Demonstration "A" and Manhattan for the number one ranking, which is the lowest cost, and ranked number one in per dwelling unit cost as well.

Utility Systems:

* The total category costs for Utility Systems were identical with the exception of Demonstration "A", which had a lower cost due to the utilization of "natural" grass-lined swales for storm water runoff.

* Rankings for per dwelling unit costs within this major category are as follows: Demonstration "A" ranked number one, with the lowest cost, followed by Demonstration "B", Wichita, Topeka, Overland Park and Manhattan, which ranked sixth, and required the highest cost.

Lot Requirements:

* Manhattan's total category cost ranked fourth, but its per dwelling unit cost ranked sixth, requiring the highest cost.

* Overland Park's total category cost ranked third, but its per dwelling unit cost ranked fifth.

* Topeka's total category cost ranked first, the lowest cost, but its per dwelling unit cost ranked third.

* Wichita's total category cost ranked second, as did its per dwelling unit cost.

* Demonstration "A"'s total category cost ranked fifth, but its per dwelling unit cost ranked first, with the lowest cost.

* Demonstration "B"'s total category cost ranked sixth, the highest cost, but its per dwelling unit cost ranked fourth.

Dwelling Unit and Development Type Requirements:

* No costs were assigned to this major category of requirements.

Parking Requirements:

* Manhattan's total category cost ranked second, but its per dwelling unit cost ranked fourth.

* Overland Park's total category cost ranked fourth, but its per dwelling unit cost ranked sixth, the highest cost.

* Topeka's total category cost ranked first, the lowest cost, but its per dwelling cost ranked second.

* Wichita's total category cost ranked sixth, the highest cost, but its per dwelling unit cost ranked fifth.

* Demonstration "A"'s total category cost ranked fifth, but its per dwelling unit cost ranked third.

* Demonstration "B"'s total category cost ranked third, but its per dwelling unit cost ranked first, the lowest cost.

Dedication Requirements:

* The total category costs for Dedication Requirements were identical. This resulted from the fact that "variable" Open Space requirements fell within street right-of-ways. Therefore, such requirements were not considered as part of the Open Space

dedication requirements, but rather, as part of street right-of-way requirements. This left the "fixed" Open Space areas and values constant for each case study.

* Rankings for per dwelling unit costs within this major category are as follows: Demonstration "B" ranked number one, with the lowest cost, followed by Demonstration "A", Wichita, Topeka, Overland Park, and Manhattan, which ranked sixth, and required the highest cost.

Other Requirements:

* Manhattan's total category cost ranked first, the lowest cost, but its per dwelling unit cost ranked fourth.

* Overland Park's total category cost ranked third, but its per dwelling unit cost ranked sixth, the highest per unit cost.

* Topeka's total category cost ranked second, but its per dwelling unit cost ranked third.

* Wichita's total category cost ranked sixth, the highest cost, but its per dwelling unit cost ranked fifth.

* Demonstration "A"'s total category cost ranked fourth, but its dwelling unit cost ranked second.

* Demonstration "B"'s total category cost ranked fifth, but its per dwelling unit cost ranked first, providing the lowest cost.

Overall Observations:

* Manhattan required the largest minimum lot size and had the lowest overall density. It had the lowest total development cost, but the highest per dwelling unit improvement cost. Manhattan required the highest finished unit cost, total monthly payment and total qualifying income.

* Overland Park required the second largest minimum lot size and had the second lowest overall density. It had the second highest total development cost and the second highest per dwelling unit improvement cost. Overland Park required the second highest finished unit cost, total monthly payment and total qualifying income.

* Topeka required the third largest minimum lot size and had the third lowest overall density. It had the fourth highest total development cost and fourth highest per dwelling unit improvement cost. Topeka required the fourth highest finished unit cost, total monthly payment and total qualifying income.

* Wichita required the fourth largest minimum lot size and had the fourth lowest overall density. It had, however, the highest total development cost, but only the third highest per dwelling unit improvement cost. Wichita required the third highest

finished unit cost, total monthly payment, and total qualifying income.

* Demonstration "A" tied with Demonstration "B" for the smallest required minimum lot size and had the fifth lowest, or second highest overall density. It had the fifth highest, or second lowest, total development cost and the lowest per dwelling unit improvement cost. Demonstration "A" required the lowest finished unit cost, total monthly payment and total qualifying income.

* Demonstration "B" tied with Demonstration "A" for the smallest required minimum lot size and had the highest overall density. It had the third highest total development cost, but only the fifth highest or second lowest per dwelling unit improvement cost. Demonstration "B" required the fifth highest, or second lowest finished unit cost, total monthly payment and total qualifying income.

CHAPTER FOUR; RESULTS, CONCLUSIONS & RECOMMENDATIONS

Results and Conclusions

The results and conclusions that follow have been developed solely within the context of the stated objectives of this study. For the readers convenience, objectives will be briefly restated prior to the discussion of related results and conclusions. Discussion will begin with the Preliminary Evaluation Matrix, followed by the Quantitative Evaluation Matrix and the Overall study objectives. In this way, the more specific areas of the study will be more directly linked to the Overall results and conclusions.

P.E.M. Objectives

To allow the investigator to become familiar with the structure and emphasis of individual zoning and subdivision ordinances in the "broad" sense, and;

To highlight specific requirements and/or categories of requirements that are, by definition, inflexible and/or excessive, and;

To show the range of variance of excessiveness and/or inflexibility, where applicable, between the case studies, and;

To provide a general indication of the severity of the problem with respect to housing costs and affordability, and;

To target specific requirements and/or categories of requirements for more detailed investigation via the Quantitative Evaluation Matrix.

P.E.M. Results and Conclusions

By utilizing the scoring system developed around the definitions of flexibility and excessiveness, the Preliminary Evaluation Matrix, (P.E.M.), was able to highlight various degrees of inflexibility and excessiveness that existed within the actual zoning and subdivision ordinance requirements evaluated for

this study. The entire process provided the investigator the familiarity with the structure and emphasis of the various zoning and subdivision ordinances, in advance of the more detailed cost analysis via the Quantitative Evaluation Matrix.

"Cost/Affordability" scores revealed that requirements for "Street System" improvements and "Parking" received the lowest scores while requirements for "Dedications" and "Other" requirements received the highest scores. Based upon these findings, it would appear that "Street System" and "Parking" requirements within the four case study jurisdictions evaluated tend to be least flexible and most excessive, while requirements for "Dedications" and "Other" requirements tend to be more flexible and least excessive.

"Cost/Affordability" scores displayed a wider range of variance at the major category level than they did at the Overall level. Given the range of values from one (1) to five (5), overall scores for the four case study jurisdictions evaluated typically fell close to the middle. These values ranged from a low of 2.3 for Wichita to a high of 2.6 for Manhattan. These findings would indicate that; although major categories of requirements varied in their degrees of inflexibility and excessiveness from jurisdiction to jurisdiction, all four jurisdictions were experiencing very similar overall levels of inflexibility and excessiveness within their zoning and subdivision ordinance requirements.

Accepting, for the time being, that higher scores (ie: most flexible, least excessive) offer the greatest potential for lower costs and higher levels of affordability, preliminary findings

would indicate that lower housing costs and subsequently higher levels of affordability are possible within the four case study jurisdictions evaluated.

Categories of requirements in most immediate need of attention would appear to be "Street Systems" and "Parking" requirements with "Lot" requirements a close third. Thus, problems of inflexibility and excessiveness within the zoning and subdivision regulations evaluated should clearly be of concern within each jurisdiction.

Q.E.M. Objectives

To determine the actual costs of specific requirements within the context of the "test" development, and;

To show the range of variance of costs between the case studies, and;

To indicate the degree to which specific requirements of zoning and subdivision ordinances affect the cost of housing, and;

To determine whether the findings of the Quantitative Evaluation Matrix are consistent with those of the Preliminary Evaluation Matrix.

Q.E.M. Results and Conclusions

The determination of actual costs, as applied to the "test" development, was facilitated quite nicely by the Quantitative Evaluation Matrix for "individual" requirements, "categories" of requirements, and "total development cost". The Q.E.M. revealed that the city of Manhattan, Kansas required the lowest total development cost of all the case studies evaluated. However, "total development cost" as an indicator of housing affordability proved to be quite misleading. In fact, Manhattan, having the lowest "total development cost", actually required the highest "per unit improvement cost", "finished unit cost", "monthly payment" and "qualifying annual income". This appeared to be a

direct result of "minimum lot size" requirements and subsequent overall density. That is, the "overall density" of the development appeared to be a much better indicator of housing affordability than did "total development cost". Generally, results revealed that higher densities produced lower per unit costs and higher levels of affordability.

The range of variance of costs between the case studies and the degree to which requirements of zoning and subdivision ordinances affect the cost of housing was also revealed through the Quantitative Evaluation Matrix. Results showed that between the four actual case study jurisdictions, Manhattan required the highest costs while Topeka required the lowest costs. When all six case studies were considered, however, "Demonstration A and B", having incorporated increased levels of flexibility and decreased levels of excessiveness provided clearly more affordable solutions. "Demonstration A" required the lowest cost of all six case studies evaluated. In a comparison of the three key case studies (ie: Manhattan, Topeka and Demonstration "A") several significant findings were revealed.

When comparing the "finished unit cost", "monthly payment" and "qualifying annual income" between Manhattan, requiring the highest cost, and Demonstration "A", requiring the lowest cost, a difference of approximately seven (7) percent was found. This amounts to a difference of \$5,656.57 in "finished cost", \$57.50 in "monthly payment" and \$2,760.00 in "qualifying annual income". When comparing the same figures for Topeka, requiring the lowest actual case study jurisdiction cost, and Demonstration "A" requiring the lowest overall cost, one still finds a difference of

nearly four (4) percent. This amounts to a difference of \$3,082.06 in "finished unit cost", \$31.32 in "monthly payment" and \$1,503.36 in "qualifying annual income". Based upon these figures, it is clear that basic protection of public health safety and welfare can cost the consumer a good deal more depending upon the jurisdiction within which he lives. Perhaps more importantly, however, is the fact that these costs can apparently be reduced to provide greater levels of housing affordability without adversely affecting public health, safety and welfare.

Finally, the consistency between the findings of the Quantitative Evaluation Matrix and the Preliminary Evaluation Matrix, although not absolute, were encouraging. For example: Of the eight major categories of requirements, five could be directly compared (ie: "Street Systems", "Pedestrian Systems", "Lot Requirements", "Parking Requirements", "Other Requirements"). (Note: "Dwelling Unit and Development Type Requirements" were not evaluated Quantitatively and "Utility Systems" were not evaluated Preliminarily. The third major category of "Dedication Requirements" could not be compared as quantitative values were identical - see explanation in the "Case Studies" chapter - while the preliminary scores varied.) Of these five major categories, three (ie: "Street Systems", "Pedestrian Systems" and "Parking Requirements") showed a strong inverse relationship. That is, as preliminary scores increased, costs decreased. With the remaining categories (ie: "Lot Requirements" and "Other Requirements") it would appear that the affects of changing densities negated any relationships that may have otherwise existed. Recalling P.E.M. results, however, "Street Systems" and "Parking" requirements

received the lowest scores while "Dedication" and "Other" requirements received "higher" scores. J.E.M. results revealed that in fact, when all six case studies were considered, combined costs for "Street" and "Parking" Requirements averaged 38.25% of total cost while "Dedication" and "Other" requirements averaged only 20.26%. Additionally, as one compares the "overall scores" of the P.E.M. with the "total development cost" of the J.E.M., a perfect inverse relationship is revealed. These findings coupled with the reduced cost achieved by the Demonstration "A" and "B" requirements - which incorporated increased flexibility and decreased excessiveness - tend to support the idea that elements of inflexibility and excessiveness can work to prevent a zoning or subdivision ordinance requirement from providing basic protection of health, safety and welfare in a cost efficient manner.

Overall Study Objectives

To demonstrate that local zoning and subdivision ordinances currently in use, contain many land use and development requirements which add unnecessarily to the finished cost of a home, and thereby directly affect housing affordability, and;

To demonstrate that unnecessary cost results largely from the inability of a requirement to achieve its intended purpose in a cost efficient manner, and;

To demonstrate that the inability of a requirement to achieve its intended purpose is determined to a large extent by the relative degree of flexibility and/or excessiveness contained within the requirement.

Overall Results and Conclusions

Based upon the findings of both the Preliminary and Quantitative Evaluation Matrices, it appears that local regulation, in the form of zoning and subdivision ordinance requirements is adding unnecessarily to the finished cost of a home.

As one considers the purpose of such regulation, that is, the protection of basic health, safety and welfare, it is clear that Wichita, for example, provides its residents that protection at significantly lower costs than does Manhattan. If, hypothetically, a person lived in a city whose requirements reflected those of the Demonstration "A" case study, the protection of his health, safety and welfare would cost even less. Thus, unnecessary cost appears to result from the inability of a requirement to achieve its intended purpose in a cost efficient manner.

Although "Street" and "Parking" requirements were cited earlier as needing revision, it would appear that overall density via minimum lot size was the key to providing higher levels of affordability. The Manhattan and Wichita case studies provide an excellent example of the affects of increased density on finished unit cost. Manhattan required the lowest total development cost. However, as a result of its large minimum lot size and subsequent low overall density, Manhattan's finished unit cost was more than \$2,500.00 higher than Wichita's finished unit cost. (Wichita required a lower minimum lot size which resulted in a higher overall density.) Thus, the excessive nature of Manhattan's minimum lot size had a major influence on the cost efficiency of the requirement. On the other hand, the increased flexibility within Manhattan's "Pedestrian System" requirements helped reduce by 50 percent the cost of those improvements over Wichita's less flexible "Pedestrian System" requirements. Therefore, it would appear that the relative degree of flexibility and/or

excessiveness of a requirement does prevent that requirement from achieving its intended purpose in a cost efficient manner.

Recommendation for Future Study

During the preparation of this study it became quite apparent that there are numerous areas related to government regulation and housing cost that are in desperate need of study. Reducing administrative delays, eliminating regulatory constraints, and finding more equitable ways of allocating the costs of development between the public and private sectors are but a few of the more pressing areas of concern.

Most urgent, in this author's opinion, however, is the need to research and develop flexible cost-efficient standards for every major category of regulatory requirements. Such requirements would address not only health, safety and welfare issues, but also issues of affordability. As Green, (1968:464) states:

"The governmental unit should recognize that in making a particular requirement it may be removing an element of choice from the purchaser - requiring him to pay for curbs, gutters, sidewalks, and street trees instead of an extra room on his house."

Unfortunately, in today's economy, that choice may have already been narrowed from adding on an extra room, to the ability to own a home at all.

With respect to the issue of researching and developing new standards, it is the author's opinion that more emphasis needs to be placed on ways of improving the physically oriented requirements of subdivision ordinances. One approach may be to study the public or public agencies willingness to change a

requirement based upon their perception of its physical or spatial characteristics. Sanders, and others, (1984) determined that while changes were taking place within zoning ordinance requirements - which tend to be more spatially oriented, the physically oriented requirements of subdivision ordinances remain largely unchanged. Assuming this reluctance to change subdivision ordinance requirements is typical across the country, jurisdictions are ignoring a major area of potential cost savings to the consumer as well as the jurisdiction. Thus, research efforts must address these areas in an effort to determine the extent to which improvements in conventional standards can lead to reduced cost and higher levels of affordability for housing consumers.

REFERENCES

- Becker, William E. "Back to the Future." Builder, October 1985, pp. 38.
- Council on Development Choices for the '80s. The Affordable Community: Growth Change and Choice in the '80s. Washington, D.C.: U.S. Government Printing Office, 1980.
- Fisher, E. Lee. An Approach for the 80's: Affordable Housing Demonstration. Washington, D.C.: HUD Office of Policy Development and Research (or) NAHB National Association of Home Builders, date unknown.
- Ford, Kristina. "Afterword--A Guide to Cost Conversion." In Housing Costs & Government Regulations: Confronting the Regulatory Maze, pp. 317-354. Written By Stephen R. Seidel. New Brunswick: The Center for Urban Policy Research, 1978.
- Green, Phillip P., Jr. "Land Subdivision." In Principles and Practice of Urban Planning. pp. 443-484. Edited by William I. Goodman. Washington, D.C.: International City Managers' Association, 1968.
- Hartman, Chester ed. America's Housing Crisis What is to be Done. Boston: Routledge & Kegan Paul, 1983.
- Hoben, James E. Affordable Housing: What States Can Do. Germantown: U.S. Department of Housing and Urban Development, 1982.
- Kansas, Department of Economic Development, Community Profile: Manhattan, Kansas. February, 1985.
- Kansas, Department of Economic Development, Community Profile: Overland Park, Kansas. April, 1982.
- Kansas, Department of Economic Development, Community Profile: Topeka, Kansas. February, 1982.
- Kansas, Department of Economic Development, Community Profile: Wichita, Kansas. April, 1982.
- Land Design/Research, Inc. Cost Effective Site Planning Single Family Development. Washington, D.C.: NAHB National Association of Home Builders, 1976.
- Land Design/Research, Inc. Planning for Housing. Washington, D.C.: NAHB National Association of Home Builders, 1980.
- Leary, Robert M. "Zoning." In Principles and Practice of Urban Planning, pp. 403-42. Edited by William I. Goodman. Washington, D.C.: International City Managers' Association, 1968.

- Mosena, David R. "Downsizing Gracefully." Planning, January 1984, pp. 9-15.
- Murphy, Michael J. Reforming Local Development Regulations: Approaches In Five Cities. Washington, D.C.: International City Management Association, 1982.
- Murray, Wendy A., ed. Kansas Statistical Abstract 1984-85. Lawrence: Institute for Public Policy and Business Research, 1985.
- NAHB Research Foundation, Inc. The Affordable Housing Demonstration Phoenix, Arizona A Case Study. Rockville: NAHB Research Foundation, Inc. (or) Washington, D.C.: HUD Office of Policy Development and Research, 1984.
- Ontario, Ministry of Housing, Local Planning Policy Branch. Urban Development Standards A Demonstration of the Potential for Reducing Costs. Toronto: Ontario Government Bookstore, 1976.
- Pfister, John. "1983 Homebuyers' Survey: Single-Family Housing Comeback." The Guarantor, January/February 1984, pp. 12-13. "cited by" Welford Sanders and others. Affordable Single Family Housing A Review of Development Standards. Chicago: APF American Planning Association, 1984.
- Porter, Douglas R., and Susan Cole. Affordable Housing: Twenty Examples from the Private Sector. Washington, D.C.: ULI Urban Land Institute, 1980.
- Sagalyn, Lynne B., and George Sternlieb. Zoning and Housing Costs The Impact of Land Use Controls on Housing Price. New Brunswick: Center for Urban Policy Research, 1973.
- Sanders, Welford, and David Mosena. Changing Development Standards for Affordable Housing. Chicago: APF American Planning Association, 1982.
- Sanders, Welford, and others. Affordable Single Family Housing A Review of Development Standards. Chicago: APF American Planning Association, 1984.
- Seidel, Stephen R. Housing Costs & Government Regulations: Confronting the Regulatory Maze. New Brunswick: Center for Urban Policy Research, 1978.
- Smith, Margaret A. State Policies for Affordable Housing A Legislator's Guide. Denver: the National Conference of State Legislatures, 1983.
- Spink, Frank H., Jr. "Forward." In Housing Supply & Affordability, pp. iii. Edited by Frank Schnidman & Jane A. Silverman. Washington, D.C.: ULI Urban Land Institute, 1983.
- Sternlieb, George and James W. Hughes. "Less Space, More Demand." Planning, January 1984, pp. 4-8.

- The Rice Center. A Review of Standards and Common Practices in Building Site Regulation: Technical Issues and Research Needs. Houston: The Rice Center, 1980.
- Updegrave, Walter. "Goodbye to the Detached House." Builder, January 1984, pp. 198-202. "cited by" Welford Sanders and others. Affordable Single Family Housing: A Review of Development Standards. Chicago: APA American Planning Association, 1984.
- U.S., Congress, House, Report of the National Commission on Urban Problems to the Congress and to the President of the United States: Building the American City, H. Doc. 91-34, 91st Cong., 1st sess., 1968, p. 203. "cited by" William Lamont, Jr. "Subdivision regulation and land conversion." In The Practice of Local Government Planning, pp. 389-415. Edited by Frank S. So. Washington, D.C.: International City Management Association, 1979.
- U.S., Department of Housing and Urban Development, Operation Breakthrough Questions and Answers. June 1970, pp. 1-2.
- U.S., Department of Housing and Urban Development, Proceedings of the HUD National Conference on Housing Costs, Reducing the Development Costs of Housing: Actions for State and Local Governments. Washington, D.C.: U.S. Government Printing Office, 1979.
- U.S., Department of Housing and Urban Development and NAHB National Association of Home Builders. Approach '80-F Search for Value. Germantown: HUD USER (or) Washington, D.C.: NAHB Land Use and Development Department, 1980.
- U.S., President's Committee on Urban Housing, (Edward Kaiser, Chairman), A Decent Home, (Washington, D.C.: Government Printing Office, 1968.) and National Commission on Urban Problems, (Paul Douglas, Chairman), Building the American City. (New York: Praeger Publishers, 1969.) "cited by" Stephen R. Seidel. Housing Costs & Government Regulations: Confronting the Regulatory Maze. p. 4. New Brunswick: Center for Urban Policy Research, 1978.
- Weitz, Stevenson. Affordable Housing: How Local Regulatory Improvements Can Help. Germantown: HUD USER, 1982.

APPENDIX "A"

CUL-DE-SAC TOTALS: MANHATTAN, KS.

CUL-DE-SAC NAME	SIDEWALK TOT. LINEAL FT.	CURBING TOT. LINEAL FT.	STEM PAVEMENT TOT. SQUARE FT.	TERM. PAVEMENT TOT. SQUARE FT.	STEM R.O.W. TOT. SQUARE FT.	TERM. R.O.W. TOT. SQUARE FT.
FARMINGDALE	none	496.35	3,807.00	3,957.19	5,200.00	7,850.00
DANBURY	none	686.35	6,399.00	3,957.19	10,200.00	7,850.00
ESSEX	none	381.35	2,268.00	3,957.19	1,950.00	7,850.00
MORNINGDALE	none	551.35	4,536.00	3,957.19	6,900.00	7,850.00
HUNTINGTON	none	526.35	4,239.00	3,957.19	6,250.00	7,850.00
FOX MEADOWS	none	1,228.00	10,233.00	6,831.00	18,850.00	10,000.00
DEERFIELD	none	1,078.00	8,478.00	6,318.00	15,250.00	10,000.00
LAUREL	none	493.00	243.00	7,533.00	750.00	10,875.00
SOMERSET	none	1,823.00	16,200.00	10,800.00	24,750.00	20,000.00
TOTAL (S)	0.00	7,263.75	56,403.00	51,267.95	90,100.00	90,125.00

CUL-DE-SAC TOTALS: OVERLAND PARK, KS.

CUL-DE-SAC NAME	SIDEWALK TOT. LINEAL FT.	CURBING TOT. LINEAL FT.	STEM PAVEMENT TOT. SQUARE FT.	TERM. PAVEMENT TOT. SQUARE FT.	STEM R.O.W. TOT. SQUARE FT.	TERM. R.O.W. TOT. SQUARE FT.
FARMINGDALE	474.94	504.94	3,822.00	4,775.94	4,950.00	7,850.00
DANBURY	664.94	694.94	6,510.00	4,775.94	9,950.00	7,850.00
ESSEX	359.94	389.94	2,226.00	4,775.94	1,700.00	7,850.00
MORNINGDALE	529.94	559.94	4,578.00	4,775.94	6,650.00	7,850.00
HUNTINGTON	504.94	534.94	4,270.00	4,775.94	6,000.00	7,850.00
FOX MEADOWS	1,044.00	1,214.00	10,486.00	7,084.00	18,600.00	10,000.00
DEERFIELD	894.00	1,064.00	8,606.00	6,552.00	15,000.00	10,000.00
LAUREL	309.00	479.00	126.00	7,812.00	500.00	10,875.00
SOMERSET	1,519.00	1,804.00	16,674.00	11,200.00	24,500.00	20,000.00
TOTAL (S)	6,300.70	7,245.70	57,358.00	56,527.70	87,850.00	90,125.00

CUL-DE-SAC TOTALS: TOPEKA, KS.

CUL-DE-SAC NAME	SIDEWALK TOT. LINEAL FT.	CURBING TOT. LINEAL FT.	STEM PAVEMENT TOT. SQUARE FT.	TERM. PAVEMENT TOT. SQUARE FT.	STEM R.O.W. TOT. SQUARE FT.	TERM. R.O.W. TOT. SQUARE FT.
FARMINGDALE	504.00	534.00	3,672.00	6,358.50	5,640.00	7,850.00
DANBURY	694.00	724.00	6,264.00	6,358.50	11,640.00	7,850.00
ESSEX	389.00	419.00	2,133.00	6,358.50	1,740.00	7,850.00
MORNINGDALE	559.00	589.00	4,401.00	6,358.50	7,680.00	7,850.00
HUNTINGTON	534.00	564.00	4,104.00	6,358.50	6,900.00	7,850.00
FOX MEADOWS	1,043.00	1,218.00	10,098.00	6,831.00	22,020.00	10,000.00
DEERFIELD	893.00	1,068.00	8,343.00	6,318.00	17,700.00	10,000.00
LAUREL	308.00	483.00	108.00	7,533.00	300.00	10,875.00
SOMERSET	1,518.00	1,813.00	17,255.00	11,600.00	29,100.00	20,000.00
TOTAL (S)	6,442.00	7,412.00	56,378.00	64,074.50	100,020.00	90,125.00

CUL-DE-SAC TOTALS: WICHITA, KS.

CUL-DE-SAC NAME	SIDEWALK TOT. LINEAL FT.	CURBING TOT. LINEAL FT.	STEM PAVEMENT TOT. SQUARE FT.	TERM. PAVEMENT TOT. SQUARE FT.	STEM R.O.W. TOT. SQUARE FT.	TERM. R.O.W. TOT. SQUARE FT.
FARMINGDALE	455.84	485.84	3,973.00	3,846.50	5,626.00	7,850.00
DANBURY	645.84	675.84	6,757.00	3,846.50	11,426.00	7,850.00
ESSEX	340.84	370.84	2,320.00	3,846.50	1,856.00	7,850.00
MORNINGDALE	510.84	540.84	4,756.00	3,846.50	7,598.00	7,850.00
HUNTINGTON	485.84	515.84	4,437.00	3,846.50	6,844.00	7,850.00
FOX MEADOWS	1,045.00	1,210.00	10,875.00	7,337.00	21,460.00	10,000.00
DEERFIELD	895.00	1,060.00	8,990.00	6,786.00	17,284.00	10,000.00
LAUREL	310.00	475.00	145.00	8,091.00	464.00	10,875.00
SOMERSET	1,520.00	1,795.00	17,284.00	11,600.00	28,304.00	20,000.00
TOTAL (S)	6,209.20	7,129.20	59,537.00	53,046.50	100,862.00	90,125.00

CUL-DE-SAC TOTALS: DEMONSTRATION "A"

CUL-DE-SAC NAME	SIDEWALK TOT. LINEAL FT.	CURBING TOT. LINEAL FT.	STEM PAVEMENT TOT. SQUARE FT.	TERM. PAVEMENT TOT. SQUARE FT.	STEM R.O.W. TOT. SQUARE FT.	TERM. R.O.W. TOT. SQUARE FT.
FARMINGDALE	none	none	2,850.00	2,826.00	4,000.00	5,024.00
DANBURY	none	none	4,770.00	2,826.00	8,000.00	5,024.00
ESSEX	none	none	1,710.00	2,826.00	1,400.00	5,024.00
MORNINGDALE	none	none	3,390.00	2,826.00	5,360.00	5,024.00
HUNTINGTON	none	none	3,170.00	2,826.00	4,840.00	5,024.00
FOX MEADOWS	none	none	7,610.00	5,060.00	14,920.00	10,000.00
DEERFIELD	none	none	6,310.00	4,680.00	12,040.00	10,000.00
LAUREL	none	none	210.00	5,580.00	440.00	10,875.00
SOMERSET	none	none	12,030.00	8,000.00	19,640.00	20,000.00
TOTAL (S)	0.00	0.00	42,050.00	37,450.00	70,640.00	75,995.00

CUL-DE-SAC TOTALS: DEMONSTRATION "B"

CUL-DE-SAC NAME	SIDEWALK TOT. LINEAL FT.	CURBING TOT. LINEAL FT.	STEM PAVEMENT TOT. SQUARE FT.	TERM. PAVEMENT TOT. SQUARE FT.	STEM R.O.W. TOT. SQUARE FT.	TERM. R.O.W. TOT. SQUARE FT.
FARMINGDALE	none	471.72	2,850.00	2,826.00	2,964.00	3,419.46
DANBURY	none	661.72	4,770.00	2,826.00	5,564.00	3,419.46
ESSEX	none	356.72	1,710.00	2,826.00	1,274.00	3,419.46
MORNINGDALE	none	526.72	3,390.00	2,826.00	3,848.00	3,419.46
HUNTINGTON	none	501.72	3,170.00	2,826.00	3,510.00	3,419.46
FOX MEADOWS	none	1,296.00	7,610.00	5,060.00	10,062.00	10,000.00
DEERFIELD	none	1,146.00	6,310.00	4,680.00	8,190.00	10,000.00
LAUREL	none	561.00	210.00	5,580.00	650.00	10,875.00
SOMERSET	none	1,941.00	12,030.00	8,000.00	13,130.00	20,000.00
TOTAL (S)	0.00	7,462.60	42,050.00	37,450.00	49,192.00	67,972.30

APPENDIX "B"

UTILITY SYSTEMS COST DATA

ITEM DESCRIPTION	QUANTITY:		COST:	COST:	CUMULATIVE
	TOTAL	UNIT(S)			
* STORM SEWERS					
A-10 combination inlet	each	6	\$1,857.50	\$11,145.00	
A-7.5 combination inlet	each	6	\$1,455.87	\$8,735.22	
A-2.5 combination inlet	each	1	\$893.75	\$893.75	
K.D.D.T. 230 lb. D.G. inlet	each	1	\$1,412.00	\$1,412.00	
K.D.D.T. 230 lb. inlet	each	3	\$1,005.00	\$3,015.00	
Grate inlet (Kimball)	each	2	\$1,005.00	\$2,010.00	
3' x 3' junction box	each	4	\$1,033.33	\$4,133.32	
3' x 6' junction box	each	1	\$1,400.00	\$1,400.00	
15" R.C.P.	lineal ft.	1,142	\$15.45	\$17,643.90	
18" R.C.P.	lineal ft.	389	\$17.99	\$6,998.11	
24" R.C.P.	lineal ft.	1,630	\$19.95	\$32,518.50	
24" x 38" R.C.H.E.P.	lineal ft.	196	\$54.75	\$10,731.00	
34" x 53" R.C.H.E.P.	lineal ft.	136	\$63.00	\$8,568.00	
38" x 60" R.C.H.E.P.	lineal ft.	60	\$82.03	\$4,921.80	
38" x 60" R.C.H.E.P. (end)	each	1	\$1,023.00	\$1,023.00	
4" N.R. conc. drain channel	square yd.	407	\$12.62	\$5,136.34	
					\$120,284.94
* SANITARY SEWERS					
12" sewer pipe (in place)	lineal ft.	1,465	\$17.31	\$25,359.15	
8" sewer pipe (in place)	lineal ft.	5,276	\$12.29	\$64,842.04	
4" sewer pipe (in place)	lineal ft.	2,424	\$9.61	\$23,294.64	
8" x 8" x 4" tee	each	73	\$31.96	\$2,333.08	
Standard manhole	each	20	\$852.47	\$17,049.40	
Standard M.H. (extra depth)	vertical ft.	91	\$53.42	\$4,861.22	
Drop manhole's	each	6	\$1,189.87	\$7,139.22	
Shallow manhole	each	2	\$870.88	\$1,741.76	
4" drop lateral	lump sum	2	\$182.37	\$364.74	
Concrete encasement	cubic yd.	6	\$10.00	\$60.00	
					\$147,045.25
* WATER SYSTEM					
12" pipe in place	lineal ft.	782	\$25.81	\$20,183.42	
8" pipe in place	lineal ft.	1,596	\$12.64	\$20,173.44	
6" pipe in place	lineal ft.	617	\$10.98	\$6,774.66	
4" pipe in place	lineal ft.	2,178	\$9.75	\$21,235.50	
24" x 24" x 12" tapping sleeve					
8 12" gate valve w/box	each	1	\$3,273.75	\$3,273.75	
12" x 12" x 8" x 8" cross	each	1	\$388.00	\$388.00	
8" x 8" x 6" tee	each	2	\$264.38	\$528.76	
8" x 8" x 4" tee	each	6	\$247.25	\$1,483.50	
3 way 5 1/4" F.H. setting	each	1	\$1,534.83	\$1,534.83	
2 way 4 1/4" F.H. setting	each	7	\$1,041.54	\$7,290.78	
12" gate valve w/box	each	1	\$1,085.70	\$1,085.70	
8" gate valve w/box	each	3	\$617.61	\$1,852.83	
6" gate valve w/box	each	2	\$416.07	\$832.14	
4" gate valve w/box	each	6	\$415.00	\$2,490.00	
6" 22 1/2 degree bend	each	3	\$132.00	\$396.00	
6" 90 degree bend	each	1	\$550.00	\$550.00	
12" plug	each	1	\$147.20	\$147.20	
8" plug	each	2	\$108.96	\$217.92	
4" plug	each	8	\$86.13	\$689.04	
6" x 4" reducer	each	2	\$101.35	\$202.70	
					\$91,330.17
GRAND TOTAL:					\$358,660.36

APPENDIX "C"

SELECTED BIBLIOGRAPHY

- American Planning Association, (Vranicar, Sanders, Mosen). Streamlining Land Use Regulation & Guidebook for Local Governments. Washington, D.C.: HUD U.S. Department of Housing and Urban Development, 1980.
- Dowall, David E., and John D. Landis. "Land-Use Controls and Housing Costs: An Examination of San Francisco Bay Area Communities." A.R.E.U.E.A. Journal, Vol. 10, 1982, pp. 67-93.
- Downs, Anthony. "Public Policy and the Rising Cost of Housing." Real Estate Review, Vol. 8, No. 1, Spr.-Win. 1978-79, pp. 27-38.
- Feldman, Jay H. Subdivision Regulation Handbook NAHB Land Development Series. Washington, D.C.: NAHB National Association of Home Builders, 1978.
- Goldman, Ellis G., and Charles G. Field. "Summary of an Article on Reforming Land-Use Regulations." A.R.E.U.E.A. Journal, Vol. 11, No. 2, 1983, pp. 300-319.
- Hershey, Stuart S. Streamlining Local Regulations: A Handbook for Reducing Housing and Development Costs. Washington, D.C.: International City Management Association, 1983.
- "Housing Costs and Land Use Regulations: A Statement of U.L.I. Concern." Urban Land, Vol. 39, January 1980, pp. 24-25.
- Howenstine, E. Jay. Attacking Housing Costs: Foreign Policies and Strategies. New Brunswick: Center for Urban Policy Research, 1983.
- Jensen, David. Community Applications of Density, Design and Cost. Washington, D.C.: NAHB National Association of Home Builders, 1983.
- Jensen, David, and HOH Associates, Inc. Project Development Updates. Washington, D.C.: NAHB National Association of Home Builders, date unknown.
- Kolis, Annette, ed. Thirteen Perspectives on Regulatory Simplification. Washington, D.C.: ULI Urban Land Institute, 1979.
- Lozano, Eduardo E. "Technical Report: Housing Costs and Alternative Cost Reducing Policies." Journal of the American Institute of Planners, Vol. 38, No. 3, May 1972, pp. 176-181.
- NAHB Research Foundation. Building Affordable Homes & Cost Savings Guide for Builder/Developer. Washington, D.C.: HUD U.S. Department of Housing and Urban Development, date unknown.

- Nolon, John R. "Producing Affordable Housing Requires a Lead Role for Local Government." Journal of Housing, No. 37, December 1980, pp. 618-622.
- Sanders, Welford. The Cluster Subdivision: A Cost-Effective Approach. Chicago: APF American Planning Association, 1980.
- Sternlieb, George, and James W. Hughes. America's Housing: Prospects and Problems. New Brunswick: Center for Urban Policy Research, 1980.
- Steven Winter Associates. Home Building Cost Cuts Construction Methods and Materials for Affordable Housing. Washington, D.C.: HUD U.S. Department of Housing and Urban Development, 1981.
- Urban Land Institute, American Society of Civil Engineers, National Association of Home Builders. Residential Storm Water Management Objectives, Principles and Design Considerations. New York & Washington, D.C.: ULI/ASCE/NAHB, 1979.
- Urban Land Institute, American Society of Civil Engineers, National Association of Home Builders. Residential Streets Objectives, Principles and Design Considerations. New York & Washington, D.C.: ULI/ASCE/NAHB, 1979.
- Weidenbaum, Murray L. "Government Regulation and the Cost of Housing." Urban Land, Vol. 37, February 1978, pp. 4-6.

HOUSING AFFORDABILITY:
IMPACTS OF ZONING AND SUBDIVISION REGULATIONS

by

Kenneth Roland Howell, Jr.

B. S., Northern Arizona University, 1977

AN ABSTRACT OF A MASTER'S THESIS

submitted in partial fulfillment of the

requirements for the degree

MASTER OF LANDSCAPE ARCHITECTURE

Department of Landscape Architecture

KANSAS STATE UNIVERSITY
Manhattan, Kansas

1986

ABSTRACT

Over the past decade, the high cost of housing has affected millions of American households. The growing gap between family income and the price of a home has become the quintessential element of the affordable housing problem. The complexity of the problem has necessitated study of individual "component" costs. One such component, "government regulation" is the focus of this study. Specifically, this study focuses upon housing costs associated with requirements contained within local zoning and subdivision ordinances addressing single-family detached housing uses and/or developments. The primary objective was to demonstrate that such ordinances contain requirements which add unnecessarily to the finished cost of a home. Secondary objectives were to demonstrate that unnecessary cost resulted from the inability of requirements to protect basic health, safety and welfare in a cost efficient manner, and; that such inability was determined by the relative degree of flexibility and/or excessiveness of the requirements.

To implement the objectives, four case study jurisdictions were selected from which current zoning and subdivision ordinances were obtained. Applicable land use and development requirements were inventoried and organized into major categories. A Preliminary Evaluation Matrix was developed and utilized to assess the relative degree of flexibility and/or excessiveness of specific requirements. A Quantitative Evaluation Matrix was developed and utilized to determine the actual cost of specific requirements as applied to a "Test" development situation.

Additionally, "demonstration" requirements, incorporating increased flexibility and decreased excessiveness were developed, applied to the "test" development and quantitatively evaluated for comparative analysis.

Findings indicated that requirements of zoning and subdivision ordinances were, in fact, adding unnecessarily to the finished cost of a home, and; that such unnecessary cost resulted from the inability of the requirements to protect basic health, safety and welfare in a cost efficient manner, and; that elements of inflexibility and excessiveness can work to prevent requirements from providing such protection in a cost efficient manner. Additionally, findings revealed that overall density, via minimum lot size, was the key to providing higher levels of affordability. That is, higher densities produced lower per unit costs and higher levels of affordability.