

201
FEASIBILITY EVALUATION PROCESS FOR URBAN DEVELOPMENT PROJECTS--
A CASE STUDY OF THE WEST BANK DEVELOPMENT, WICHITA, KANSAS

by

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TABLE OF CONTENTS

	Page
LIST OF FIGURES	v
LIST OF TABLES	vii
INTRODUCTION	1
Chapter	
1. MIXED-USE DEVELOPMENT	4
I. ORIGIN OF MIXED-USE DEVELOPMENT	4
II. DEFINITION OF MIXED-USE DEVELOPMENT	5
III. ADVANTAGES AND PROBLEMS OF MIXED-USE DEVELOPMENT	5
IV. IMPLICATIONS OF MIXED-USE DEVELOPMENT	7
V. SCALE AND DENSITY OF MIXED-USE DEVELOPMENT	8
2. PREVIOUS OUTSTANDING URBAN DEVELOPMENT EXPERIENCE	9
I. CROWN CENTER, KANSAS CITY, MISSOURI	10
II. EMBARCADERO CENTER, SAN FRANCISCO, CALIFORNIA	15
III. KALAMAZOO CENTER, KALAMAZOO, MICHIGAN	21
IV. ILLINOIS CENTER, CHICAGO, ILLINOIS	26
3. DEVELOPMENT OF FEASIBILITY EVALUATION PROCESS FOR URBAN DEVELOPMENT PROJECTS	32
I. IMPLEMENTATION MODEL	33
II. ECONOMIC FEASIBILITY EVALUATION PROCESS	38

Chapter	Page
4. CASE STUDY--WEST BANK DEVELOPMENT	52
I. SCOPE	52
II. SITE LOCATION AND CONDITION	53
III. POTENTIAL AND INTENT OF THE PROJECT	53
IV. SITE ANALYSIS	60
V. MARKET ANALYSIS AND PROGRAMMING	70
VI. MASTER PLAN OF THE WEST BANK DEVELOPMENT	73
5. IMPLEMENTATION OF THE FEASIBILITY EVALUATION PROCESS ON THE WEST BANK DEVELOPMENT	84
I. DESIGN FEASIBILITY STUDY	84
II. ECONOMIC FEASIBILITY STUDY	88
CONCLUSION	104
BIBLIOGRAPHY	106

LIST OF FIGURES

Figure	Page
1. Crown Center Site Plan	12
2. Crown Center Model	13
3. Embarcadero Center Site Plan	17
4. Embarcadero Center Photograph	18
5. Kalamazoo Center Site Plan	24
6. Kalamazoo Center Photograph	25
7. Illinois Center Site Plan	28
8. Illinois Center Photograph	29
9. Implementation Model for Mixed-Use Development Project	34
10. Typical Cash Flow Curve	51
11. Location Map of the City of Wichita	54
12. West Bank Site Location	55
13. Aerial Photograph of the West Bank Site and Surrounding Area	56
14. Major Circulation	58
15. Existing Attractions	61
16. Site Photograph	63
17. Photograph of Former Pepsi Cola Bottling Company Site	63
18. Douglas Memorial Park	64
19. Policeman and Firefighter Memorial Park	64
20. Attractive Arkansas Riverfront	65

Figure	Page
21. Bike Route Along the River	65
22. Comprehensive Site Analysis	66
23. View from Site Toward Downtown	68
24. View from site Toward Arkansas River	68
25. Comprehensive Visual Analysis	69
26. Market Region	72
27. Master Plan of the West Bank Development	74
28. Model of the West Bank Development	79
29. Model of the West Bank Development	80
30. Schematic Diagram of the West Bank Development	85
31. Aerial Photograph at Completion	87
32. Major Construction Phasing Plan	90
33. Accumulated Construction and Management Principal	99

LIST OF TABLES

Table	Page
1. Crown Center Land Use Data	14
2. Embarcadero Center Land Use Data	19
3. Kalamazoo Center Land Use Data	22
4. Illinois Center Land Use Data	30
5. West Bank Development Land Use Data	82
6. West Bank Development Building Information	83
7. Land Value Estimate	93
8. Site Work Construction Cost Estimate	94
9. Building Construction Cost Estimate	95
10. Landscape Construction Cost Estimate	97
11. Summary of Land Value, Construction Cost, and Project Management Expenses Estimate	98
12. Annual Principal and Loan Interest Requirements	100
13. Appraised Value and Monthly Payment	101
14. Preliminary Cash Flow Statement	102

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INTRODUCTION

Since industrialization in the nineteenth century, urbanization has speeded up. Automobiles moved more people into urban areas than ever before in most of the industrialized nations. But during the past two decades, many central cities have been suffering a new trend--suburbanization and decentralization of both the urban population and many traditional urban functions. Quality housings, job opportunities, cultural activities, and shopping conveniences have spread to the suburban areas. In a forward by Charles A. Bleasing for Louis G. Redstone's book The New Downtowns, it said:

...Thus it is constantly emphasized that everyone who works in the CBD goes home at five o'clock after work, leaving an uninhabited, unloved, untended, dangerous core area--even less attractive, more insecure, and more disorganized in social and security terms. This threatened with collapse of the CBD may well be too heavy a piece for society to pay for the realization of heralded new multifunction satellite city, with the core eroding and threatened with collapse of its traditional retail and function, even though maintaining its banking, finance, government roles.¹

This raises several questions: Why have these problems occurred? What could all the city planners, urban designers, architects, and landscape architects do with these problems? What should the solution be--to bring in shopping convenience and other traditional central city functions by introducing housing into the core area, or to propose a new mixed-use development?

Through the study of many important urban development projects (such as:

¹Louis G. Redstone, The New Downtowns (New York: McGraw-Hill Book Company, 1976), P. xi.

Crown Center in Kansas City, Embarcadero Center in San Francisco, Kalamazoo Center in Kalamazoo, and Illinois Center in Chicago) come some excellent opportunities for learning. Although each development has occurred in different circumstances, which include the opportunities and constraints of each site, varied marketing potentials, and the objectives of specific developers, there are some general findings that can be outlined for future use despite varied circumstances.

Since most urban development projects are large enough to influence the economy of the central city and the region, a feasibility evaluation process should be constructed to evaluate those projects. Is the proposal worth carrying out? What will the advantages and disadvantages of the project be? What kind of economic return will be achieved after the completion of the development? These issues, and many others, could be examined closely by applying what I call the Feasibility Evaluation Process(FEP). It is the intention of this thesis to develop, and to test, the validity of this process. The West Bank Development of Wichita, Kansas, will serve as my original case study for this thesis.

The 39.16 acre West Bank site is on the west side of Arkansas River directly across from downtown Wichita. It is walking distance of approximately 10 minutes from the heart of downtown, via the Douglas Street Bridge and 1st-2nd Street Bridge. The Wichita Downtown Revitalization program has been underway for a long while and has involved considerable input from the city staff and the Technical Advisory Committee.² The Real Estate Research Corporation has also participated, being hired by the Wichita Urban Renewal Agency to conduct a comprehensive examination of the problems facing the downtown area and to

²The Technical Advisory Committee(TAC) was divided into three subcommittees(Administrative, Legislative, and Program) that held numerous working sessions to develop specific recommendations.

produce practical solutions that could be implemented by the officials and citizens of Wichita. The Real Estate Research Corporation concluded that downtown Wichita has maintained considerable vitality. The downtown is the focal point of office, financial, and governmental activities in the metropolitan area. But the number of firms, retail sales, and total employment show a negative trend in the past decade. One of the most important projects which the Real Estate Research Corporation recommended for downtown revitalization is the West Bank Development Project. The project will add a major draw for the downtown, anchor the west edge of the area, and provide a major focal point and major attraction in Downtown Wichita.

The purpose of this thesis is to propose the feasibility evaluation process which developed in the research stage on the West Bank Development Project, to find out if both the FEP and the development project have merit.

Chapter 1

MIXED-USE DEVELOPMENT

How to solve the deterioration problem of the central city area? This is the key question which this thesis intends to answer. There are several urban development proposals available today for this problem. Some cities are trying to redevelop a number of blocks, to create new and attractive open spaces, and to provide auto-free pedestrian plazas. Some cities planned new, enclosed, and climate-controlled shopping malls in CBD area. Some proposals call for constructing megastructures to provide more office spaces in downtown areas. These approaches are successfully bringing people into the core area but still cannot keep them around after five o'clock leaving an unloved, untended downtown. There is an effective urban development proposal--the mixed-use development--which combines shopping, recreation, office, convention, and housing functions to bring new life into the CBD.

I. ORIGIN OF MIXED-USE DEVELOPMENT

The concept of the mixed-use development wasn't born recently, it runs far back to the medieval market square, and even before that to the ancient Greek agora. The commercial and residential mix use in many 19th century European cities are also good examples.

Since the mid-1950s, people's shopping demands and the improvement of transportation systems made the regional shopping center gradually grow in size and number. The shopping center concept, the success of many European cities redevelopment, and downtown developments in the United States (such as: the Gruen

Plan for revitalization Fort Worth, the Rockefeller Center in New York City, and the Midtown Plaza in Rochester) manifested and encouraged the multiple function development concept. Shortly after the modern multiple function concept was utilized, the need for creating a more integrated mix and the need for the revitalization of downtown areas encourage the origination of the mixed-use development concept in the early 1960s.

II. DEFINITION OF MIXED-USE DEVELOPMENT

What is mixed-use development? What are the characteristics that differentiate the mixed-use developments from other forms of land developments? The Urban Land Institute's (ULI) Technical Bulletin Mixed-Use Developments: New Ways of Land Use defined the mixed-use development as follows:

A "mixed use development" means a relatively large-scale real estate project characterized by:

- . three or more significant revenue-producing uses (such as retail, office, residential, hotel/motel, and recreation--which in well-planned projects are mutually supporting);
- . significant functional and physical integration of project components (and thus a highly-intensive use of land), including uninterrupted pedestrian connections; and
- . development in conformance with a coherent plan (which frequently stipulates the type and scale of uses, permitted densities, and related items).³

This definition clearly identifies the three basic criteria of mixed-use development.

III. ADVANTAGES AND PROBLEMS OF MIXED-USE DEVELOPMENT

Upon reviewing some mixed-use development projects, I found explanations as to some projects "rescuing" the blighting and decaying downtowns, and how in

³Robert E. Witherspoon, John P. Abbet, and Robert M. Gladstone, Mixed-Use Developments: New Ways of Land Use (Washington, D.C.: The Urban Land Institute, 1976), P. 6.

other cases it didn't fair quite so well. The advantages and problems are presented here:

Advantages:

. Mixed-use development can lead to an efficient, enjoyable, and special-image environment which is relevant to human needs. These developments may become the residential, recreational, and commercial focal points for the CBD area. Most of the successful developments overcame blight conditions and created new and improved opportunities for the central core.

. Mixed-use development provides a means for organizing community growth and making a greater effect on CBD development than any other single-purpose project.

. Since mixed-use development keeps multiple-function components integrated and usually replace vehicle trips with walk trips, it tends to reduce energy requirements.

. Mixed-use development brings the residential, transient living, and various activities into the downtown area and keeps it alive after working hours.

. Mixed-use development creates new opportunities for the real estate development industry. It also has more advantages than conventional developments in terms of operation, community impact, and higher returns.

. Planned Unit Development (PUD) and other similar ordinances allow, and higher land value dictates, that mixed-use development has a significantly higher density than single-use development.

. Mixed-use development typically has higher rents, price levels, occupancy rates, and performance than single-purpose development projects.

. Mixed-use development can make substantial contributions to municipal revenues.

Problems:

. As discussed above in the ULI's definition, mixed-use development needs

a "coherent plan" which is frequently lacking in some development projects. This should include site plans, market analyses, cost estimates, phasing plans, and feasibility studies to guide the development and relationships among the components. Otherwise, unplanned mix use will result in a separate, non-integrated development.

- . Because mixed-use development always requires heavy front-end investments, many private institutions with limited planning skills, management capabilities, and capital resources will be incapable of successful planning and/or will have a higher investment risk.

- . Analyses of both in-house and consulting skills are required to carry out the entire period of mixed-use development.

IV. IMPLICATIONS OF MIXED-USE DEVELOPMENT

There are many profits and advantages which could be achieved through the development of mixed-use projects by the public sector. These include: increase local tax, revenue, a means for treating blight and decay in the central city, and as a means for organizing metropolitan growth. The development also required higher front-end costs, exceptional care on financing management, and land assembly over traditional real estate development. In many cases, the private real estate industry working on the mixed-use development needs the assistance of an active public sector to make a meaningful contribution to the community. Mentioned in the ULI's Mixed-Use Developments: New Ways of Land Use are other public sector roles in mixed-use development:

Among the possible public-sector roles are a variety of incentives to this end including: provision of parking; tax abatements; reducing land prices; modifying take-down schedules for renewal properties; provision of public amenities; construction of public improvements and facilities; reducing development standards as through incentive zoning; technical assistance to developers; marketing land more aggressively; and full exploration of funding sources including community development block grants,

general city funds, foundation support, business support, and tax increment financing.⁴

V. SCALE AND DENSITY OF MIXED-USE DEVELOPMENT

Since the 1960's, mixed-use development projects have become a new form of land use development. Initially, it only occurred in the metropolitan areas having populations of one million or more. Increasingly, mixed-use development began to spread into the medium and small sized cities and even in the suburbs at a smaller scale.

Whether or not a city is large in absolute numbers to support mixed-use development, the latter must be large enough in scale to allow the appropriate integration of mix uses, to include long-range plans for all major functions, and to create a distinctive market image. And, it needs a proper density to carry out the diversity of economic and social activities. A survey performed by the Urban Land Institute on over 80 mixed-use developments shows, there are no definite standards for all circumstances. However, they concluded:

While scale and density vary considerably from project-to-project, they tend to fall within an identifiable range:

- . Gross built area is probably the single best measure of scale for mixed use developments. It ranges from roughly 500,000 square feet to in excess of 30 million square feet.

- . Land areas are typically in the five to 50-acre range, but may be somewhat smaller or substantially larger.

- . Density, expressed as the FAR on a gross, project-wide basis, is substantially higher than for other development-types in comparable settings, ranging from roughly 3 to in excess of 10.

Within these broad bounds, the scale and density of mixed use developments are determined by a variety of local factors, including prevailing zoning; market considerations; and characteristics of the site.⁵

⁴Ibid., p. 15.

⁵Ibid., p. 47.

Chapter 2

PREVIOUS OUTSTANDING URBAN DEVELOPMENT EXPERIENCE

From looking at the new form of urban land use development--the mixed-use development--we can conclude that a well-planned mixed-use development always means a success in terms of vitality in the downtown area. In this chapter, we will survey some of the outstanding cases in which the mixed-use approach was used as the basis for a return to a pleasant, healthy, and beautiful environment, and served as a catalyst for the revitalization of the surrounding CBD area. The purpose of this survey is to summarize the especially effective and successful procedures which were implemented in these projects. Although the resources and constraints of this type of development is different from city to city, there are some general guidelines that can be outlined for future use.

The following cases were selected to illustrate unique factors in the development of mixed uses:

- . Working closely with a government agency, the privately-funded Crown Center demonstrates how a private developer revived a deteriorated area, which has become a focal point for the Kansas City metropolis.

- . By using elevated skywalks for the means of pedestrian movement within and between blocks, Embarcadero Center overcame the irregular site constraint and created synergistic relationships among mix use components.

- . The direct financial contribution from the community and the general support for the concept has been a key factor in the development of the Kalamazoo Center.

- . At the Illinois Center, the developer balanced market and financial

constraints with strict city-imposed project requirements--a particularly demanding process in a project of mixed-use development's scale and complexity.

What follows is a more detailed discussion of these development projects.

I. CROWN CENTER, KANSAS CITY, MISSOURI

Crown Center is a multimillion dollar mixed-use development project on an 85-acre site south of Kansas City's downtown area. It is an excellent example of the way in which a private developer can contribute to revitalizing deteriorated areas of the inner city. The entire project was financed and planned by the private sector--Crown Center Redevelopment Corporation, a subsidiary of Hallmark Cards, Inc. Development began in 1968.

The uses for the site include office space, a hotel, retail facilities, residential towers, parking, entertainment, and recreational components. Over a decade of planning was involved. The original concept was conceived by Joyce C. Hall, Founder of Hallmark Cards, Inc., and designed to redevelop 85 acres of deterioration near the company's international headquarters.

The intensive and careful planning process was aimed at creating a "total environment design" to meet virtually all of the people's daily needs. And the participation of some of the foremost urban design, architectural, feasibility analysis, and landscape architectural professionals in the country helped to achieve the quality image and desired economic revitalization contemplated for this site.

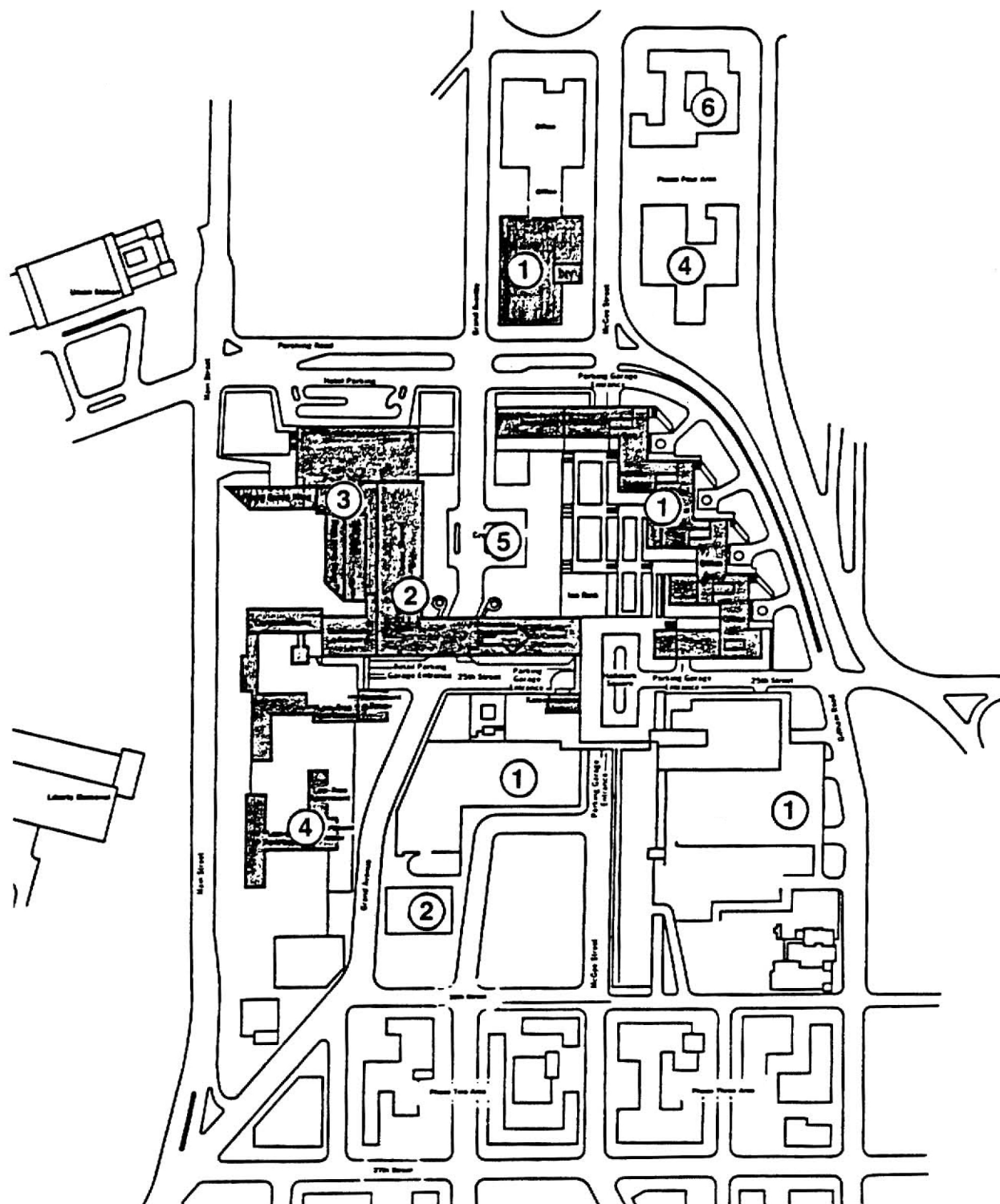
The master plan of Crown Center is a full range of mixed use development for commercial, residential, recreational, entertainment, and cultural functions. This is depicted in Figure 1 and Figure 2. Although the completion of the four-phased development program was set for 1985, the first phase already offers a complete land use mix which contains all components planned for Crown Center. The hilly terrace leading to the central landscape public square offers trees, grass,

flowers, large fountains, sculptures, specially-designed street furniture, lighting, and graphics. Office uses are contained in five seven-story interconnected office buildings, with a six-level underground garage for 2,300 cars on the site's eastern edge. Commercial uses are in a three-level shopping mall featuring 85 specialty shops and a department store. The mall adjoins a high-rise hotel on the western side of the 10-acre central plaza with underground parking for 4,000 cars. The Crown Center Hotel contains 728 rooms, restaurants, recreational and conference facilities, in a 20-story, L-shaped structure. The residential components contain 245 high-rise condominium units and low-rise rental units on the south-west side of the shopping mall. Table 1 shows additional land use data. After the Phase One completion in 1977, Crown Center became recognized as a total urban environment, a complete community with a dynamic mixed-use character and a quality image. The succeeding phases call for additional office, residential, and commercial developments according to current plans. This realistically-phased master plan, offering a complete mixed-use development, adequate financial resources provided by the patient developer, and the support and the assistance from government and the public have lead to a successful and growing Crown Center. All these efforts generated revitalization to the formerly deteriorated area and acceptable economic returns for its developers. From Keith Kelly, Vice President of Development of Crown Center Redevelopment Corporation, important aspects and experiences concerning the project includes:

- . A mix of uses had to be developed at a scale sufficient to create a market impact in the metropolitan area.

- . The Crown Center Hotel has been a key element in creating a 24-hour activity cycle and quality image. The hotel and the uniqueness of the attractive retail shops are important factors in aiding the market potential of the other components.

- . In Crown Center, the developer found that the hotel, retail stores,



1. Office Building
2. Retail Shops
3. Crown Center Hotel
4. Apartments
5. Crown Center Square
6. Motel

 Indicates First Phase



Figure 1 Crown Center Site Plan

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Figure 2 Crown Center Model. This view is toward the south, showing the Crown Center Hotel on the right, office buildings on the left, and retail shops bridging over Grand Avenue in the center.

Table 1*

Crown Center Land Use Data

<u>Components</u>	<u>Profile at Build Out (1985)</u>
Residential units	2,200 units
Office space	2,000,000 square feet
Retail space	520,000 square feet
Transient facilities	950 rooms
Parking spaces	7,400 spaces
Other components	Ten acre public plaza; Ice skating rink; Kaleidoscope; 35,000 Multimedia Forum; Health club and extensive recreational facilities.
Acreage:	85 acres
Gross Building Area (GBA):	8,150,000 square feet
Floor Area Ratio (FAR):	2.2
Total Development Costs:	\$350 million (1985)

*Source: Robert E. Witherspoon, John P. Abbet, and Robert M. Gladstone, Mixed-Use Developments: New Ways of Land Use (1976), P. 164.

office spaces, and residential uses were too much to develop at once. It was not necessary to have a simultaneous development of all uses to create an image and market impact. So, a detailed phasing plan was important for the mixed-use development.

. The linked relationship between the hotel and retail components generated a significant market synergy that resulted in an almost two-fold occupancy above what was originally expected.

. The long-term financial commitment from Hallmark Cards, Inc., provided substantial financial backing with very "patient" money, and the cooperation from local government, that helped by insuring timely and adequate site assembly, are the key factors that made Crown Center Development a success.

II. EMBARCADERO CENTER, SAN FRANCISCO, CALIFORNIA

The Embarcadero Center is an 8.5 acres mixed-use development site in the heart of San Francisco's CBD. It is part of the 51-acre Golden Gateway urban renewal project. The site was formerly an old, congested wholesale produce marketplace. The project is being developed by a private-enterprise partnership that brings together architect Trammel Crow, John Portman, David Rockefeller, and Prudential Insurance Company Realty Company--a subsidiary of Prudential Insurance Company. This owns, designs, develops, and operates all the components in Embarcadero Center.

Working closely with the city government, the development group began master planning the site in 1966. The master plan called for a mix of uses including office space, retail stores, a hotel, and open public areas which have beautifully-landscaped open plazas, sculptures, and fountains creating an aesthetically pleasing on-site environment. Figure 3 and Figure 4 show the Embarcadero Center site plan and its relationship to other parts of Golden Gateway Redevelopment. Instead of the typical San Francisco development pattern

of FAR of 15, the San Francisco Redevelopment Agency allowed a maximum of FAR of 10 for the Embarcadero Center. The city also dicated stringent parking and open space requirements. These force the commitment of the developer to allow one percent of total development costs to be allocated to exterior art work and sculpture.

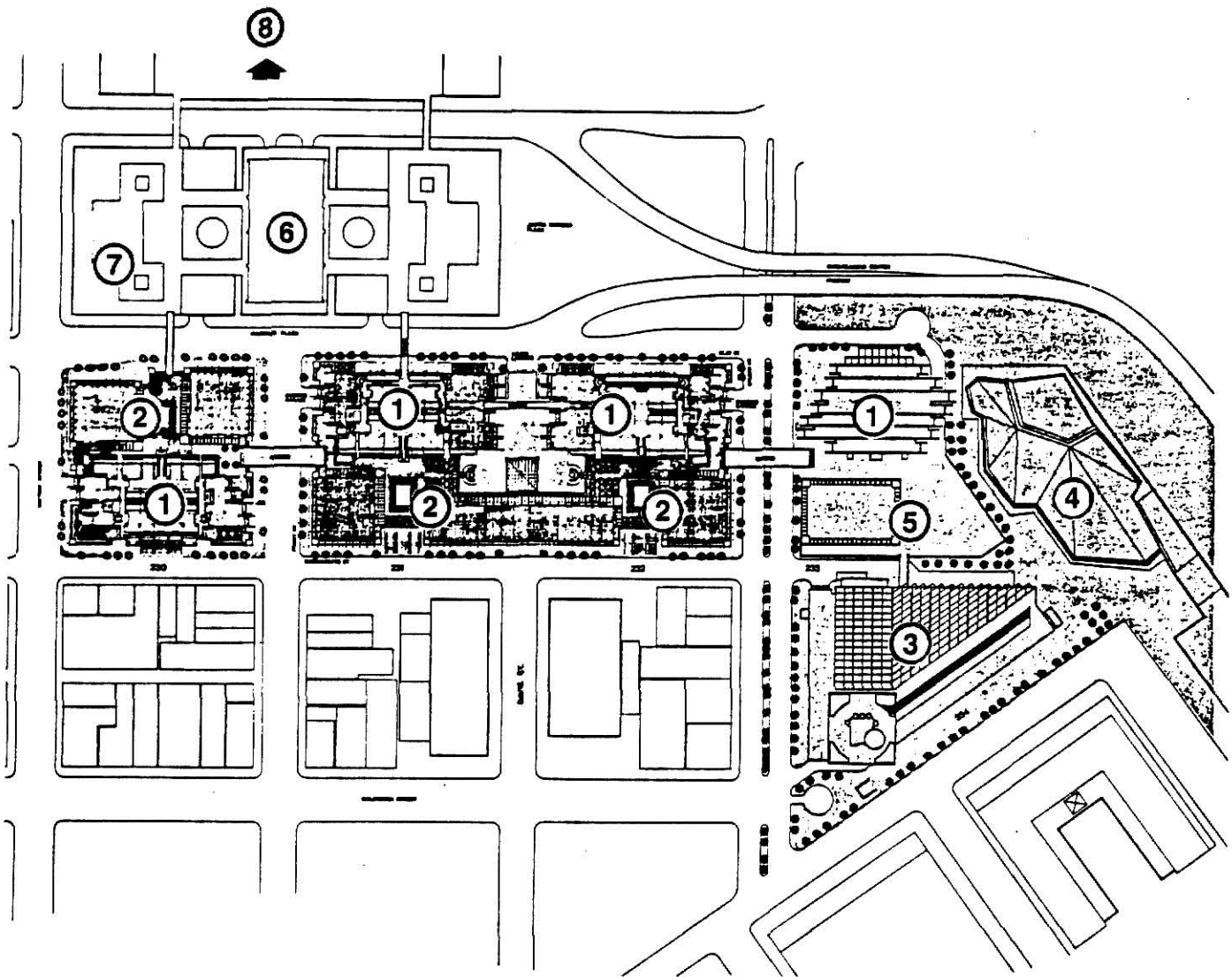
One of the most important features of the project is the seperation of pedestrian movements from vehicular traffic by elevated skywalks which link the entire five-block development. With the completion, and interconnections, of the skywalks with the rest of Golden Gateway Redevelopment, the pedestrians of all buildings will be able to walk through nearly 58 acres of downtown without the interruption of auto traffic. The skywalks, particularly in Embarcadero Center, were carefully located so the office building lobbies open onto second-level retail stores, with the ground-level shops fed by street movement. This insures all the three levels of retail shops would be marketable and attract and maintain a high office occupancy rate. Table 2 shows the land use data of Embarcadero Center. ULI summarized the success of Embarcadero Center:

The developers coupled a strong mixed use concept with careful execution and cost control to develop a commercially-successful, private-funded, central city project bringing new life and character to formerly blighted urban area. Development is guided by realities of the marketplace together with a desire to create special places for people. Embarcadero Center illustrates this dual potential of mixed use development and special talent and insight required for its successful execution.⁶

James Bronkema, Executive Director of Embarcadero Center, offered these points:

. The idea of "place for people" creates a dynamic potential of mixed-use development. This type of development proved that one can create a 24-hour life

⁶Robert E. Witherspoon, John p. Abbet, and Robert M. Gladstone, Mixed-Use Development: New Ways of Land Use (Washington, D.C.: The Urban Land Institute, 1976), P. 138.



- 1. Office Buildings
 - 2. Retail Shops
 - 3. Hyatt Regency Hotel
 - 4. Justin Herman Plaza
 - 5. Theaters
 - 6. Alcoa Building
 - 7. Maritime Plaza
 - 8. Golden Gateway Apartments
- Embarcadero Center

Figure 3 Embarcadero Center Site Plan



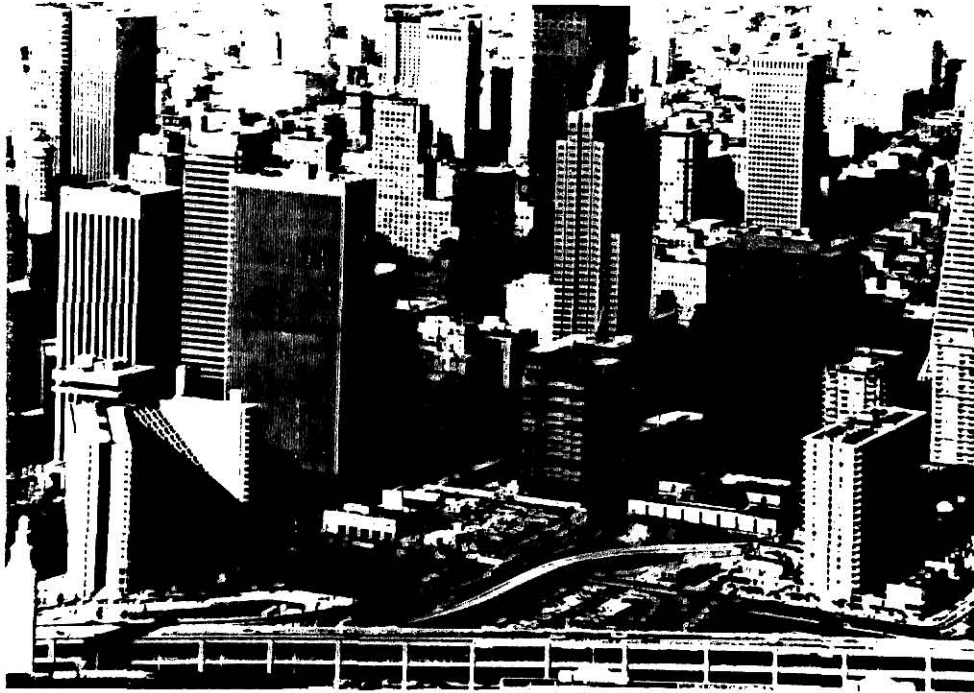


Figure 4 This 1973 photograph of Embarcadero Center shows that development activity has shifted to the vacant parcels in the foreground.

Table 2*

Embarcadero Center Land Use Data

<u>Components</u>	<u>Profile at Build Out</u>
Residential units	---
Office space	2,600,000 square feet
Retail space	275,000 square feet
Transient facilities	806 rooms
Parking spaces	2,000 spaces
Other components	Art works, sculptures, fountains; Landscaped plazas; and Theaters.
Acreage:	8.5 acres
Gross Building Acre (GBA):	4,600,000 square feet
Floor Area Ratio (FAR):	12.4
Total Development Costs:	\$270 million (1979)

*Source: Robert E. Witherspoon, John P. Abbet, and Robert M. Gladstone, Mixed-Use Developments: New Ways of Land use (1976), P. 138.

cycle and bring vitality back into the central city, and generate sufficient financial return for developers.

. At Embarcadero Center, issues such as product mix, project scale, and development phasing are directly related to market and financial constraints. The retail shops were divided into several blocks, resulting in several marketing problems. James Bronkema stated that:

We probably could have done a more efficient job of marketing retail space if it could have been built as a single, large shopping complex. The fact and appearance of on-going construction is disruptive for our tenants.⁷

. In the original plan, the development team expected a 12 to 13 percent return on investment over a 15-year development period. Although the current financial performance indicates that the development is still on target with respect to the original financial goals, the developer found the financial returns were somewhat lower than they had hoped due to the impact of severe inflation and higher interest rates. But the real financial payoff of mixed-use development is experienced over the longer term where the value appreciation and the full impact of regenerative market relationships will be realized. In comparison with single use projects, mixed-use developments appear to have more strength to get through a difficult economic climate, and have a lower operating cost over the long period.

. After some six years of development in Embarcadero Center, the market synergy started to emerge--each component complements the others from a market standpoint. Concerning the influence of the plan's site layout on the synergistic relationships, Mr. Bronkema said, "Had our site been configured differently to allow a more compact development, we might have been able to reach a critical

⁷Ibid., P.140.

mass and realize this synergy earlier in the development program."⁸

III. KALAMAZOO CENTER, KALAMAZOO, MICHIGAN

Kalamazoo Center is a one-block mixed use megastructure in the Kalamazoo central business area. The 2-acre development contains a large city-owned convention center, a hotel, an enclosed public mall, office space, retail stores, a disco, a health club, several restaurants, and open spaces. Land use data is presented in Table 3. The site of this single 362,000 square foot complex was formerly occuppied by antiquated and nonutilized buildings. The \$16.5 million development was funded privately and through local donations. Island Steel Development Corporation (ISDC) and the city of Kalamazoo are the legal owners of the complex.

The community's interest on persuing the long-term economic viability of the downtown has been quite active in Kalamazoo for many years. Since 1947, local groups had been studing development potentials for a convention facility in the downtown area. In 1957, community leaders raised funds to commission Gruen Associates to prepare a long-range plan. The comprehensive downtown proposal proved too costly in 1958, but the community decide to begin with Kalamazoo Mall. The Kalamazoo Mall is a four-block, landscaped pedestrian mall which contains 400,000 square feet of retail shops and includes three major department stores. The development of Kalamazoo Mall successfully achieved several major goals set forth in the Gruen's plan: seperation of cars and pedestrians, creation of a pleasant shopping and strolling environment, and establishment of a social and commercial focus in the CBD. In 1971, the Chamber of Commerce and Downtown

⁸Ibid., P. 140.

Table 3*

Kalamazoo Center Land Use Data

<u>Components</u>	<u>Profile at Build Out (1975)</u>
Residential units	---
Office space	26,000 square feet
Retail space	72,000 square feet
Transient facilities	288 rooms
Parking spaces	1,050 space**
Other components	60,000 square feet of conference facilities and and convention center; 20,000 square feet containing restaurants, entertainment uses, swimming pool, and health club facilities.
Acreage:	2 acres
Gross Building Area (GBA):	362,000 square feet
Floor Area Ratio (FAR):	4.2
Total Development Costs:	\$16.5 million***

*Source: Robert E. Witherspoon, John P. Abbet, and Robert M. Gladstone,
Mixed-Use Developments: New Ways of Land Use (1976), P. 109.

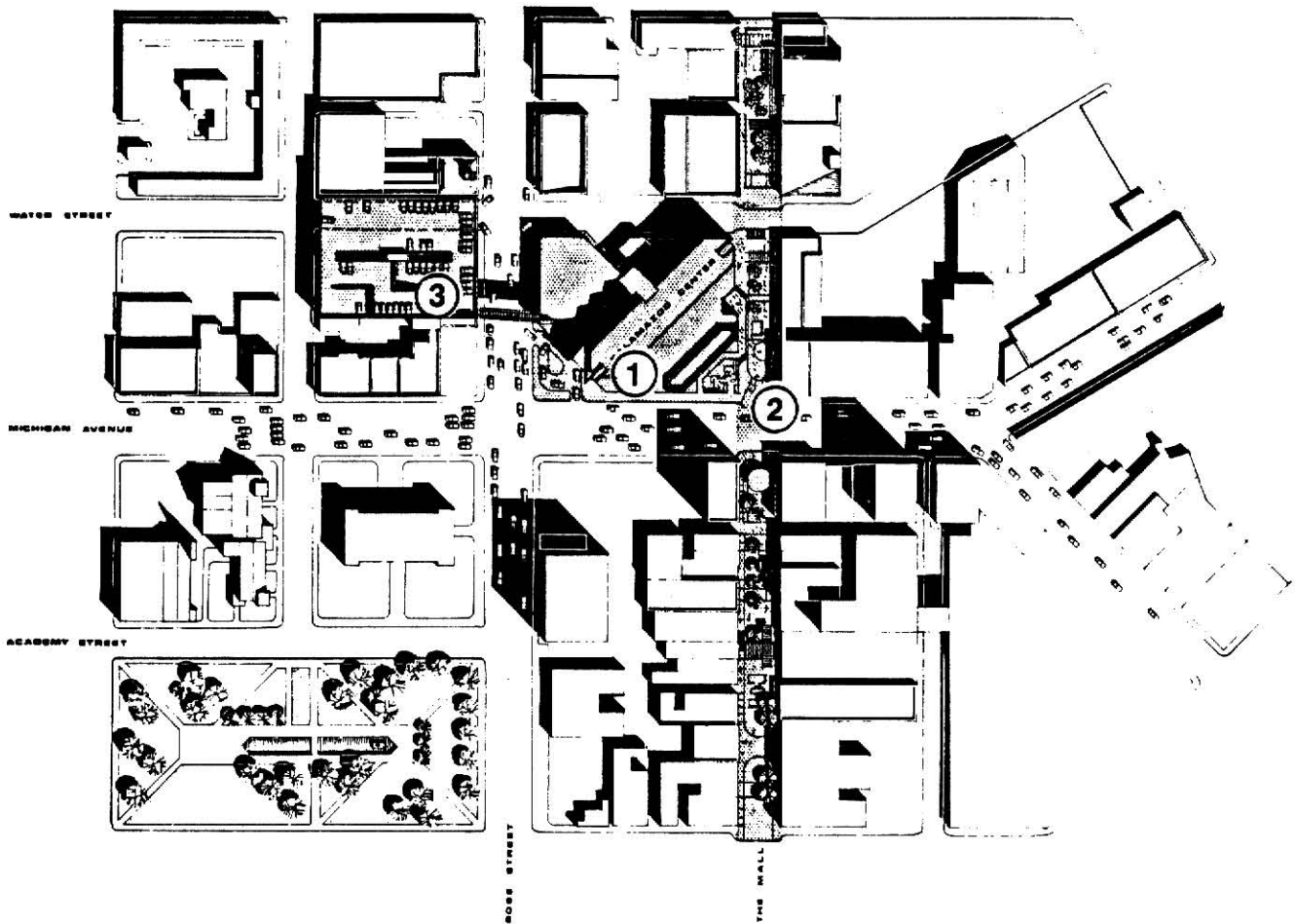
**Parking developed by the city on an adjacent site.

***Does not include parking ramp developed by the city.

Kalamazoo Association (DKA) contacted ISDC and asked them to submit a plan focusing on establishing some form of public/private cooperation to help insure the economic feasibility of a convention facility. The community, city government, and ISDC ultimately decided to build a complex which combined a feasible mix of commercial uses with convention facilities. In addition, they thought the complex should have a strong relationship with the existing Kalamazoo Mall to assist in an economic impact on the downtown area. In addition the mall's small shops and three department stores would effectively serve as anchors for new retail facilities in the Kalamazoo Center. The ELS Design Group had been assigned to design the complex in mid-1972. The final design of Kalamazoo Center called for a megastructure having efficient physical and functional integration among its various uses. Providing explicit relations to adjoining mall and pedestrian movement patterns in areas surrounding the site are the key input in generating the market synergy among the components. Figure 5 shows the relationship between the Kalamazoo Center and CBD area. The city decided to expend an adjacent parking ramp to a 1,050-space capacity and to connect it to the complex with an enclosed skywalk. The model in Figure 6 shows the strong relationships among Kalamazoo Center, Kalamazoo Mall, and parking ramp.

In order to assist the city of Kalamazoo with financing its share of convention facilities, approximately \$3.4 million was raised through private contributions from the community. The success of Kalamazoo Center proved that a medium-size metropolitan area was capable of supporting a mixed use development approach to revitalize a downtown area and provide guidelines for similar initiatives in both larger and smaller urban areas. The following were the experiences encountered from the development of Kalamazoo Center, according to Lawrence L. Pearce, Vice President of ISDC:

- . There were no economies of scale after construction of Kalamazoo Center because of the complexity of the physical development of the project.



1. Kalamazoo Center
2. Kalamazoo Mall
3. Parking Ramp

Figure 5 Kalamazoo Center Site Plan



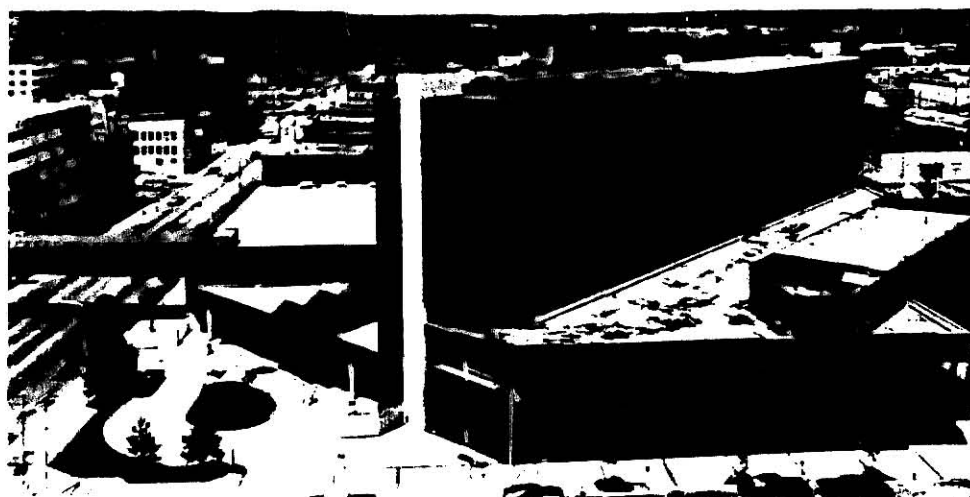


Figure 6 This photograph of Kalamazoo Center Complex shows the relationships among Kalamazoo Center, Kalamazoo Mall, and the parking ramp.

. A single management, a comprehensive and centralized operating control, and coordinated marketing, has led to meaningful savings and greater efficiency in operation.

. One of the most complicated issues between the city government and ISDC was the need to work out the legal agreements covering development, ownership, and operation of the project. The general support for the concept and the direct financial contribution from the community was a key factor in the development of Kalamazoo Center.

IV. ILLINOIS CENTER, CHICAGO, ILLINOIS

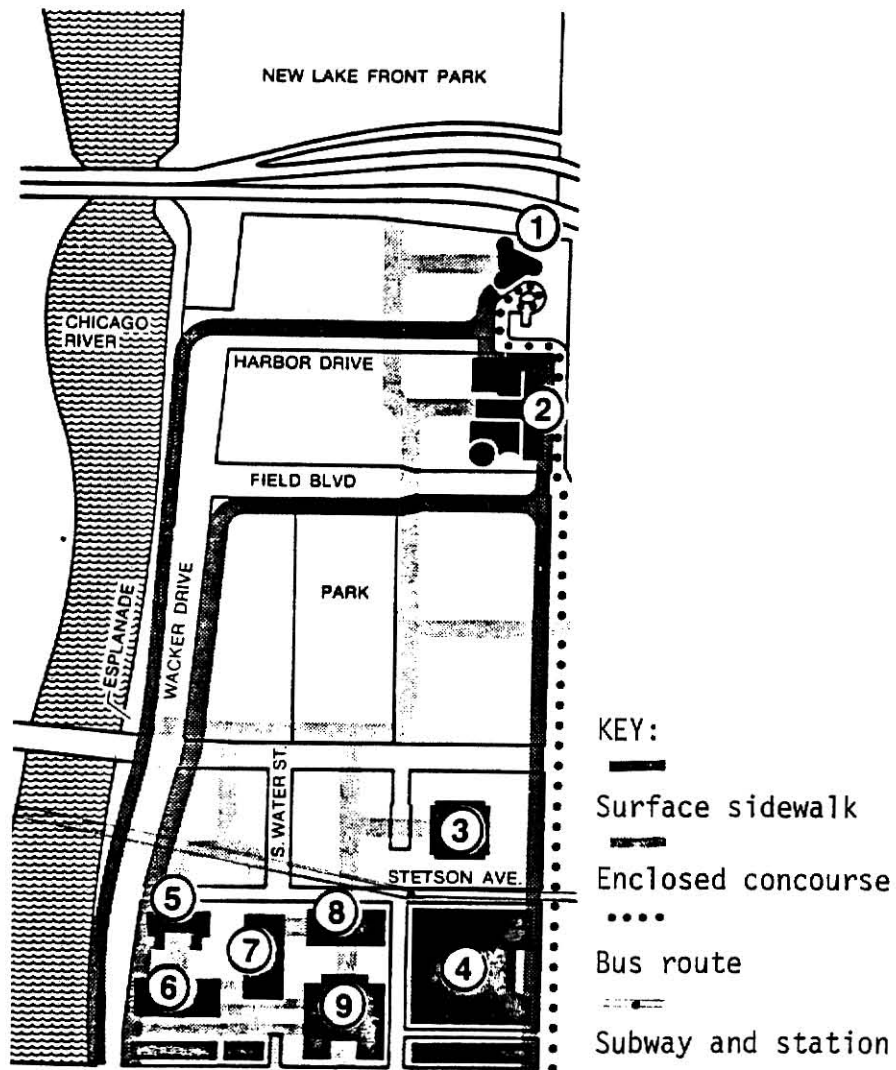
Illinois Center is the largest central-city mixed-use development in the United States in terms of acreage, investment, time frame of development, and useable area. It is being built upon 83-acres of an abandoned railroad site in downtown Chicago. The project has a superb location, being surrounded by Michigan Avenue, the lake, Grant Park, and the Chicago River. The \$2 billion, 20-year development project contains: office buildings, high-rise residential structures, and hotel towers, as well as a multi-level circulation network with enclosed pedestrian walkways, recreational facilities, parks, plazas, and harbor vistas. The developer of the project known as the Illinois Center Plaza Venture(ICPV), those involved are the Metropolitan Structures and Illinois Center Corporation, a subsidiary of IC Industries, Inc., (parent company of the railroad). The entire project is expected to be completed by 1989.

Began in 1969, Illinois Center is being constructed under a planned development ordinance and an Amendatory Lakefront Ordinance. These ordinances together govern the development of the master plan for the site and specifies land uses and the amount of development permitted on the site. The plan allows for only about 25 percent of the total area to be covered by buildings, giving the project an average FAR of 14 at full development. The remaining 75 percent

of the site (about 62 acres) will be dedicated to open spaces containing landscaped plazas, streets, and parks, as shown in Figure 7. The guidelines also specified the responsibilities and financial obligations for the provision of infrastructure to be undertaken by the city and developer. The total cost of this improvement is expected to exceed \$165 million, with the city of Chicago's share around \$100 million. The developers cite the remaining \$65 million-plus expense, when coupled with other land use constraints, as an especially onerous financial burden on their capital resources. Tax revenues from the completed project are expected to total around \$56 million per year, which includes over \$50 million in property tax revenue annually, as well as \$1 million in city sales taxes, \$1.6 million in employee taxes, and \$1 million in hotel taxes. In only two years of operation, therefore, the entire city investment will be recovered.

The multi-level circulation network is one of the most unique features in the Illinois Center's master plan. The infrastructure will cover the entire site and serve as a base for all development. The system provides three distinct vehicular street levels and a separate, uninterrupted, enclosed pedestrian walkway throughout the project. The three vehicular levels with traffic are separated vertically according to function: the lowest is primarily for service vehicles, the intermediate level is for through traffic, and the upper level is for the local traffic (Figure 8). A fourth level of the street system is for an enclosed pedestrian concourse, which provides a wide range of shopping and entertainment opportunities throughout the complex.

Besides the huge office spaces, retail spaces, hotel rooms, residential units, and parking spaces (Table 4), there is a 6-acre park at the center of the complex. Landscaped plazas, fountains, and pools will set off the various tower buildings. At the complex's northern boundary along the south bank of the Chicago River, a 4-acre landscaped riverfront esplanade park will be constructed along the entire length of the project. The major walkways will meet in the center of



- | | |
|----------------------------------|--------------------------|
| 1. Harbor Point Condominiums | 6. One Illinois Center |
| 2. Outer Drive East Condominiums | 7. Two Illinois Center |
| 3. Standard Oil Building | 8. Three Illinois Center |
| 4. Prudential Building | 9. Four Illinois Center |
| 5. Hyatt-Regency Chicago | |

Figure 7 Illinois Center Site Plan



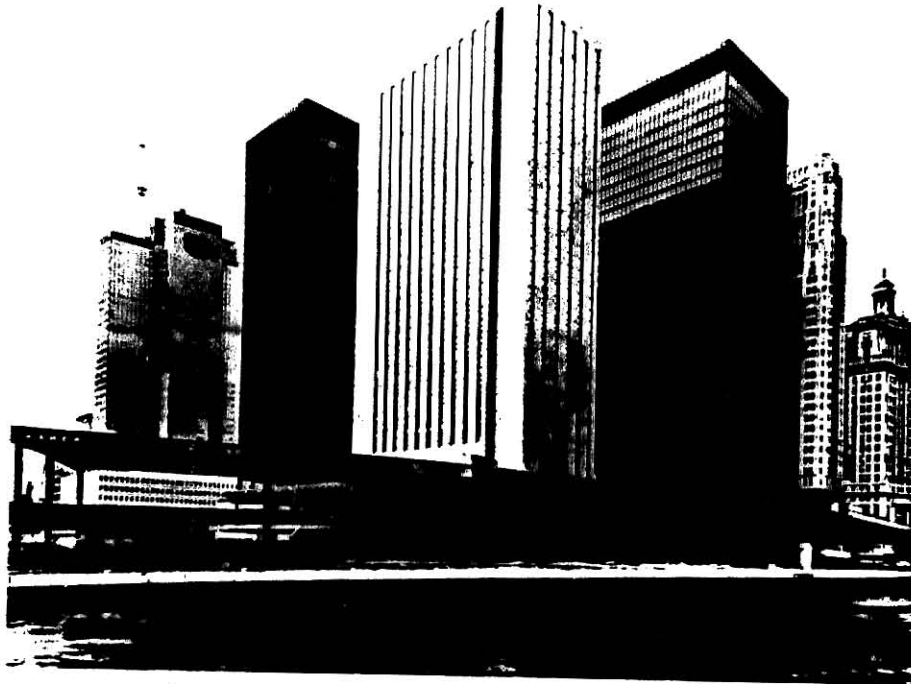


Figure 8 This photograph of Illinois Center shows the Multi-level circulation network. From left to right: Prudential Building; Two Illinois Center; Hyatt Regency Chicago; and One Illinois Center.

Table 4*

Illinois Center Land Use Data

<u>Components</u>	<u>Profile at Build Out (1989)</u>
Residential units	13,500 units
Office space	9,900,000 square feet
Retail space	1,250,000 square feet
Transient facilities	4,500 rooms
Parking spaces	16,000 spaces
Other components	6-acre park;and 4-acre esplanade along Chicago River
Acreage:	83 acres
Gross Building Area (GBA):	32,950,000 square feet
Floor Area Ratio (FAR):	9.1
Total Development Costs:	\$2 billion (Estimated)

*Source: Robert E. Witherspoon, John P. Abbet, and Robert M. Gladstone, Mixed-Use Developments: New Ways of Land Use (1976), P. 171.

the project at the 6-acre park. This walkway system will make the riverfront and lakefront park directly accessible to pedestrians from downtown Chicago.

The tight city control over the Illinois Center development, together with public/private cooperative effort, assure lasting results in maintaining a vital downtown Chicago. According to Harold S. Jensen, Group Vice President of Illinois Central Industries, insights gained from this largest mixed-use development in the United States include the following:

- . Risks are high in this kind of long-term project. The investments for infrastructure and public improvement in Illinois Center are very high. These also increase the risk of investment for the developer.

- . The complexity of the project may result in substantial diseconomies, but there will be economies of scale in future property management activities. It must be recognized, however, that the possibilities for economies of scale will be very limited.

- . There have been several significant problems during the development: obtaining required public approvals on a timely basis, provision of infrastructure on schedule, and the economics of providing large rooftop plazas on expensive land.

- . Development must have a "critical mass" to achieve market synergy among uses. At the Illinois Center, the residential uses are too distant from the commercial areas of the project now in place.

- . There were two issues that had not been carefully taken into account during the planning stage: including the Chicago River into the project as an amenity and marketing device, and the four-level platform, which may have turned out overly elaborate.

Chapter 3

DEVELOPMENT OF THE FEASIBILITY EVALUATION PROCESS FOR URBAN DEVELOPMENT PROJECTS

As discussed in the previous chapters, most mixed-use development projects are large enough to influence the economy of the central city. Like many other real estate developments, risks are involved for the developer and others related to the development, the future users of the development, and the public at large which is represented by one or more units of government. How to manage such risks as the chance of injury, damage, or loss, as well as potentially high rewards in the development of the project, is essential for the entire development. So, a feasibility evaluation process should be designed to evaluate such urban mixed-use development projects.

The components and over-all financial feasibility of mixed-use development always require: market and financial studies; a comprehensive physical design consistent with the market, financial, human, and social constraints; a financial package compatible with planned phasing and construction schedules; and a management program to keep and/or attract occupants after construction. In addition, mixed-use projects pose a special set of planning and development issues--problems and opportunities different than those for traditional real estate projects. Therefore, a special implementation model and feasibility evaluation process needs to be formulated for mixed-use development. The problems and opportunities of such projects should be considered simultaneously in this 'guidelines' to try to successfully balance the 'risk and reward' of this new type of land use development.

I. IMPLEMENTATION MODEL

Figure 9 shows the prototype implementation model for mixed-use development projects. The diagram depicts the major steps of development and their relationships to each other. The steps shown are not necessarily discrete, may occur in a different order, and often merge and overlap in time. Following are the explanations for each of the major steps:

A. Development Objectives

Whether the master developer is a private corporation, a public corporation, or both in cooperation, a mixed-use developer organization must have: a multi-talented and resourceful real estate team; efficient management and specialist staff support; ability to survive with risks and long lead times prior to profit realization; access to sizeable financial resources during the early stages to meet the great front-end requirement; and substantial control over the property, and all major aspects of the development process. After the establishment of the developer organization, the planner and designer of the project should hold several meetings with the client to set up private and public objectives. Of the private developer's objectives, the potential for profit is the primary concern. The public developer's objectives may include a target return on investment; expanding the community's tax base; stimulating downtown redevelopment; and attracting or holding middle-income residents 'in town'.

B. Land Assembly

Site selection of a mixed-use development is very important, and, according to ULI's Mixed-Use Developments: New Ways of Land Use, should be determined as follows:

- . Sites with high-density mixed use zoning, either actual or achievable with reasonable amounts of time and effort;

- . Sites which are suitably sized and configured for mixed use purposes. This precludes many small or irregularly-shaped parcels that could be developed as single-purpose projects. Conversely, most mixed use projects do not require as much land, for example, as a shopping center or planned unit development;

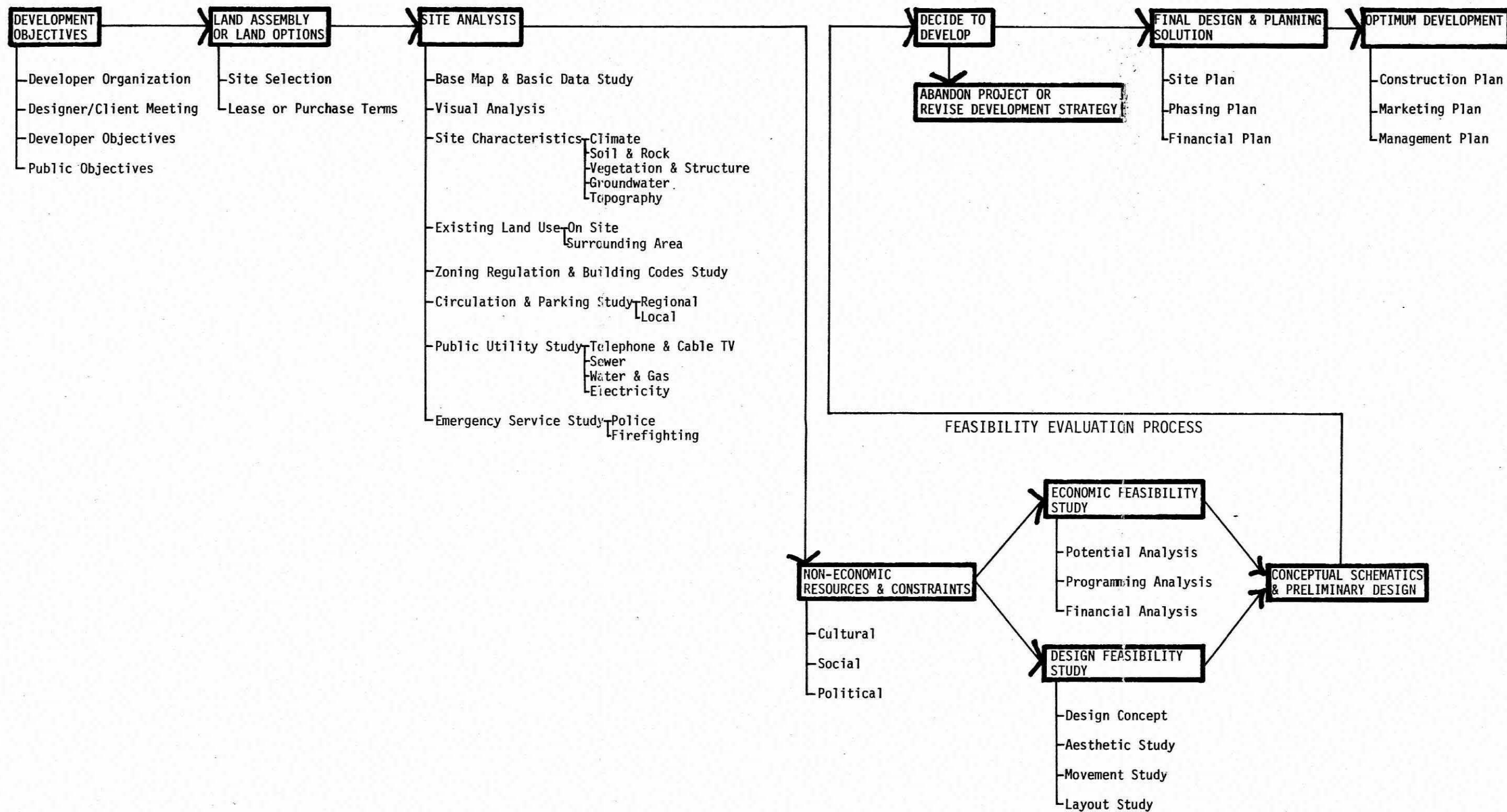


Figure 9 Implementation Model for Mixed-Use Development Project

. Sites which are endowed with access, visibility, and proximity to multiple land use markets appropriate to uses contemplated for the project.⁹

The land assembled should be adequate in size--big enough and dramatic enough to create an opportunity that would attract new investment, and small enough to be feasible. And the land assembled should be at a price and associated lease or purchase terms which reflects supportable land values as well as time required to develop the project.

C. Site Analysis

The data and information of the site itself and that related to the site, such as climate, soil and rock, groundwater, topography, existing plants, existing land use, zoning or subdivision regulation, building codes, and base maps should be gathered at this stage. A careful, systematic analysis of all these data should be performed to find out the nature of the site for future development. The accessibility of the site and the availability of service and utilities should also be carefully studied. And finally, a comprehensive visual analysis should be conducted to identify existing on-site and surrounding visual elements, such an effort will be helpful for the development to establish a new image in the future.

D. Non-Economic Resources and Constraints Study

Following the site analysis stage, the non-economic resources and constraints of cultural, social, and political issues should be analyzed. Local, and regional, cultural and social activities, such as museum, sport complex, botanical society, pilot club, etc. should be considered. And, the development should be promoted to the government as a means for multiple public-sector objectives, such as increasing municipal revenues, acting as tools to treat blight and

⁹Robert E. Witherspoon, John P. Abbet, and Robert M. Gladstone, Mixed-Use Developments: New Ways of Land Use (Washington, D.C.: The Urban Land Institute, 1976), P. 75.

decay, and providing a means for organizing metropolitan growth.

E. Economic Feasibility Study

This is one of the most important stages during the planning period. First, there will be a market study to figure out the supply/demand relationships within specified market areas. "Market studies should consider both typical market potentials associated with each individual use, together with market synergy resulting from a combination of complementary uses in a single complex in order to ascertain the benefits derived from a mixed use approach."¹⁰ Once the demands have been identified and the development potentials emerge, "[t]he purposes of the plan are stated in concrete terms leading to a program that details the behavior that the plan will support, the required physical characteristics, and expected costs."¹¹ Items such as the purpose of the plan, objectives and performance requirements, conditions expected to be encountered in the future, the quality and quantity to be pursued, and an acceptable budget and schedule, should be stated carefully at this stage. The more the detail, the easier it is for the next design stage to be carried out.

Following the program development will be a financial feasibility analysis. Financial feasibility analysis of mixed use projects presents a complicated set of optimization problems ranging from land purchase, to operation and management. Important factors involved in this analysis include scale of required investment, cash flow, tax assessment, rate of return, and leveraging possibilities. There will be further discussion of this stage in the second part of this chapter ("Economic Feasibility Evaluation Process").

¹⁰Ibid., P. 77.

¹¹Kevin Lynch, Site Planning (Cambridge, Massachusetts: The MIT Press, 1971, 2nd ed.), P. 4.

F. Design Feasibility Study

In addition to analyzing financial feasibility, the site layout and preliminary design concept should be evaluated simultaneously. The design feasibility study should include such factors as design concepts evaluation, overall aesthetic study, pedestrian and vehicle movement study, as well as structure layout and space creation study. Some possible alternatives of the activity patterns should be evaluated at this point. As Kevin Lynch mentioned in his book Site Planning: "The site plan deals in its essence with three fundamental patterns of location in space and time: the pattern of activity, the pattern of circulation, and the physical forms."¹² The task of this stage is to arrange these three patterns on the site so they are functionally harmonious.

G. Preliminary Design

Following the economic and design feasibility studies, the elements of the site could be put on paper, along with plans, sections, and the diagrams of behavioural settings and circulation. A model would also be helpful for a three dimensional study. All these efforts will be gathered for the evaluation of further development decision making. This stage, going from a non-economic study, through economic and design feasibility studies, to preliminary design, form a loop which can be called the "Feasibility Evaluation Process". This process will lead to the crucial question of whether or not to develop the project.

H. Development Decision

With the "Feasibility Evaluation Process", it is easy to decide if the project is feasible. Some of the factors that should be considered include: does the rate of return meet the developer's objective, does the development provide

¹²Ibid., P. 246.

a environment to fit the public's objective, and, does the project have the necessary local and regional resource base? After careful evaluation, if the decision is negative, then the project should either be abandoned, or the development strategy revised with a new feasibility design performed.

I. Site Plan

The final design decision and the most feasible solution should be put together in the master plan at this stage. the percentage of land use elements and gross building area should be decided and calculated at this point. The phasing plan of the mixed use project must reflect the developer's objectives, the mixed use elements of the project, the different cash flows from each component, the basic lines of business to be undertaken, and the management and operation. Financing is the single most important problem in mixed-use development, so the financing plan should accompany the site plan and phasing plan at this time. The development of this financing plan is based on the preceeding financial analysis. The essential issues of the plan should include the budget of the entire development, the time requirements involved, the capital resources, the receptivity of lending institutions to the development, and possible tax shelters.

J. Optimum Development

The final stage of the implementation model includes a detailed construction plan based on the preceeding phasing plan, to construct components in time to achieve the maximum market synergy; a marketing plan to promote the project and attract occupants; and a management plan to operate mixed components efficiency.

II. ECONOMIC FEASIBILITY EVALUATION PROCESS

As shown in the Implementation Model for Mixed-Use Development (P. 34, Figure 9), the economic feasibility study and the design feasibility study are equally important during the Feasibility Evaluation Process. While the design

feasibility study is valuable in providing a new quality environment for the public, from the investor's standpoint, the economic feasibility study is important in deciding whether or not to contribute to the project. The better the financial planning, the better the chances of acquiring a large amount of investment, which in turn will help to ensure a high quality development for the future users.

The following Economic Feasibility Evaluation Process represents a Comprehensive, analytic procedure for planning and evaluating the development of mixed use projects. There are three major stages in the process: development potential analysis, development programming analysis, and financial analysis.

A. Development Potential Analysis

The purpose of this potential analysis for mixed-use development is to establish the range of marketable land use and the rate at which each component can be supported by local and regional market conditions. This potential analysis will also set the basis for return forecasts and the following programming and financial analyses.

1. Market Potential Analysis

Market potential analysis determines whether the local and regional economic conditions will support development of each potential land use and the rate at which such use could take place.

a. Regional Economic Analysis

In order to reflect the scale of the underlying demand for each use, regional economic growth is essential for establishing the basic framework of opportunities for mixed-use development. Population increase and employment growth are the most important factors in this analysis, because it shows the demand of office and commercial space as well as the need for new residential units. The employment trend also will show the strength of regional economics which will possibly reflect the demand for new hotel units and conventional space.

From this analysis, the demand for each function--residential, office, commercial, and hotel--can be easily projected.

b. Development Patterns Analysis

Once the demands are established, the proposed land uses should be carefully studied in order to relate to present and future regional trends. The pattern of mixed use should be determined from a geographic distribution standpoint. In other words, the scale and the timing of each potential use should be properly identified to minimize simultaneous competition in the region.

2. Identification of Appropriate Uses

Besides the determination of the market potential of uses, there are several factors that influence the identification of appropriate uses which should be analyzed during the early stages of the evaluation process. If the site is suitable for mixed use development, it is necessary to distribute the land among uses in a rational and ideal manner. Every potential use must be identified, defined, and evaluated to give the optimum integration for the project. Following are the most important factors influencing the types of development:

a. Physical Factors and Development Impact Influences

The physical conditions such as soil, groundwater, topography, vegetation cover, existing structures, amenities, the cost of various utilities, the transportation pattern, and the scale and location of the site are fundamental factors influencing the identification of future uses. The impact among the high density mixed use development of the project, and the existing and projected surrounding areas' condition at both the regional scale and in the immediately vicinity, substantially affect the use possibilities. In addition, the surrounding social aspects, such as public service and facilities, as well as the quality of education and recreation opportunities, also determine the character and use of the project.

b. Zoning and Other Regulatory Influences

In most real estate cases the zoning and related regulations always limit the use possibilities of development. So, large scale mixed use project regulations are increasingly adding a Planned Unit Development (PUD) category, to establish an overall package of regulations for the total project. The application of the PUD zoning category has made possible a generation of complex, high-intensity mixed use projects which would be difficult to perform under traditional zoning ordinances. PUD's broad limits are discussed in ULI's Technical Bulletin Optimizing Development Profits in Large Scale Real Estate Projects:

The PUD format focuses upon acceptability of the overall project within certain broad limits. It typically is applied through a site plan review process providing a more flexible set of constraints to encourage the developer to design creatively and arrange the project in response to general objectives, rather than through detailed physical specifications. Applicable regulations are generally expressed in terms of overall use mix, broad density guidelines, and the desired characteristics of the comprehensive program.¹³

Although PUD allows broad possibilities for uses, other regulations must be carefully reviewed to identify potential and required uses for specific sites.

c. Developer Capacity and Business Objectives

Developer's motivations, capacities, and economics are also important factors reflecting potential uses. While the private investor is motivated primarily by financial considerations, the government agency's supreme concern always lies with the characteristics of the project. In some cases, the developer with limited experience still can find out about various use potentials by hiring land-use experts and planners; Crown Center is a good example.

¹³Michael D. Wilburn and Robert M. Gladstone, Optimizing Development Profits in Large Scale Real Estate Projects (Washington D.C.: The Urban Land Institute, 1972), P. 12.

B. Development Programming Analysis

Development programming analysis is the central part of the feasibility evaluation process. An operational program must be established within the range of market opportunities and absorption potentials previously determined in the development potential analysis. And, the financial analysis, described below, should quantify the extent to which the project's economic goals are met, and be given a development program. The development programming analysis should outline the key project features, facilities, land use, mixed use component, building merchandise characteristics, timing sequence, and environmental objectives essential to the marketing strategies implicit in the program and the developer's objectives.

1. Establish Developer's Objectives

The fundamental point to program optimization is clear identification of the developer's objectives. For public development agencies and other socially motivated groups, the characteristics of the program itself represent the function to be optimized. In contrast, for private developers, the financial characteristics of the program are the principal objectives. The financial analysis and the cash flow analysis of each individual use can be carried out according to the established objectives to achieve optimization. These objectives may be expressed in financial terms which match the individual uses' financial goals.

a. Financial Objectives

Most of the financial objectives are set in terms of annual cash flow. While public agencies prefer program elements with shorter economic life cycles, private companies often tend to favor developments having longer economic life cycles which yield opportunities for substantial residual values, capital gains, and tax shelters. The returns of the investment of various components include cash flow, principal amortization on borrowed funds, real appreciation in value, and depreciation off-sets against taxable income. These various types of return

should be analyzed individually and then be encompassed within an overall measure of yield. These financial goals must be closely related to establishing optimization constraints.

b. Non-Financial Objectives

The non-financial objectives of public development agencies, as mentioned above, are often the characteristics of the program itself and their contributions to future users. They are always constrained by, rather than motivated by, financial factors. However, they still need to meet bond and interest payments with an appropriate margin of coverage. In general, these non-financial objectives could be formulated as development constraints in the programming analysis.

2. Establish Development Program Constraints

In addition to the developer objectives, which can be formulated as constraints for programming purposes, the following three basic categories of constraints should also be considered:

a. Developer Resources and Operating Capabilities

Mixed-use developments require larger, more diversely talented, and fully integrated development organizations to acquire large amounts of financial resources and operating capabilities. Resources and capabilities can strongly influence the mixed use program, limit the participation in some particular development activities, and affect the way the developer phases the operation.

b. Site Conditions and Planning Considerations

In the market potential analysis discussed above, the annual market absorption potentials for each use should have been estimated. In the site conditions and planning considerations stage, those results need to be analyzed with the site condition, based on zoning and other regulations, to establish the scale of use which can be accommodated. These factors will suggest modifications in the program. The impact of these modifications should be redirected to the financial analysis.

c. Market Absorption Potentials

The annual market absorption rates for each potential use are based on the development potential analysis. The analysis provides the framework of possibilities for each component within which the specific allocation among components must be accomplished. The resulting allocation will help set up the development schedule in the program for each use within the range of estimated absorption potentials.

3. Analyze Financial Implications

The financial implications analysis begins with an assessment of the relative financial implications of each of the potential uses, and are then evaluated to assess project feasibility.

The base cost-estimate data for each individual use component may be grouped into the following categories:

- . Land Cost or Value

The cost or value of land may be estimated in advance to figure out the resulting yield on investment, which is important data for the analysis of the program's feasibility.

- . Site Work Construction Cost

This category typically includes demolition, earthwork, roads, and utilities construction cost estimates. This data may be prepared for each component of progressive construction stages as well as for an overall estimate.

- . Building Improvement Cost

The capital cost estimates of finished structures in each use should be prepared, based on the product specifications set forth in the market potential analysis. Each component must be calculated individually, and the unit cost estimate should also be prepared, if possible.

- . Landscape Construction Cost

The cost of landscape construction includes general landscape components,

such as sidewalk and bikerooute paving, irrigation, sod and trees, lighting, signs, and other open space landscape improvements.

- . Management and Operating Expense

This catagory includes architects' and engineers' fees, project management, marketing, and operating of project estimates, which must be established for each component. These expenses should be prepared based on annual deveopment schedules.

- . Revenue Projections

The annual income from sales, rental, service, and other revenue estimates will have been formulated as a result of the market analysis, and should be projected for each use.

- . Financing Terms and Conditions

Financing terms and conditions should include current conditions regarding loan amounts, loan-to-value ratios, interest rates, loan duration, and special charges in the financial market for such investment. If a government agency is involved, specific conditions attached to financing terms and approvals must also be set forth.

Most of these individual estimates will come from the preliminary planning concepts and should be reflected in following overall master plan and comprehensive financial analysis.

4. Determine Optimum Development Program

The optimum development program must reflect the developer's objectives, limit the financial and physical constraints, and planned according to the basic lines of business to be undertaken. The program resulting from this analysis can be expressed as an annual schedule of the land to be developed, as well as structural and landscape improvements. A detailed schedule should also include the annual operating and marketing activities in each component involved.

The development program provides a basis for subsequent planning by expressing the major steps of implementation, and sets forth a framework for a financial model for the project.

c. Financial Analysis

The main purpose of the financial analysis is to project the financial implications of implementing the development program in the established time sequence for each key component of the project operation. The analysis should include capital costs, operating expenses, expected revenues, financing arrangements, and cash flow statements, from the beginning to the completion of each development activity in the program, on an annual basis. It is necessary to establish an economic model of the projected development program which will guide the management decisions in further development planning and operating during the time required to complete the project.

1. Financial Estimates and Schedules

In the mixed-use development program, the financial schedules include the preparation of capital costs, revenues, operating expenses, and financing arrangement involved. Basically, the task of this stage is to gather the estimated information collected during the preceeding financial implications analysis.

a. Capital Costs and Operating Expenses

This catagory generally includes the following items:

. Land Cost or Value

The value of the site does not necessarily reflect the present market value, but it should reflect the cost of land acquisition itself, plus carrying charges to date.

. Land Improvement Cost

This includes the cost estimates of site work construction costs and landscape construction costs such as demolition, earthwork, streets, sidewalks, bikeroutes, irrigation, sod and trees, utilities, lightings, signs, lakes, parks,

and other special site finishing items. The estimates must be based on the physical development functions and quantities indicated in the site plan on an annual basis throughout the development period.

. Building Improvement Cost

This is the capital cost estimates of each component on an annual basis during the buildings' construction period.

. Management Cost

Management costs include predevelopment management and planning costs, architects' and engineers' fees, project management costs, and marketing expenses. These expenses are typically estimated as a percentage function of the projected cost of the planned site improvements, such as land improvement and building improvement costs. For example, it is practical to calculate architects' and engineers' fees as 8 percent of land improvement and building improvement costs, project management costs as 6 percent, and marketing expenses as 10 percent. Project management usually requires high start-up costs, which stabilize during the middle years of development, and diminish as the development is subsequently phased out.

. Operating Expenses

Operating expenses include continuing marketing expense, maintenance cost, taxes, insurance fees, utilities operating costs, accounting expenses, and depreciation of components during the construction period and after completion of the project.

b. Revenue Projections

The major revenue resources of mixed-use development include sales and rental of residential units and office spaces, the rental of hotel units and convention facilities, the food services of restaurants, retail sales of the shopping mall, admission charge for entertainment use, the parking charge for parking spaces, and the value created through the development itself. These incomes

should be established on an annual basis for each use. During the early stage of development, the information gathered during the preceeding market analysis and preliminary financial estimates will allow one to establish the residual values for the various uses. Thereafter, revenues will be accelerated in relation to the pace of development and are reflection of real constant dollars, locational value gains, the value and revenues created through the market synergy of components, and perhaps inflationary increases in the price of the development of each use.

c. Financing Analysis and Resource

Not only is financing the most important problem, but financing solutions for mixed-use development are often complex, always requiring a careful analysis, including such factors as the amount borrowed, down payments, carrying charges to date, term for subsequent principal amortization, and interest payments. The summarized results must contribute to the cash flow estimate statement. The scale and pattern of an individual use's financing is based upon the developer's net cash flow position. Such financing must be repaid promptly from the early cash flow. The main issue concerning the financing problems is to convince lending institutions that revenues and longterm value of mixed-use development are higher than with traditional land development, and thus provide the bases for a better financing term. Beside loans from private lending institutions, there are several infrastructural costs which could be financed through urban renewal funds, while industrial revenue bonds might be a possibility for financing the costs of structures.

2. Cash Flow Analysis

The first step in cash flow analysis is to summarize the previous financing, expenses, and revenue estimates into a cash flow statement on an annual basis. Once this comprehensive cash flow statement has been established, the full financial profile of development activities could be previewed, evaluated, and

altered if necessary, at this point. Therefore, the critical points of the project may be identified in terms of cash inflow, cash outflow, account of financing needs, and the beginning of returns. As mentioned in ULI's publication Optimizing Development Profits in Large Scale Real Estate Project, the typical pattern of cash flow for a large scale mixed-use development...

...is substantial early negative cash flows, reflecting the required front end investment. This is followed by declining negative and finally positive values in the middle years and substantial positive returns in the latter years of development. The balance between the scale and timing of negative and positive returns is critical to project feasibility and its acceptability in relation to alternative development projects and investments.¹⁴

As indicated above, the cash flow analysis has two major purposes of evaluating project feasibility and the financial attractiveness of the development: The net cash flow returned to the total investment before financing indicating the feasibility of the development project; and, if feasible, the specified minimum standards of return on investment (ROI) which should be met. For a mixed-use development project, a substantially higher ROI than traditional land development would ordinarily be required, typically having a 15-25 percent pre-tax range to reflect the greater uncertainty of the investment. If the ROI is within this range, it will produce a satisfactory return on equity (ROE) after leveraging the use of borrowed funds. This, in turn, means that the ROE will provide for a return of investment principal as well as the yield on the investment. Figure 10 shows the cash flow curve, represented by the required financing or cash surplus at any given time, and is plotted by subtracting the cumulative expenses from the cumulative income at regular points in time.

Cash flow analysis and subsequent construction and marketing schedules

¹⁴Ibid., P. 24.

must be carefully managed so that individual uses can reach a desired scale, the mixed use character of the development is promoted, and initial front-end investment is appropriately and satisfactorily recovered. If the financial results are initially indicating a feasible development, the analysis can be re-evaluated by returning to the preceeding stages. It is resonable to make some modifications in the program based upon the market analysis and other development constraints, which can then be tested to determine if they can improve the financial results of the project.

As mentioned before, because the problems and the opportunities vary from city-to-city, and the mixed-use development is still at an early stage, there is no one "best" approach to guide mixed-use development. The model and the feasibility evaluation process submitted above is more a "suggested discussion" about mixed-use development than a definitive set of specific guidelines. In order to better judge its usefulness and applicability, in the following chapter this model and the feasibility evaluation process will be implemented in a specific case study--the West Bank Development of Wichita, Kansas.

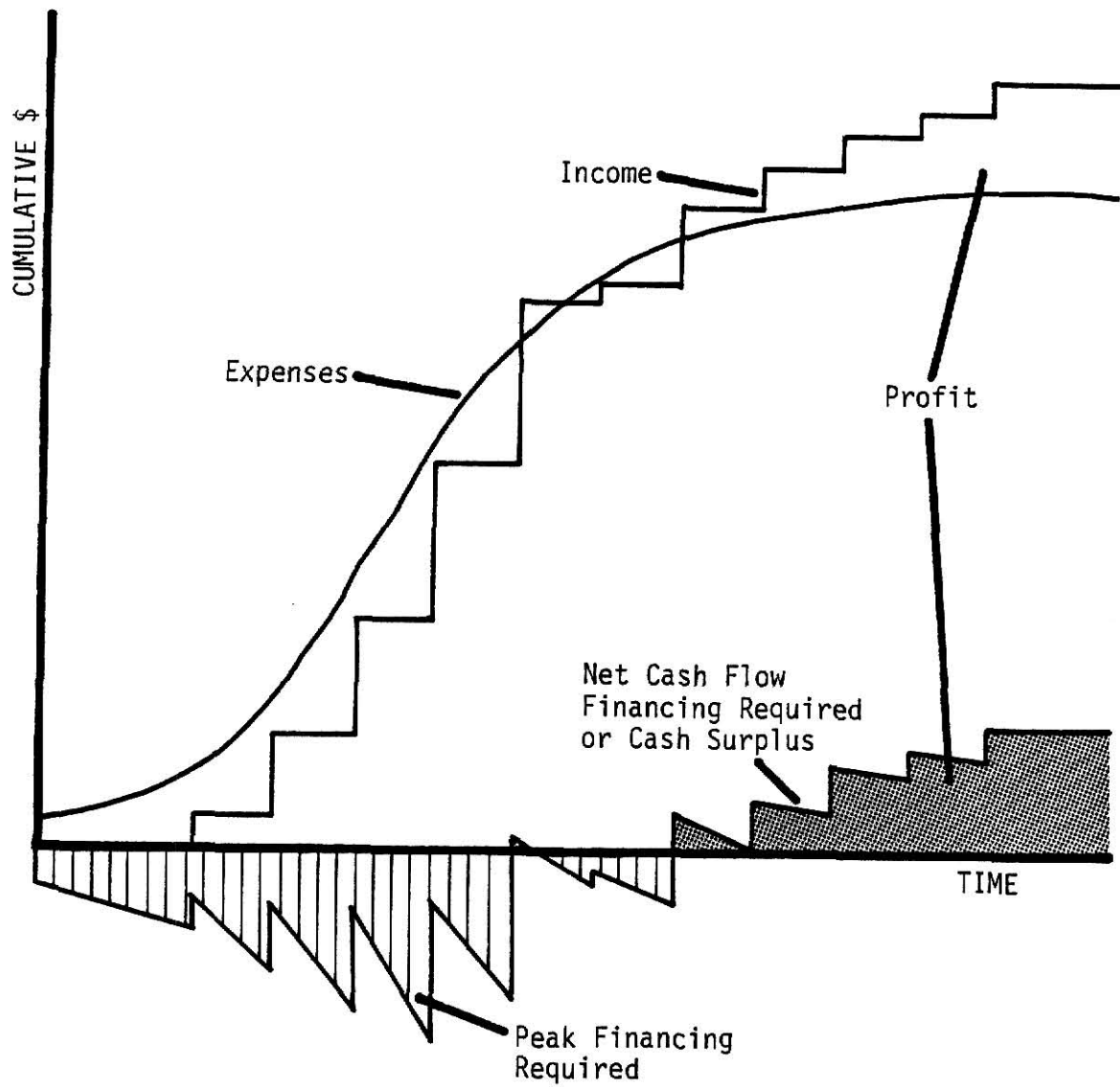


Figure 10 Typical Cash Flow Curve*

*Source: Adapted from Donald S. Barrie, Professional Construction Management (1978), P. 226.

Chapter 4

CASE STUDY--WEST BANK DEVELOPMENT

Based upon the evidence presented in the previous chapters, we can conclude with confidence that not only is mixed-use development a new way of land use development, but that it is also a useful tool for solving most of the problem's found in the central city. The feasibility evaluation process developed in Chapter 3 shows a logical process which can guide the development of a mixed use project. In this chapter, I would like to try to apply the mixed use approach on a particular case study--the West Bank Development in Wichita, Kansas, and try to discover if this type of development approach is appropriate and feasible for both the specific site and for Downtown Wichita in general.

I. SCOPE

The purpose of this case study project encompasses the revitalization and development of the Arkansas River's westside riverfront, and the creation of a new image in the CBD of Wichita, Kansas. The proposed site of West Bank Development is ideally located; the development will provide a link between a quite vital downtown area with the residential district on the west side of the river. Completion of the project would result in the transformation of a deteriorated area into a major focal point for the region and serve as an impetus for future revitalization of the core area and surrounding deteriorating and undeveloped areas.

II. SITE LOCATION AND CONDITION

The 39.16 acre irregularly-shaped West Bank Development site is located in the central area of the city of Wichita, the largest city in the State of Kansas. Figure 11 shows the location of Wichita. As shown in Figure 12, the site is bordered on the north-west by McLean Boulevard, on the east by Osage Avenue and Sycamore Avenue, and on the south by Douglas Avenue. The site is on the west side of the Arkansas River directly across from downtown Wichita, at a walking distance of approximately 10 minutes from the heart of downtown via the Douglas Avenue Bridge. The northern portion of the site was formerly occupied by the Pepsi Cola Bottling Company. The city sent \$1.26 million on an urban renewal program in late 1980 to buy 10.9 acres of land; the Pepsi Cola Company moved out during the summer of 1982. The site with the ownership transferred to the city, was ready for development. Figure 13, an aerial photograph prepared by Vernon Graphics for Kansas Gas and Electric Company, shows that the site was an undeveloped lot with the surrounding areas occupied--east of the river is the well-developed downtown Wichita; west of the site is the declining residential area; north of site are the Mid-America Indian Center, Sims Park, residential district, a tennis complex; and south is the Lawrence Stadium. The development of this project would bring a new image into the central area, give the downtown a 24-hour life cycle, promote development of the west residential area, and link the existing activities.

III. POTENTIAL AND INTENT OF THE PROJECT

The Wichita Downtown Revitalization program has involved great input from the city staff and the Technical Advisory Committee (TAC), and has been underway for several years. One of the most important inputs is due to the Wichita Urban Renewal Agency's hiring of the Real Estate Research Corporation (RERC), in order

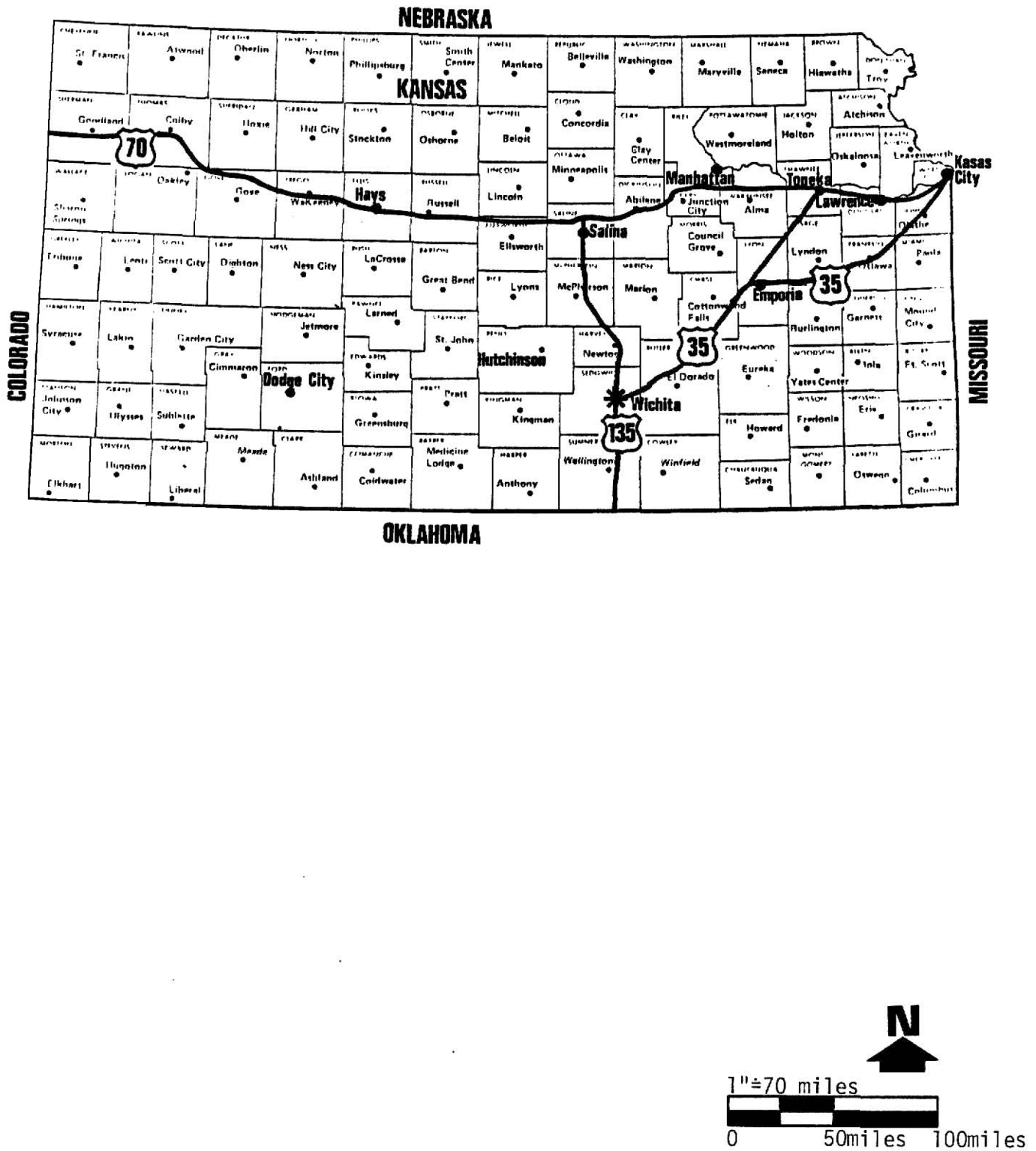


Figure 11 Location Map of the City of Wichita



Figure 12 West Bank Site Location

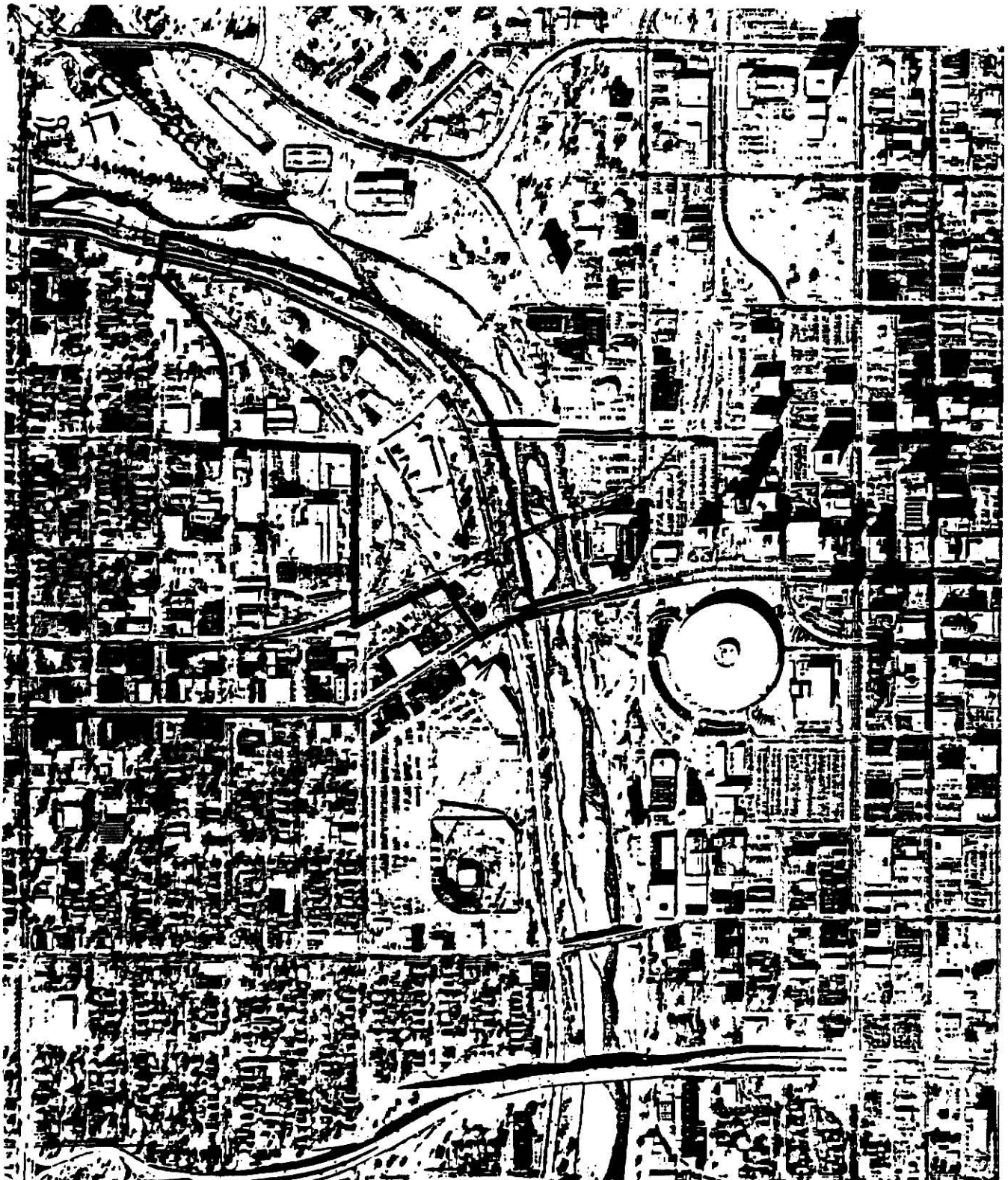
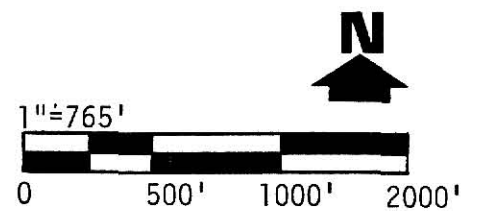


Figure 13 Aerial Photograph of the West Bank Site and Surrounding Area



to conduct a comprehensive examination of the problems facing the downtown area and to produce practical solutions that could be implemented by the officials and citizens of Wichita. From the Real Estate Research Corporation's study, it was concluded that downtown Wichita has maintained considerable vitality. Since 1960, public and private investment in downtown Wichita has been over \$140 million. Although the downtown area is still the focal point for office, financial, government, and cultural activities in the metropolitan area, several negative trends have been recently revealed: between 1963 and 1972, the number of retail firms declined by 40% and retail sales declined by over 27% in the downtown area; total employment in the downtown fell from 29,121 in 1960 to an estimated 27,000 in 1976. All totaled, the negative factors show that although downtown Wichita has the potential to be a regional business and convention center, the recognition and support has long been neglected. After their careful study, one of the most important recommendations RERC submitted for revitalizing the downtown area is the West Bank Development. The potential of this project has been summarized as follows:

- . The site of the project is at the geographic center of a region having a fairly uniform new growth, with the physical condition of the adjacent downtown area being reasonably good.

- . The site is easily accessible via the highway and local circulation, as shown in Figure 14.

- . The attractive waterfront of the Arkansas River in the downtown area has an award-winning landscape design. The river corridor and well-planned bike route have contributed to many year-round activities.

- . The Wichita Downtown Revitalization program has involved strong support from the city staff and citizens of Wichita. For instance, there exists a large and very active garden club, and the general population has an interest in constructing a botanical garden in the area.

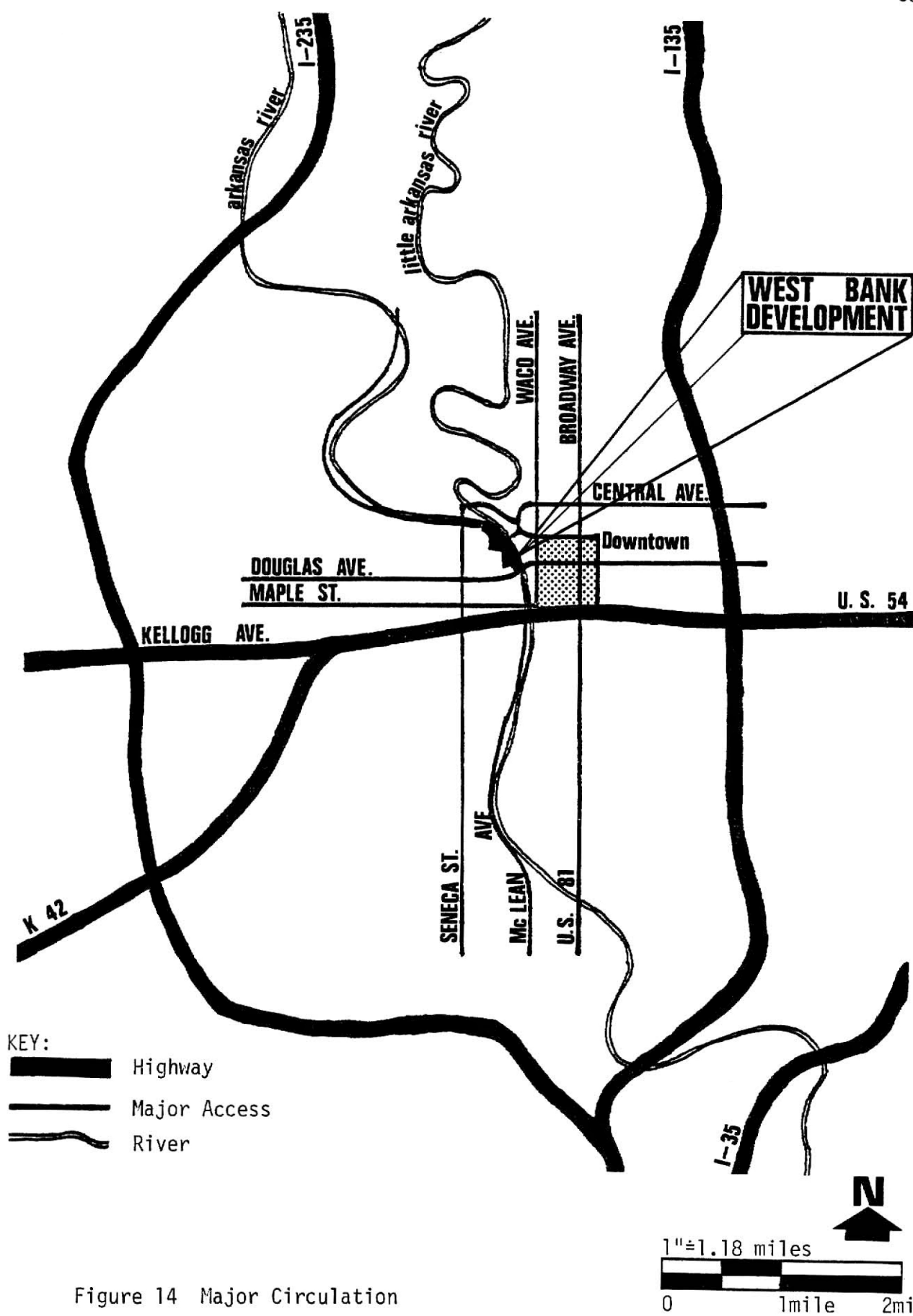


Figure 14 Major Circulation

. The project's development potential has been identified in several market areas. Based on RERC's 1976 study, of primary importance is the considerable demand for additional hotel rooms, initially estimated to be in excess of 400 units. The additional units could support Century II, Lawrence Stadium, downtown retailers, etc., and would encourage additional tourism. Market potentials have also been identified for new office space and for additional apartment development.

. The image of Wichita as the "Air Capital of the World" was initially successful and could stake a claim as the "Flying Capital of the World". Besides being the headquarters for lightplane builders such as: Beech, Cessna, Gate Learjet, and Boeing Military Airplane Co., more and more aircraft societies have chosen Wichita for their home bases. Societies such as the American Bonanza Society, Senior Pilots Association, women pilots' International Ninety Nines, and homebuilt aircraft's Experimental Aircraft Association have indicated such an interest. Development of the project which I am recommending would make use of these unique potentials.

The main purposes of the West Bank Development are: to capitalize on these potentials; to provide an environment to meet the needs of the people of Wichita; to create a major attraction; and to bring new life into the central city. The following are more specific intentions:

. To create a full range mixed-use development of residential, commercial, recreational, entertainment, and cultural functions in the area. The development would not only offer the downtown area the greatest opportunity to remain competitive into the future, but would also support efforts to upgrade adjacent residential and commercial districts. Additionally, the project would serve as the west anchor for the entire Wichita Downtown Revitalization program.

. To strengthen the downtown economy by creating new jobs and generating new business. Also, up to and after completion of the project, large amounts

of tax revenue would be available for the city.

. To link the existing, dispersed downtown attractions, such as the Union Station complex, Historical Museum and Omnisphere Earth-Space Center, Century II, Lawrence Stadium, Mid-America Indian Center, Art Museum, Cow Town, etc. This is shown in Figure 15. Since the site is located right in the middle of these attractions, this project would link the attractions and provide a major focal point for them. And, it would generate the intensive use of these various existing resources, as long as an additional transportation system has been provided for in the West Bank Development.

. To meet the needs for more residential units, office spaces, hotel rooms and convention facilities. This would further promote the marketability of Wichita as a high quality convention center and vacation locale.

. To create a 24-hour life cycle in the downtown area by bringing more residential units, new shopping activities, restaurants, and entertainment facilities.

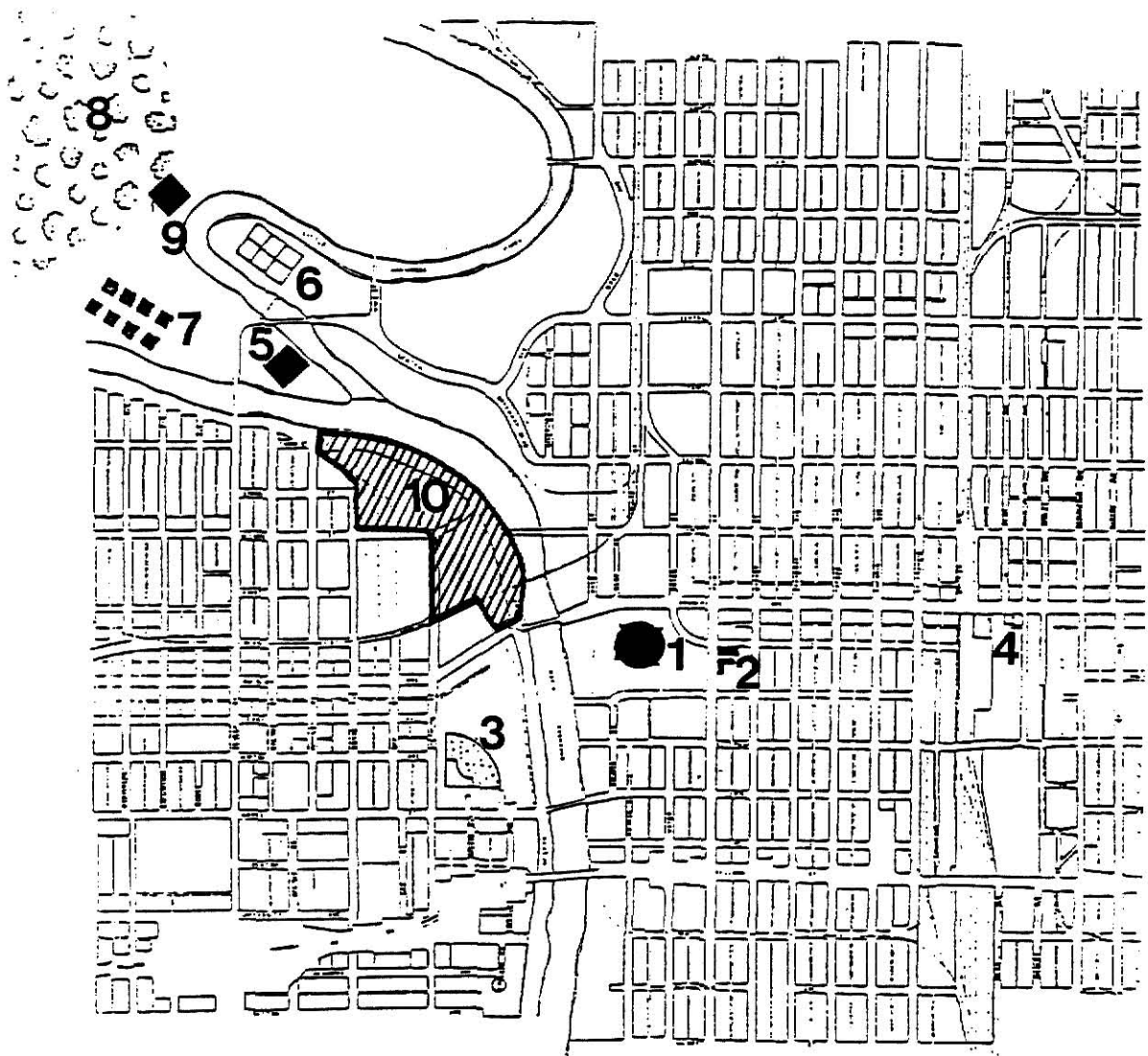
. To utilize the existing waterfront resources and bike route and to provide a new, healthy environment for the employees in the downtown area, the surrounding residents, and the visitors from the metropolitan area.

. To generate a market synergy through the full range of mixed-use development. Coordinated development will maximize the potential of mutually supportive functions.

. To provide a sound program and facilities for the promotion of Wichita as the "Air Capital of the World".

IV. SITE ANALYSIS

The site is located at the center of the city, on the western bank of the Arkansas River. This location is easily accessible via the highway and local circulation, as shown in Figure 14 (P. 58). Although the physical condition of



1. Century II
2. Historial Museum and Omnisphere
3. Lawrence Stadium
4. Union Station
5. Mid-America Indian Center
6. Tennis Complex
7. Cow Town
8. Sims Park
9. Art Museum
- (10. West Bank Development Proposal)

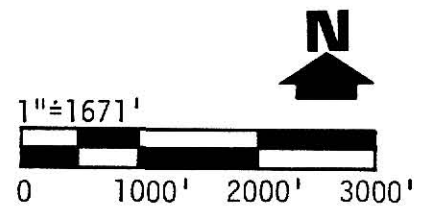


Figure 15 Existing Attractions

the streets around the site are in fair condition but typically too narrow, the east and south boundaries--McLean Boulevard and Douglas Avenue--still serve as the major traffic routes of the city. The First-Second Street divides the site into two portions, but it could be utilized as a major access for the development in the future.

The site encompasses 39.16 acres and is in good physical condition with a minimum of existing structures. Besides the abandoned Pepsi Cola Bottling Plant, dominating the northern part of the site, there are only the Douglas Memorial Park and the Policemen and Firefighter Memorial Park located on the southern portion as shown in figure 16 through 19. Railroad tracks, running through the site, are used for storage of cars with the exception of the Missouri-Pacific Railroad running east-west through the southern corner, with the train on a limited schedule. Watkins Steel Company on the south-western edge of the site is the only industry being served by the railroad in this area; access to this plant must be maintained in the case of track removal. The attractive riverfront area with the existing bike route, shown in Figure 20 and Figure 21, is a rich recreational resource for the development. The bike route along the riverbank is part of the city's recent attempt at enlarging the bike system. The paths are in excellent condition and should be retained. For this reason, McLean Boulevard should be relocated so that the entire riverbank could be acquired by the project to provide an auto-traffic-free riverfront esplanade park for the area.

Figure 22 shows a comprehensive site analysis for the project and general climate information for the area. There is sparse vegetation on most of the site, except for the area around the bike path. The soils found on the site are of the Urban-Canadian Complex. The soil complex is artificially drained through sewer system and gutters, and to a lesser extent through surface ditches. Since most areas are protected against flooding by the Wichita-Valley Center Flood Control Project, this soil type has few limitations in terms of building conditions.

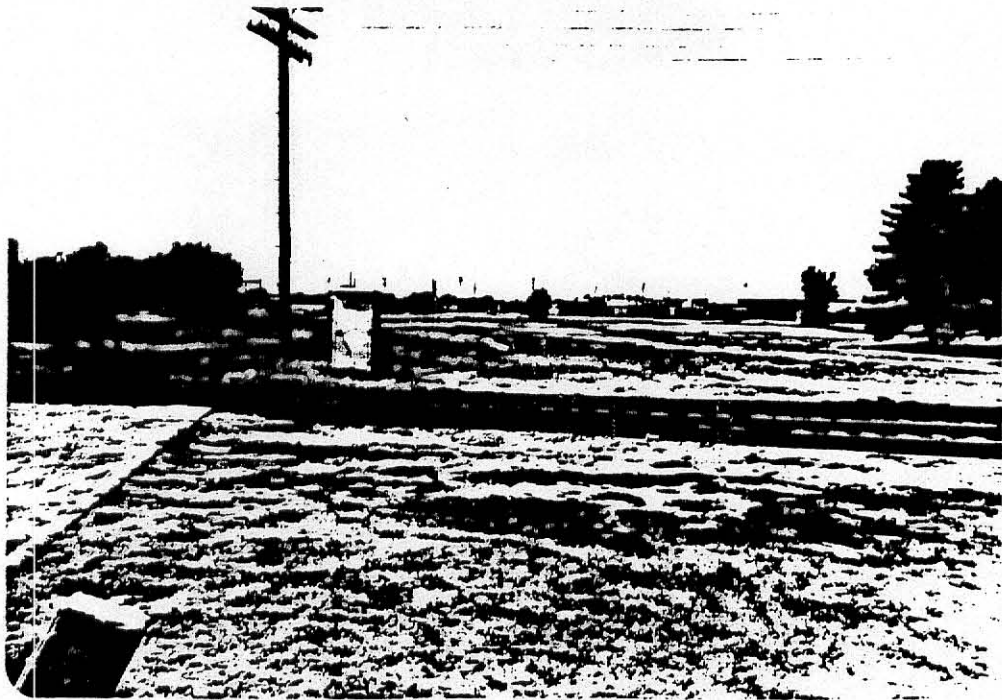


Figure 16 Site Photograph. This view, toward the north, shows the flat characteristic of the site.



Figure 17 Former Pepsi Cola Bottling Company. The abandoned plant dominates the northern portion of the site.



Figure 18 Douglas Memorial Park

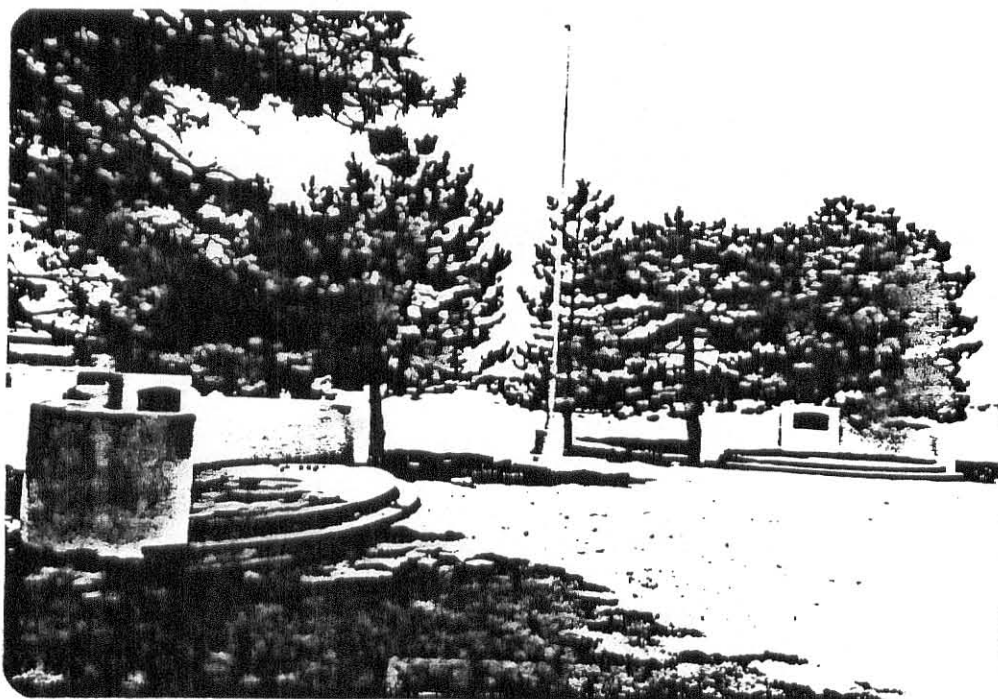


Figure 19 Policeman and Firefighter Memorial Park

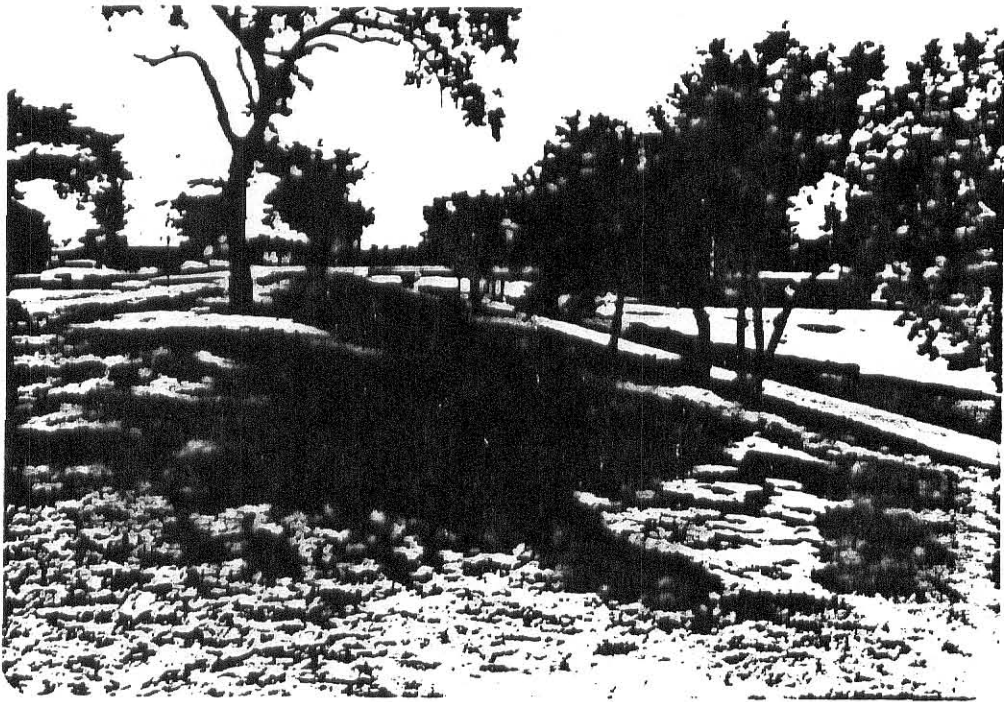


Figure 20 Attractive Arkansas Riverfront



Figure 21 Bike Route along the River

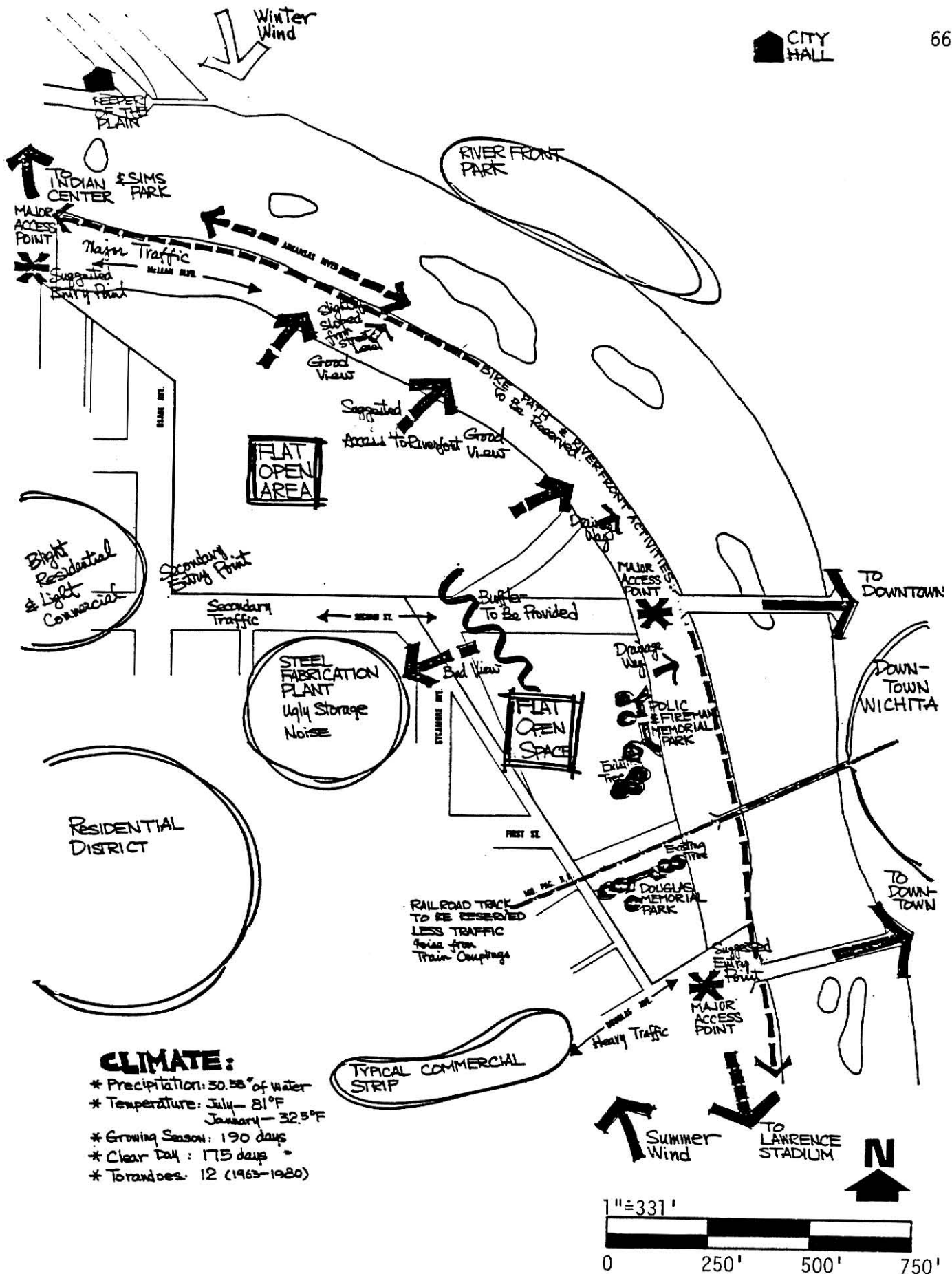


Figure 22 Comprehensive Site Analysis

Points of consideration concerning the use of the surrounding areas include the following: directly across from the bridge on the east side of the river is the heart of downtown Wichita; located north of the site are the Mid-America Indian Center, Sims Park, and the Art Museum; in the south-west is a blighted residential and commercial mixed district; immediately adjacent to the west-central portion of the site is the Walkins Steel Company; and south of the site along Douglas Avenue is a blighted commercial strip.

The location of the site offers dramatic views of Downtown Wichita and the Arkansas River (Figure 23 and Figure 24). Figure 25 depicts a comprehensive visual analysis of the area. Kevin Lynch's classification in The Image of the City lists five major types of visual elements: paths, edges, districts, nodes, and landmarks. Identification of these visual elements in the area will help future design decisions for site planning. From a personal survey by the author, the following is offered concerning these visual elements as they relate to the surrounding area:

- . Paths: Paths include the streets along which an observer customarily, occasionally, or potentially moves. Douglas Avenue is the major access to the south portion of the present site; First-Second Street is the major access for the central part; and McLean Boulevard along the westbank of the Arkansas River is the main north-south access.

- . Edge: Edges are the boundaries between two phases, linear breaks in continuity. The only edge found in the area is McLean Boulevard along the east edge of the site, which clearly separates the site from the west bank waterfront of the Arkansas River and downtown Wichita.

- . Districts: Districts are the areas which the observer mentally enters "inside of" and which are recognizable as having some common, identifying character. Several districts are identifiable: the downtown area, which is in walking distance; the Greenway residential district, north of the site and across



Figure 23 View from Site toward the Downtown



Figure 24 View from Site toward the Arkansas River

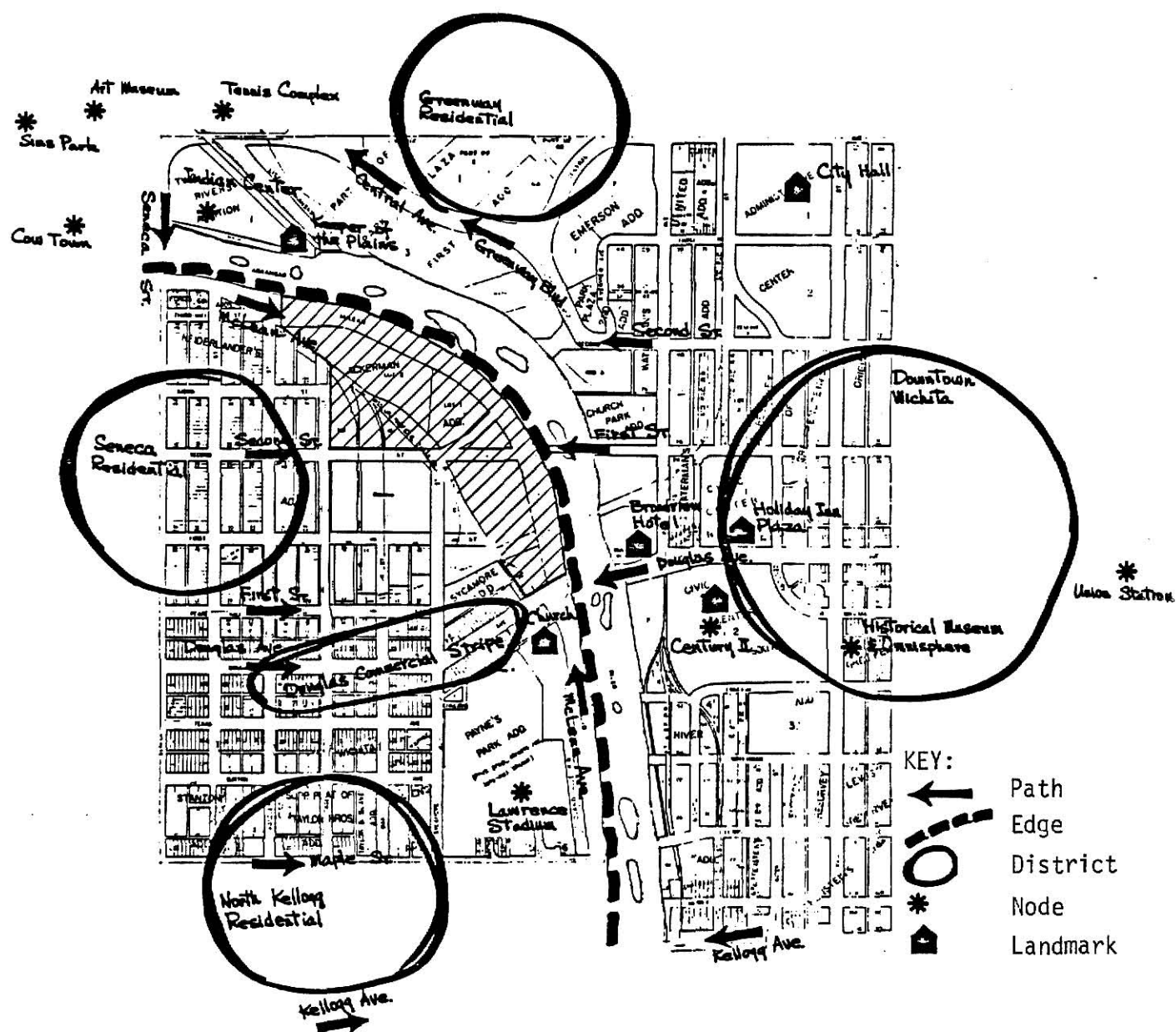


Figure 25 Comprehensive Visual Analysis

river, consisting of many new condominiums and apartments; a blighted residential area on the east; and to the south along Douglas Avenue is the deteriorating commercial district.

. Nodes: Nodes are the strategic spots in a city into which an observer can enter, and which are the intensive foci to and from which he is traveling. Century II, Historical Museum and Omnisphere, and Union Station east of the site; Lawrence Stadium to the south; and the Mid-America Indian Center, Cow Town, Art Museum, Sims Park, and Tennis Complex to the north could be considered as nodes in the area.

. Landmarks: This category includes tall structures which can be seen from a distance. Specifically, they are as follows: the Broadview Hotel, Holiday Inn Plaza, Century II, City Hall, and the Keeper of the Plains statue in Mid-America Indian Center.

According to this visual analysis, an important design consideration emerged--the relocation of McLean Boulevard. Altering McLean Boulevard would not only create a parcel of land adjacent to the river, but would also give the site a stronger relationship to downtown Wichita. First-Second Street could serve as the major access, and Douglas Avenue could be an important path to the site from the south. As envisioned in the analysis, the development would become a new multi-use district on the west side of the river and would also help upgrade the blighted residential and commercial districts. As seen in the visual analysis, there is a lack of nodes and landmarks on the west side of the river, but the project would create new nodes for gatherings of people and new landmarks to guide people's movement in the area.

V. MARKET ANALYSIS AND PROGRAMMING

The Real Estate Research Corporation identified a real need for the West Bank Development, and estimated a market of over 763,000 people in 1976 with

minimal competition in the region. As shown in Figure 26, some of the most densely populated counties in the State of Kansas are found within a 100-mile market region.¹⁵ By 1983, the estimated population could be over one million, with still only minimal competition. As an additional plus, the city of Wichita has the largest population in the state, with 279,352 in 1980.¹⁶ RERC estimated a total employment of 27,000 in 1976 in the downtown area. All of these factors support the contention that the development will be competitive with new shopping malls and the increasing competition in the recreational and entertainment markets. Through the course of research and analysis, the market potential for developing the west bank of the Arkansas River as a major focal point in the region has become evident.

RERC project a demand for 175 residential units per year, up to 50,000 square feet of new office space, and more than 400 units of hotel rooms. Based on the analyses of the mixed-use development case studies in Chapter 2, these figures are too low to bring about a feasible development and generate market synergy through the development of multi components. So, in order to create a major focal point in the region and to meet the future needs of downtown Wichita, the author's market estimates in this development are much greater than RERC's projection. From the discussions on the potential and intent of the project and the site analysis in this chapter, the following program requirements have been established, and the master plan constructed.

- . 1,000 residential units to help create a 24-hour life cycle.¹⁷
- . Office space of 800,000 square feet or more, or of a sufficient scale and character to attract regional offices of national concern.

¹⁵As reported in the 1980 Census Press Release Announcement, there was a 1979 population of 883,966 in the Kansas counties within the 100-mile region.

¹⁶Source: 1980 Censes Press Release Announcement.

¹⁷The 1,000 units could be phased for 300⁺ units per year during 3 years of construction and operation period.

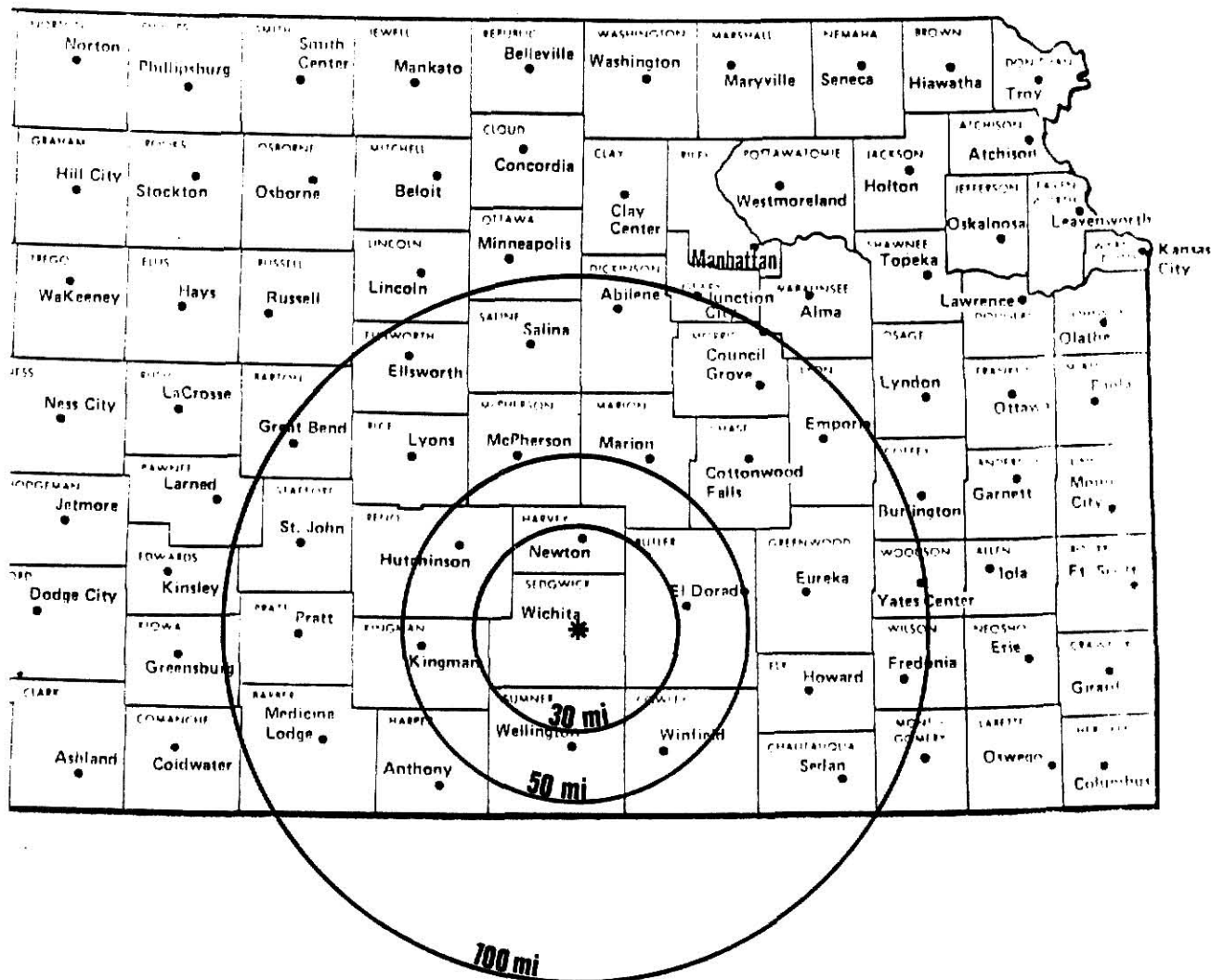
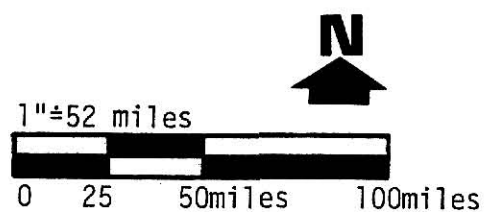


Figure 26 Market Region



- . Hotel rental units of 700 luxury rooms, and sufficient facilities to host national conventions.

- . Retail space of 250,000 square feet, including two department stores and shops with specialty orientations, large enough to draw from a metropolition-wide trading area and have the ability to compete with existing regional shopping malls.

- . Indoor and outdoor space for the aerospace museum of 150,000 square feet, including exhibition and seminar facilities to illustrate the evolution and importance of the air industry of the city.

- . Parking space for 9,000 or more vehicles accommodate the parking needs of the components.

- . The preliminary FAR design was set between 4.0 and 5.0, allowing approximately 50% of open space on the site.

VI. MASTER PLAN OF THE WEST BANK DEVELOPMENT

A. Concept of the Master Plan

The major concept of the West Bank Development master plan is a new human environment, and thereby aiding in the revitalization of the central city. The development should be self-sufficient and superior in quality in order to promote downtown Wichita as an attractive regional center, and the mixture of components should be integrated enough to approach optimum market goals. The master plan concept also includes the recognition and maximization of the site's potential, with congruity between the mixed uses and the existing on-site and surrounding features.

Based on these proposals, the master plan is intended to establish the land use patterns which are deemed most beneficial for the site.

B. Master Plan

The master plan of the West Bank Development, shown in Figure 27, contains

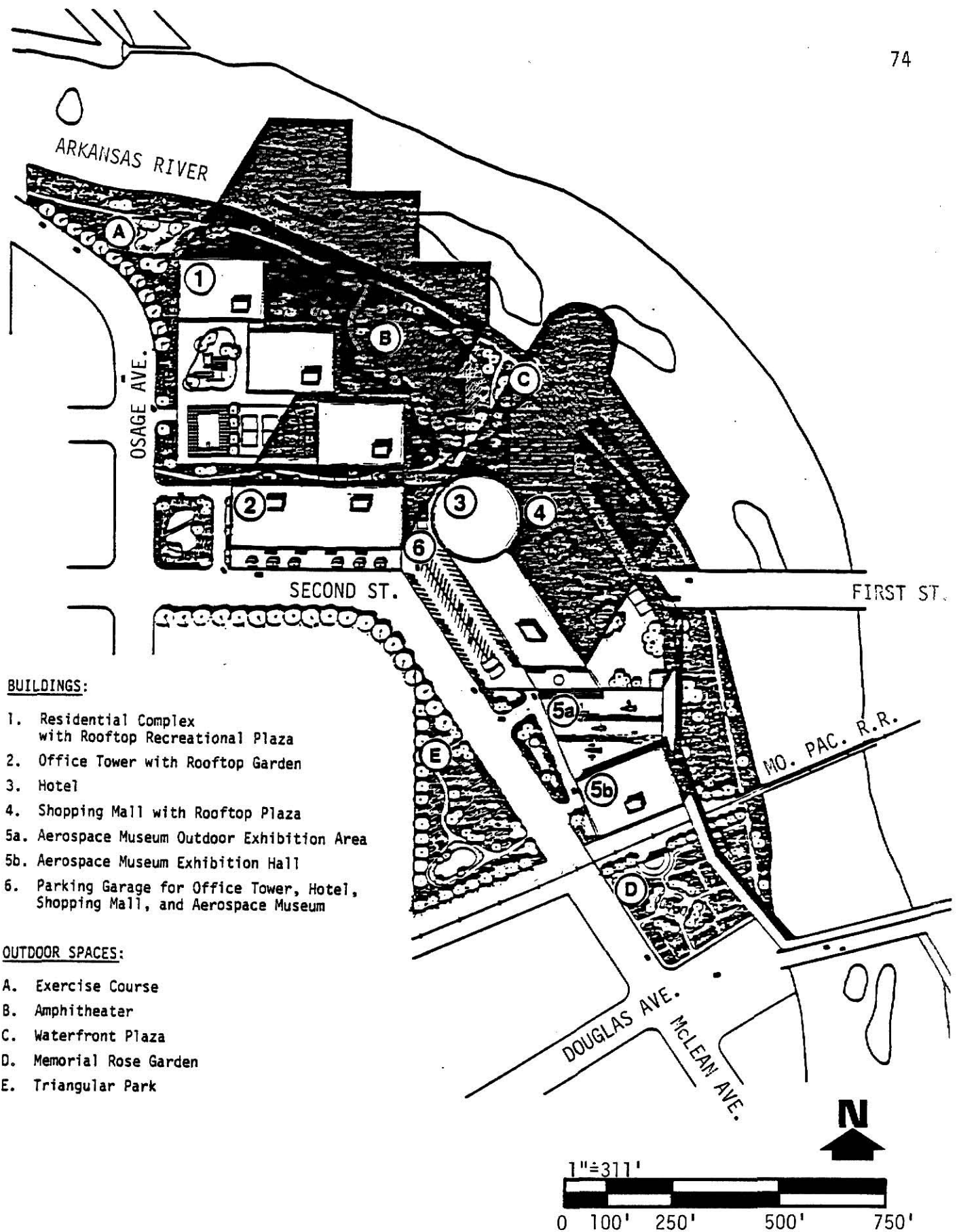


Figure 27 Master Plan of the West Bank Development

a residential complex, office tower, hotel, shopping mall, aerospace museum, parking garage, exercise course, amphitheater, waterfront plaza, memorial rose garden, triangular park, and open spaces.

One of the most important steps to be taken in maximizing the benefits derived from the development is the relocation of McLean Boulevard to the west side of the site along Osage Avenue and Second Street. This allows the site to be integrated with the bank of the Arkansas River and have a stronger relationship with the river's east side. The land of the existing site not only lends itself to a higher quality use but will also provide a conflict-free visual and physical access to the river. The alternation of the major traffic flows also will encourage the future development and revitalization of the west side of the surrounding area. The components of the development can be situated according to the linear shape of the site for the purpose of trying to achieve maximum exposure to the river corridor and the downtown area.

The following is a brief description of the major components of the development:

. Residential Complex: The complex consists of three interconnected 21-story buildings located at the north end of the site. The 2,318,400-square foot structures provide approximately 1,000 rental and condominium units. A 1.87 acre roof top recreation plaza above the parking garage includes a tot lot, swimming pool, and tennis courts for on-site residents. The close proximity to the CBD area, the view toward the Arkansas River waterfront, the rooftop recreation plaza, and the easy accessibility to other components in the development will make downtown living opportunities attractive.

. Office Tower: The 16-story structure is above a 7-level parking garage and provides 960,000-square feet of office space with a landscaped rooftop garden on the top of the parking garage. The building is located on the north-eastern corner of the current intersection of Osage Avenue and Second Street, offering

a convenient access to the office tower. A vehicular drop-off point and a square landscaped open space are provided on the west side of the building. The open space on the rooftop of the parking garage not only provides the office employees a relaxing environment but also gives access to the hotel.

. *Hotel:* The 27-story hotel is deemed an essential element of the development because of the need for a new high-quality transient facility in Wichita and also for the market support it would contribute to the on-site office and retail uses. The hotel is centrally located and is easily accessible from the shopping mall, office tower, and aerospace museum. The 1,142,180-square feet of gross building area consists 700 rooms, convention facility, and restaurant. The rotating restaurant at the top of hotel tower provides an excellent panoramic view of the city.

. *Shopping Mall:* The 3-story shopping mall is interconnected with the hotel along the east-central portion of the site. First-Second Street runs through the structure, offering easy access. The enclosed 291,450 square feet of gross leasable area includes 2 department stores, the major retail anchor, and some 80 smaller shops providing unique, high-quality merchandise. In order to attract suburbanites, downtown office workers, visitors, and on-site residents, a landscaped 2.42 acres plaza is featured on the rooftop, composed of shaded seatings, a cafe, a small amphitheater, and open-air shops. The rooftop plaza also makes the shopping mall easily accessible from the nearby hotel, parking garage, and aerospace museum. In addition to the rooftop plaza, in front of the ground level entrance of the shopping mall, there is also a waterfront plaza inviting shoppers to join the various riverfront activities.

. *Aerospace Museum:* The 2-story structure consists of 93,800 square feet of outdoor exhibition area and 67,600 square feet of exhibition hall. The museum will illustrate the history and importance of commercial aviation and the key role of such Wichita firms as Beech, Cessna, Gate Learjet, and the Boeing

Military Airplane Co., which supply over 60% of the world's general aviation aircraft. The specific purposes of the museum are to:

- a. inform people of the history of commercial aviation (i.e., Cessna's history back to 1927).
- b. inform people of the importance of the role the aviation industry plays in the nation's industry, commerce, agriculture, and emergencies, and the role it plays in areas of personal interest.
- c. inform people of the importance of the industry to central Kansas and the city of Wichita.
- d. create a favorable attitude towards the industry, commercial airports, and related legislation.

The exhibit could include actual planes, animated displays and imaginative slide or movie presentations. The display might consider housing Cessna's 4-6 seaters (150, 170, 336, 337), Cessna's AG truck and AG wagon for agricultural use; Beechcraft's famous Bonanzas; and some of Boeing's military and commercial planes. Light aircraft groups such as the agricultural pilot's International Flying Farmers, the American Bonanza Society, the Senior Pilots Association (for pilots aged 55 and older), the International Ninety Nines (a women's pilot group), and the Experimental Aircraft Association (for homebuilt aircraft) could also have their own exhibition space to present their associations. Also, convention facilities, meeting rooms, offices, and special showrooms could also be accommodated in the exhibition hall. The aerospace museum in the West Bank Development will promote more understanding Wichita as the "Air Capital of the World".

. **Parking Garage:** The 3-story above-ground and 5-level under-ground parking garage not only accommodates 4,498 spaces for the parking needs of the office tower, hotel, shopping mall, and aerospace museum, but also serves as a buffer between the residential complex, office tower and other high-intensity public components.

. Exercise Course: This complete facility will fit into the existing bike route and become a major anchor for the entire exercise trail. The course is so located in order to serve the on-site residents best.

. Amphitheater: The 1.17 acre amphitheater serves as a core of intensive use and is a linkage to other attractions along the riverfront. Many types of vegetation can be planted to minimize the sound and visual interruptions to the residential area.

. Waterfront Plaza: The 1.04-acre plaza, situated from the shopping mall to the riverfront, features a cafe, seatings, and a harbor deck to provide an excellent setting for waterfront activities.

. Memorial Rose Garden: The 1.80 acre rose garden will accommodate the existing Douglas Memorial Fountain to become the south pedestrian entrance of the development. Since Wichita has a large and very active garden club and the general population has an interest in this activity, success of this garden is likely. This portion of the project should encourage private donations, top quality design, and minimal maintenance.

. Triangular Park: The 2.15 acre open space is to serve as a place for general outdoor activities, such as jogging, ball games, and picnics. The park is also to serve as a buffer between the development and the existing steel plant.

The physical relationship of the uses can be seen in a model of the project. Figure 28 shows a bird's-eye view of the entire development, and Figure 29 shows the view from downtown and across the river toward the site.

There are some other important design features and considerations which should be mentioned. All the components in the development are connected by an enclosed climate-controlled skywalk system. The pedestrian skywalk system provides a vehicle-free access to the various uses in the project, with the elevated system leading to various ground level activities. These skyways also feed into third-level retail areas and ensure shop exposure to pedestrian traffic. The pedestrian

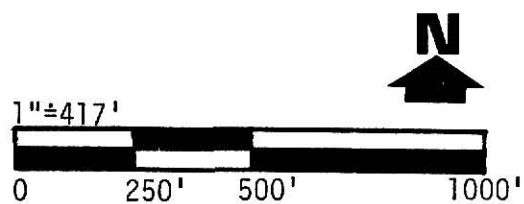
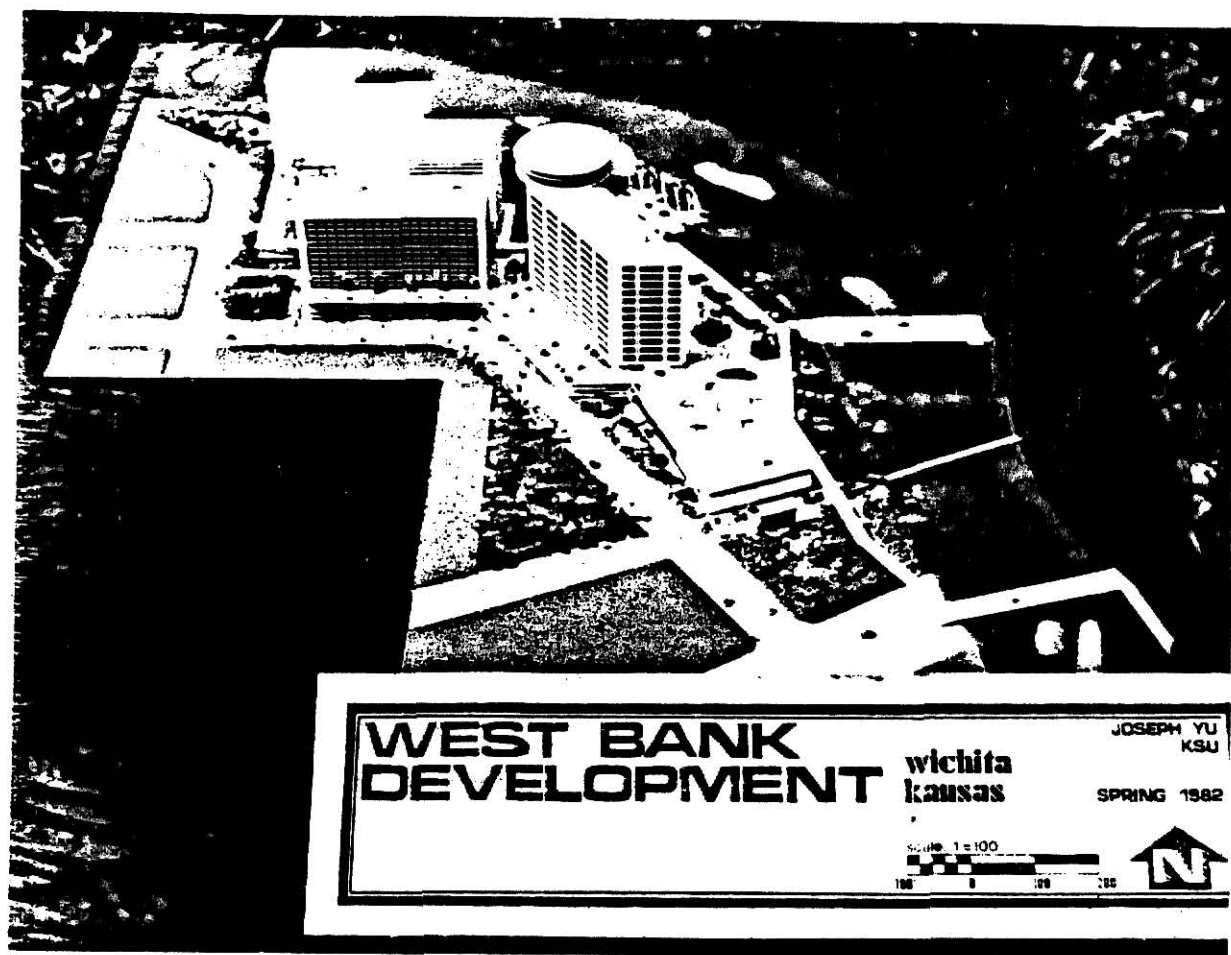


Figure 28 Model of the West Bank Development. This particular shot shows a bird's-eye view of the entire project.

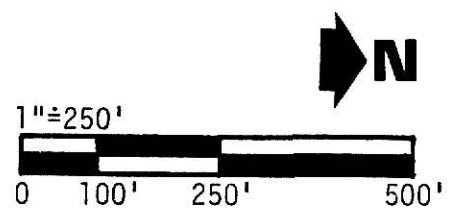
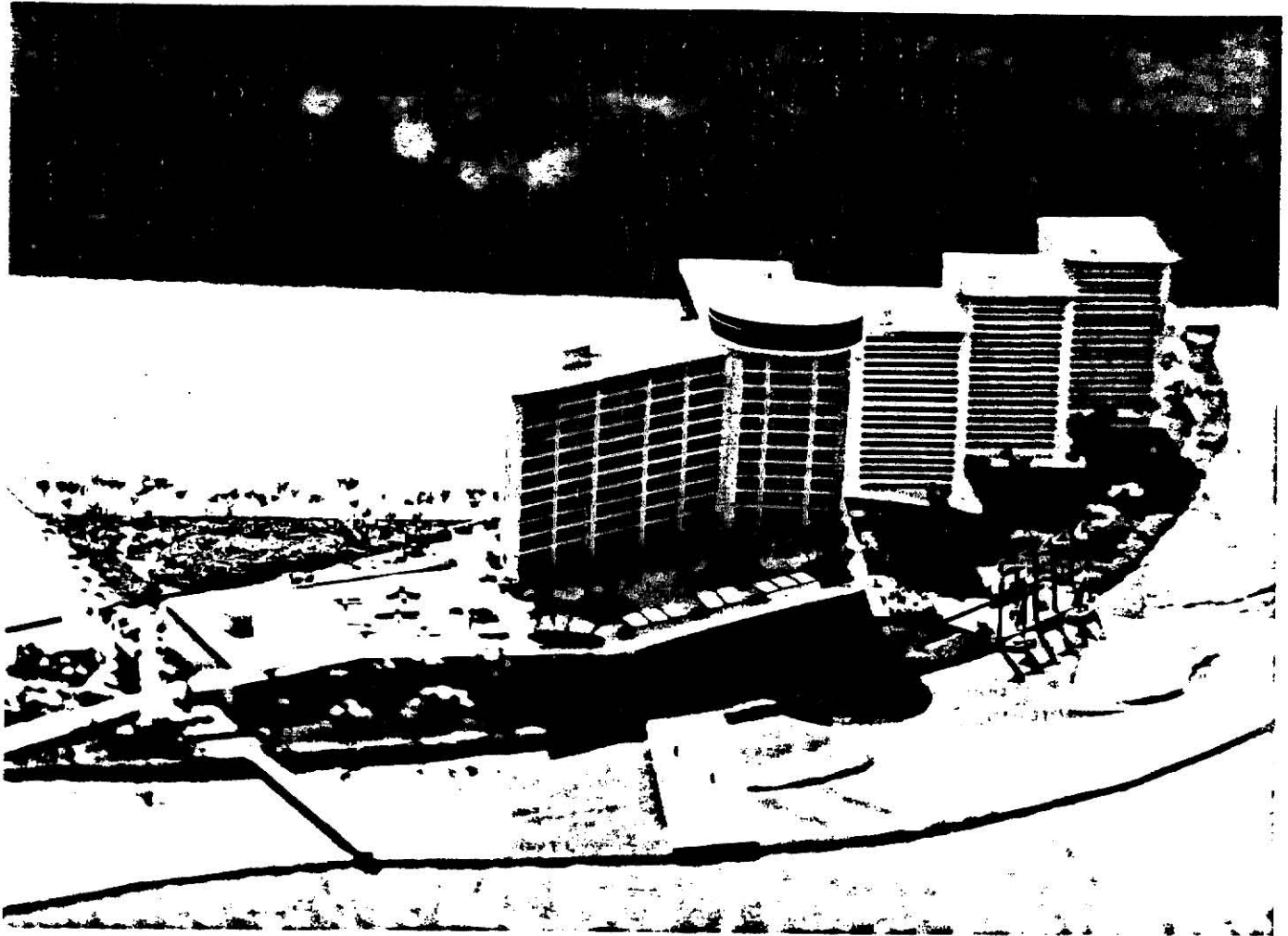


Figure 29 Model of the West Bank Development. This particular shot shows the view from downtown Wichita across from the Arkansas River toward the project.

system extends along Douglas Bridge to locations in the central area of city, such as the Holiday Inn Plaza and Century II. This effort makes the entire development have a stronger integration with the CBD area.

Major outdoor activities such as the exercise course, amphitheater, waterfront plaza, and memorial rose garden are linearly positioned along the river and bike route so as to promote the use of the riverfront and to serve as an invitation to the variety of activities available on the site.

Table 5 shows a comprehensive statistical presentation of land use data for the components in the development. The building area covers about two-fifths of the entire 39.16 acres, leaving about 60% outdoor space. The building information presented in Table 6 shows 7,625,930 square feet of total gross building area (GBA) and reflects a floor area ratio (FAR) of 4.47.

Further discussion of the physical and function relationships among the mixed-use components will be addressed in the next chapter.

Table 5
West Bank Development Land Use Data

Component	Sq. Ft.*	Acres	Percent
1 _a . Residential Complex	110,400	2.53	6.47
1 _b . Roof top Recreation Plaza for Residential Complex	81,600	1.87	4.78
2 _a . Office Tower	60,000	1.38	3.51
2 _b . Rooftop Garden for Office Tower	20,000	0.46	1.17
3. Hotel	72,500	1.66	4.25
4. Shopping Mall	105,700	2.42	6.20
5 _a . Aerospace Museum Outdoor Exhibition Area	46,900	1.08	2.75
5 _b . Aerospace Museum Exhibition Hall	33,800	0.78	1.98
6. Parking Garage for Office Tower, Hotel, Shopping Mall, and Aerospace Museum	58,900	1.35	3.45
A. Exercise Course	17,900	0.41	1.05
B. Amphitheater	51,000	1.17	2.99
C. Waterfront Plaza	45,500	1.04	2.67
D. Memorial Rose Garden	78,300	1.80	4.60
E. Triangular Park	93,800	2.15	5.50
F. Open Space (Including: Waterfront Activities, Circulation, and Skywalk)	829,510	19.04	48.63
Total	1,705,810	39.16	100.00

* Ground Floor Coverage.

Table 6

West Bank Development Building Information

Component	1st.Floor (Sq. Ft.)	Description	Parking Space	GBA (Sq. Ft.)	Unit Size (Sq. Ft.)	Total No. of Units
1. Residential Complex	110,400	21 stories/ 2 stories parking garage	1,730	2,318,400	800-1,000	1,000
2. Office Tower	60,000	16 stories/ 7 stories parking garage	2,947	960,000	1,600	960
3. Hotel	72,500	20 stories rental units/7 stories restaurant & convention facility	1,838	1,142,180	1,000	700
4. Shopping Mall	105,700	3 stories	2,040	291,450	1,500	290
5a. Aerospace Museum outdoor Exhibition Area	46,900	2 stories		93,800		
5b. Aerospace Museum Exhibition Hall	33,800	2 stories	620	67,600		
6. Parking Garage for Hotel, Office Tower, Shopping Mall, and Exhibition Hall	58,900	3 stories/ 5 stories parking garage		164,550	300	548

Notes:

1. Total gross building area (GBA): 7,625,930 sq. ft.
2. Floor area ratio (FAR): 4.47
3. The 548 spaces of the parking garage is above ground-level. The total number of parking spaces in this garage is 4,498. The total number of parking spaces for the entire development is 9,175.

Chapter 5

IMPLEMENTATION OF THE FEASIBILITY EVALUATION PROCESS ON THE WEST BANK DEVELOPMENT

The case study project--the West Bank Development of Wichita--was carried out following the major stages of the implementation model presented in Chapter 3. Two important segments of the feasibility evaluation process--the economic feasibility and design feasibility studies--need to be discussed in depth, in order that one may decide whether or not the project is actually worthy of construction. A government agency could play a role in the project, and the possible benefits of which will be discussed in this chapter.

I. DESIGN FEASIBILITY STUDY

One of the most important characteristics of mixed-use development is the meaningful physical and functional integration of project components, thereby providing an intensive use of land. This characteristic can be found in the West Bank Development. Shown in Figure 30 is a schematic diagram of the West Bank Development; the diagram illustrates the main design concept of the master plan. The major components of project are the residential complex, office tower, hotel, shopping mall, aerospace museum, memorial rose garden, and the waterfront plaza. These components serve the functions that should be included in mixed use developments, function concerning spaces and activities for living, office, transient living, retail, recreation, and entertainment. The components are strongly interconnected with enclosed climate-controlled skywalks and/or ground level pedestrian walks. For vehicular access to the site, there are several uninterrupted, direct exterior approaches to the major components, ensuring

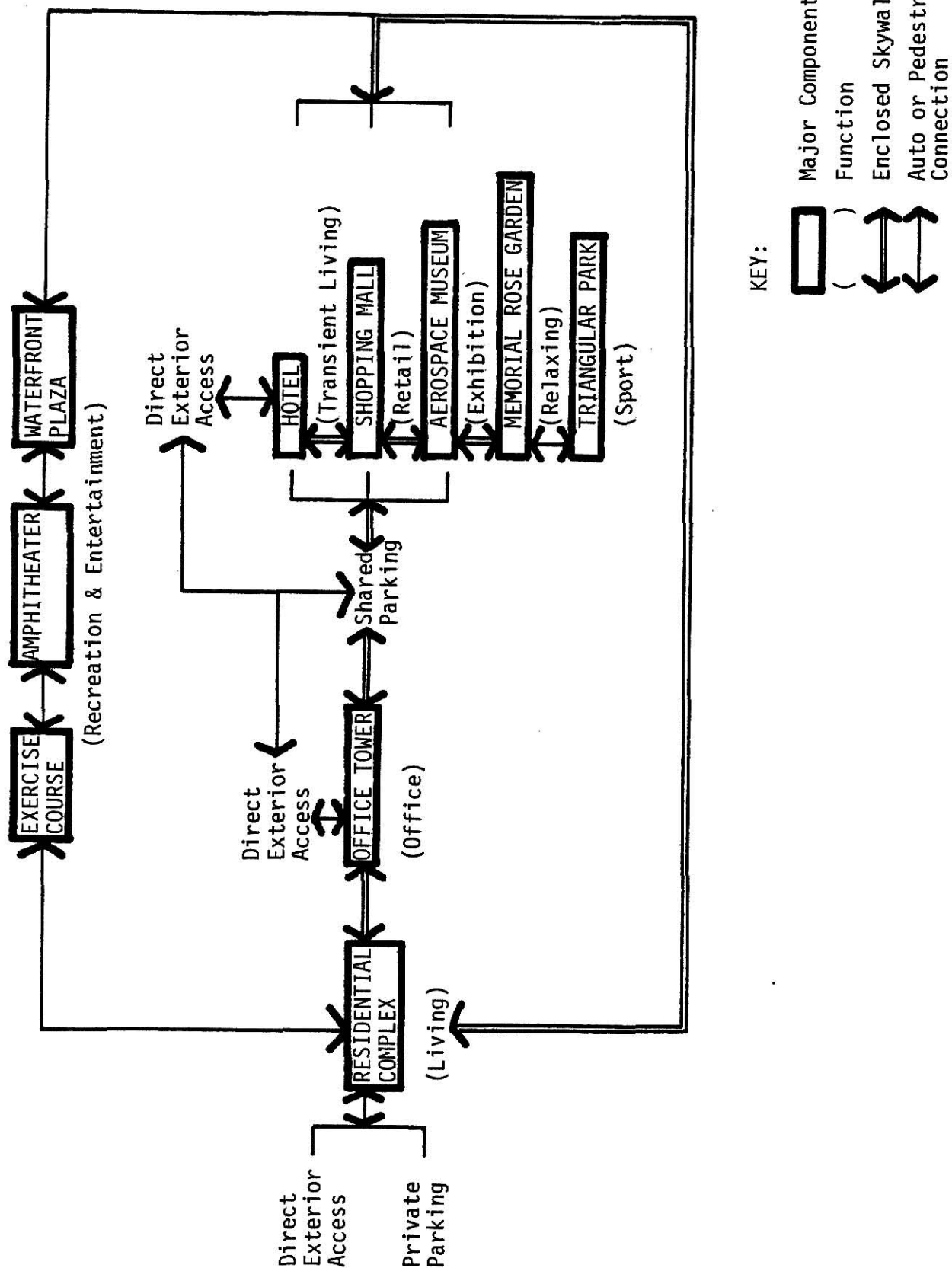


Figure 30 Schematic Diagram of the West Bank Development

emergency and service accessibility. The residential complex has its own parking garage; the office tower, hotel, shopping mall, and aerospace museum share their own underground parking garage, providing an interconnection among these components, ensuring a maximum integration of uses. The key project components are the hotel and shopping mall, and are the centrally-located focal points of the development. Although the residential complex and office tower are connected by an enclosed skywalk as mentioned, they have separate parking garages giving privacy or semi-privacy. Other components are also located around the central focal points, in order to generate the maximum market synergy. The density of each of the components are carefully mixed to establish a new self-contained community with a gross FAR of 4.47. Such an FAR is typical for mixed-use developments. The FAR of the West Bank Development is higher than that of the other real estate sites in the area; Figure 31 depicts an aerial view of the completed structure, showing how it differs from other part of downtown Wichita (notice shadows). This characteristic is also an important factor for creating a new market image in the area. Besides the consideration of high density for economic reasons, the site plan of the project also carefully lays out the proportional mixture of structures and open space, with around 60 percent of the total reserved for the amphitheater, exercise course, waterfront plaza, memorial rose garden, park, bike path, etc. The large amount of open area helps to create a totally human oriented environment that is an enjoyable place to live or visit.

Let's compare the existing and proposed structures. Figure 13 (P. 56) and Figure 31 shows that the project will fill some of the open area of the site; it will also cover the "development gap" between the east and west side of the river, and will serve to integrate the well-developed downtown area with the residential district on the west side of the river. The completion of the West Bank Development will serve as a catalyst in upgrading the deteriorating residential area and the commercial strip along Douglas Avenue. The components of the development,



Figure 31 Aerial Photograph at Completion

especially the aerospace museum will also serve as focal points for cultural activity linking: Cow Town, Art Museum, tennis complex, Mid-America Indian Center; Lawrence Stadium, and Century II to the downtown area, and provide a significant link in the overall concept of continuous recreational facilities and park development on the riverfront. The physical arrangements of the components are derived from a need to establish a harmonious design, reflecting and strengthening existing site features and roads. One of the most important steps concerning the existing features is the relocation of McLean Boulevard to the west side of the site to maximize the site's integration with the bank of the Arkansas River.

In order to establish a new market image, unified and specially designed set of landscape elements, such as signage, street furniture, and lighting, should be provided to the residents and visitors of the project. The signage design is the most essential, and should perform these functions: identify a place, indicate warning where necessary, and give routing information. A good signage consideration will help in achieving the functional integration of the components.

II. ECONOMIC FEASIBILITY STUDY

Based on the economic feasibility evaluation process developed in Chapter 3 and the site plan data of the West Bank Case Study in Chapter 4, the economic aspect of the feasibility study such as phasing plan, projection figures for the project, and financial resources will be discussed below.

A. Phasing Plan

Phasing is a means by which the developer can financially implement the project in segments. The most critical item in mixed-use developments relate to development cost control and the phasing of infrastructure improvements to minimize front-end investment. Here is the phasing plan specially designed for the West Bank Development:

Phase I: allow for the funding, the acquisition of the right of way, the

relocation of McLean Boulevard, the cleaning of the site, and other site construction works.

Phase II: develop residential complex and office tower.

Phase III: develop hotel and shopping mall.

Phase IV: develop aerospace museum.

Phase V: begin marketing and operating components.

Figure 32 shows a comprehensive major construction phasing diagram, using an annual basis extending from 1983 to 1987--a 5 year construction period. The landscape construction, such as the exercise course, amphitheater, waterfront plaza, memorial rose garden, and triangular park, will be developed concurrently during Phase II and Phase III. The enclosed skywalks that connect the major components will be developed concurrently with major developments of the site.

B. Financing Resources and Public Support

As mentioned previously, mixed-use developments always require a higher front-end investment than traditional land developments. Financing is the most important problem in these type of developments. Well-insured financing will allow for a sound financial structure and guarantee a successful development. From this standpoint, government agencies could play an important role in the project. Not suprisingly, due to the high risks and large investment requirements in these complex, long-term mixed-use projects, such developments will increasingly require a public/private partnership approach.

1. Financing Resources

Following is a brief list of the possible available financing resources for the individual components of the West Bank Development.

- . Urban Renewal--Land Assembly and Infrastructure Construction
- . Industrial Revenue Bonds--Buildings
- . Local Industries--Aerospace Museum

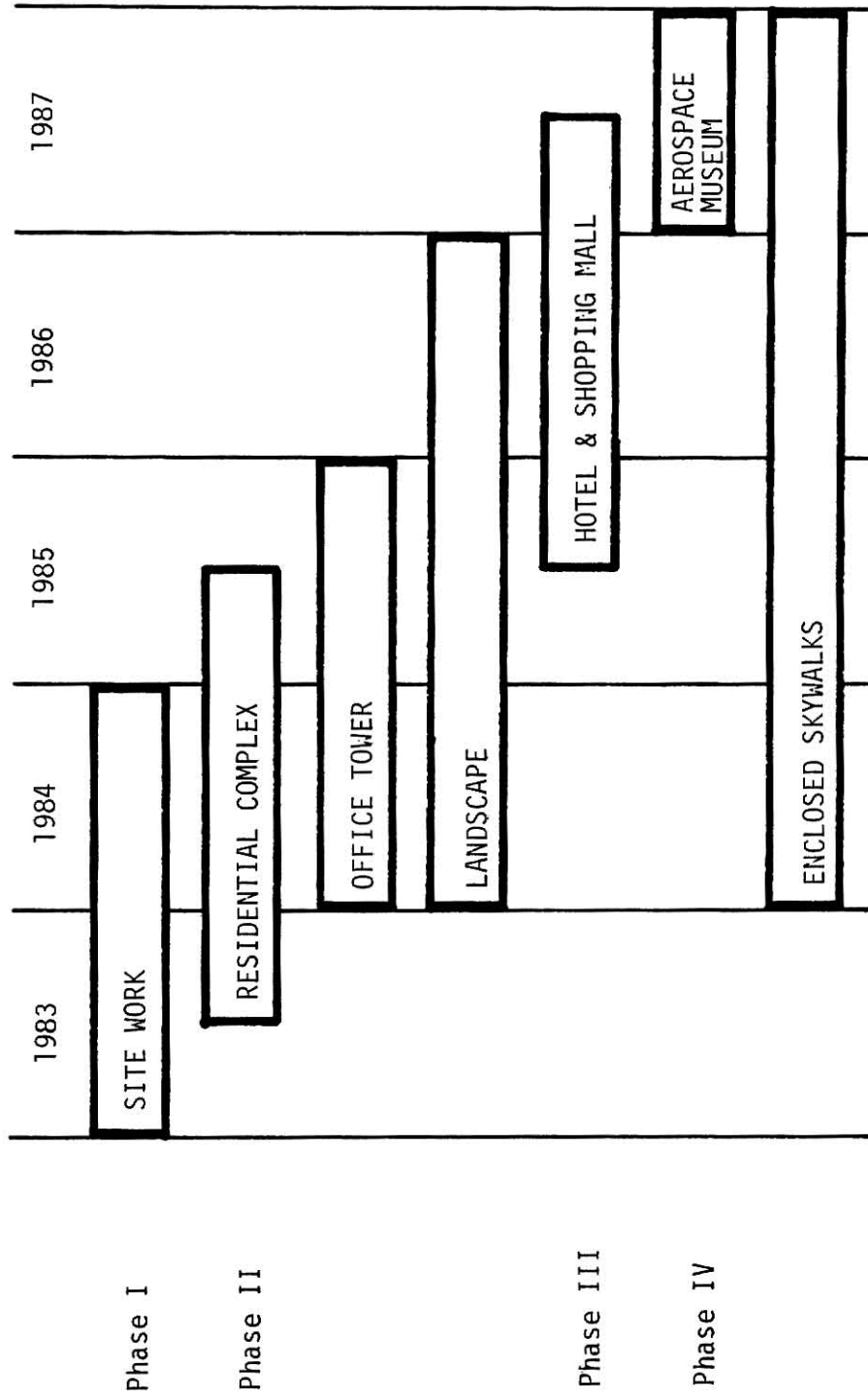


Figure 32 Major Construction Phasing Diagram

- . Local Donations--Memorial Rose Garden

- . Private Developers--Residential Complex, Hotel, and Shopping Mall

Industrial revenue bonds might will be the most important resource for financing, since the new housing could also stimulate downtown business by creating more shopping demand. Since the landscape construction along the river will be fitted into the existing riverside plan (the latter already funded by the city), it is possible to seek the support from local government. The art works in the plaza could be funded through the National Endowment for the Arts. For those local air industries involved in the aerospace museum, participation would allow them to maximize tax write-offs or to acquire showroom space as compensation for expenses.

2. Public Support

Good public/private cooperation would certainly reduce the risks associated with this type of large mixed-use development. In this case study, besides offering the local industries contributing to the aerospace museum and the local donations for the memorial rose garden, the term of "public support" also refers to the help given by the local government. There are many benefits which could be generated through the support of mixed-use development from the public-sector:

- . Ensuring timely and adequate site assembly.

- . Allowance of land write-downs or tax abatements.

- . Development of a special set of planned development ordinances and amendatory ordinances to govern the project and guide the maximum allowances of FAR and open space percentage to achieve an orderly and integrated development.

- . Separate responsibilities and financial obligations for the provision of infrastructural improvement by the city and the developer.

- . Assistance in utility relocation, street relocation, street closings, etc.

- . Technical assistance for developers in coordinating public improvements

and facilities.

C. Cash Flow Analysis

The cash flow analysis comes out of the financial analysis, and projects the financial implications of implementing the development program within the established time sequence for each key component of the project. The analysis includes the estimates for capital costs, operating expenses, financing arrangements, and expected revenues. The cash flow statement should be performed on an annual basis. It should be noted that in order to get a more comprehensive picture of the financial analysis, some of the technical parts of the implementation have been simplified for this case study, and in actual practice would require the use of a trained economist.

1. Expenses Projection

The expenses of the project include developer expense, construction cost, operating cost, and financing expense. Table 7 shows the estimate for the West Bank site value. The city spent \$1.26 million to purchase a 10.90 acre parcel, formerly owned by Pepsi Cola Bottling Company, in late 1980. With a 10 percent annual carrying charge, the entire 39.16 acre site will have an expected worth of \$5.48 million in 1983. The site work construction estimates are shown in Table 8, and is composed of demolition, earthwork, streets, storm drainage, sanitary, gas, electric, and water. The estimates were based on Cost Data for Landscape Construction (1981), and require a 100% local adjustment factor plus a 7% annual increase rate for 2 years. Adding a 15% contingency factor, the total estimated cost for site work construction will be \$2,983,058.90. Table 9 shows the building construction cost estimate for the components and enclosed skywalks, and is based on Means System Cost Guide 1981, with a project size modification range from 90-100%, a 92.1% local adjustment factor, and a 7% annual increase rate for 2 years; it is also based on 1981 Dodge Construction Systems Costs, with a 87% local adjustment factor and a 7% annual increase rate for 2 years. The total building

Table 7
Land Value Estimate*

	Acreage	1981	1982	1983
Pepsi Cola Bottling Company Site	10.90	1.26**	1.37	1.52
Entire Site	39.16	4.53	4.98***	5.48

*In Million \$.

**In late 1980, the City spent \$1.26 million for the site.

***With a 10 percent annual carrying charge.

Table 8
Site Work Construction Cost Estimate *

	Unit	Unit Cost **	Cost
1. Demolition	474.80 MSF	\$ 21.10/MSF	\$ 11,469.93
2. Earthwork	1,705.80 MSF	\$ 137.00/MSF	\$ 267,556.95
3. Streets	140,500.00 SY	\$ 12.90/SY	\$1,075,074.00
4. Storm Drainage	39.16 Acre	\$ 350.00/Acre	\$ 15,692.00
5. Sanitary	39.16 Acre	\$1,000.00/Acre	\$ 44,834.28
6. Gas	39.16 Acre	\$ 500.00/Acre	\$ 22,417.14
7. Electric	39.16 Acre	\$ 500.00/Acre	\$ 22,417.14
8. Water	39.16 Acre	\$3,000.00/Acre	\$ 134,502.85
Total:			\$2,593,964.30
+15% Contingency:			\$2,983,058.90

* Cost estimate based on Cost Data for Landscape Construction (1981).

** Requires a 100% local adjustment factor plus a 7% annual increase rate for 2 years.

Table 9
Building Construction Cost Estimate*

	Sq. Ft.	Cost/Sq. Ft.**	Cost***	Subtotal
1. Residential Complex	2,318,400	\$43.60	\$106,136,350	\$114,844,651
Parking	519,000	\$17.00	\$ 8,708,301	
2. Office Tower	960,000	\$52.00	\$ 48,222,720	\$ 62,425,786
Parking	884,100	\$17.00	\$ 14,203,066	
3. Hotel	1,142,180	\$45.39	\$ 51,325,114	\$ 60,577,054
Parking	551,400	\$17.00	\$ 9,252,940	
4. Shopping Mall	291,450	\$26.85	\$ 7,723,701	\$ 17,773,965
Parking	612,000	\$17.00	\$ 10,050,264	
5. Aerospace Museum (Outdoor)	93,800	\$48.57	\$ 4,510,307	\$ 12,607,442
(Indoor)	67,600	\$71.38	\$ 4,777,035	
Parking	186,000	\$17.00	\$ 3,320,100	
6. Enclosed Skywalks	78,000	\$10.00	\$ 819,000	\$ 819,000
			Total: \$269,047,898	
			+15% contingency: \$309,405,083	

* Cost estimate based on Means System Cost Guide 1981, except for hotel and aerospace museum, estimates based on 1981 Dodge Construction Systems Costs.

** The Means System requires a project size modification range of from 90-100%.

*** The Means System requires a 92.1% local adjustment factor plus a 7% annual increase rate for 2 years, while Dodge Construction System requires an 87% local adjustment factor plus a 7% annual increase rate for 2 years.

construction cost with a 15% contingency factor is \$309,405,083. The landscape construction cost estimate in Table 10 including the cost for landscaping open space is also based on Cost Data for Landscape Construction (1981); with a 15% contingency factor it will cost \$3,375,381.40. Table 11 shows the total construction cost of \$315,763,420 and total project management expenses of \$75,783,210, giving a total principal for construction and project management will be \$391,546,630. Referring to the construction phasing diagram of Figure 32 (P. 90), the accumulated construction and management principal for the entire construction period on an annual basis could be calculated as shown in Figure 33. During the five year construction period, with an estimated 10% annual construction loan interest rate, the loan interest requirement for the construction and management principal comes out to a total of \$103,173,550 (table 12). The total appraised value of \$500,200,180 for the project is the sum of land value, construction cost, management expenses, and loan interest. The long-term mortgage monthly payment, based on 25 years with a 10% interest rate, is \$3,409,030, or \$40,908,360 annually, as shown in Table 13.

2. Revenue Projection

The major revenue resources for the mixed-use development includes the sales and rental of residential units and office spaces, the rental of hotel units and convention facilities, the admission charge for entertainment use, parking fees, and so on. The revenue projection for the West Bank Development is based on the preceeding case studies and adapted to the local situation. The projection also reflects the economic savings from the scale and operation of the project.

3. Preliminary Cash flow Statement

The preliminary cash flow statement is composed of the above expenses and revenue projections viewed from an annual basis. So, the financial profile of development activities could be previewed, evaluated, and altered if necessary at this stage. The preliminary cash flow statement, shown in Table 14, details an

Table 10

Landscape Construction Cost Estimate*

	Unit	Unit Cost**	Cost
1. Sidewalks/Bike Route	54,000.00 SF	\$ 7.10/SF	\$ 438,954.70
2. Irrigation	14.41 Acre	\$ 5,650.00/Acre	\$ 93,213.80
3. Sod	627.70 MSF	\$ 34.40/MSF	\$ 24,721.70
4. Tree	270	\$ 342.00/ea.	\$ 105,720.00
5. Shrub	90	\$ 13.80/ea.	\$ 1,422.00
6. Lighting	100	\$ 4,000.00/ea.	\$ 457,960.00
7. Sign	100	\$ 100.00/ea.	\$ 11,449.00
8. Pool	2	\$ 5,000.00/ea.	\$ 11,449.00
9. Exercise Course	1	\$ 9,000.00/ea.	\$ 10,304.10
10. Amphitheater	1	\$ 36,960.00/ea.	\$ 42,315.50
11. Waterfront Plaza	1	\$315,300.00/ea.	\$ 360,986.90
12. Memorial Rose Garden	1	\$164,630.00/ea.	\$ 188,484.90
13. Residential Rooftop	1	\$897,100.00/ea.	\$1,027,089.00
14. Office Rooftop	1	\$ 21,660.00/ea.	\$ 24,798.50
15. Shopping Mall Rooftop	1	\$103,280.00/ea.	\$ 118,245.20
Total :			\$2,935,114.30
+15% Contingency :			\$3,375,381.40

* Cost estimate based on Cost Data for Landscape Construction (1981).

** Requires a 100% local adjustment factor plus a 7% annual increase rate for 2 years.

Table 11

Summary of Land Value, Construction Cost, and
Project Management Expenses Estimate*

1. Land Value	5,480.00
2. Site Construction	2,983.06
3. Building Construction	309,405.08
4. Landscape Construction	3,375.38
5. Construction Cost Subtotal ("2"+"3"+"4")	315,763.42
6. A+E Fee ("5"x8%)	25,261.07
7. Project Management ("5"x6%)	18,945.80
8. Marketing ("5"x10%)	31,576.34
9. Project Management Expenses Subtotal ("6"+"7"+"8")	75,783.21
10. Total Construction and Project Management Principal ("5"+"9")	391,546.73

*In Thousand \$.

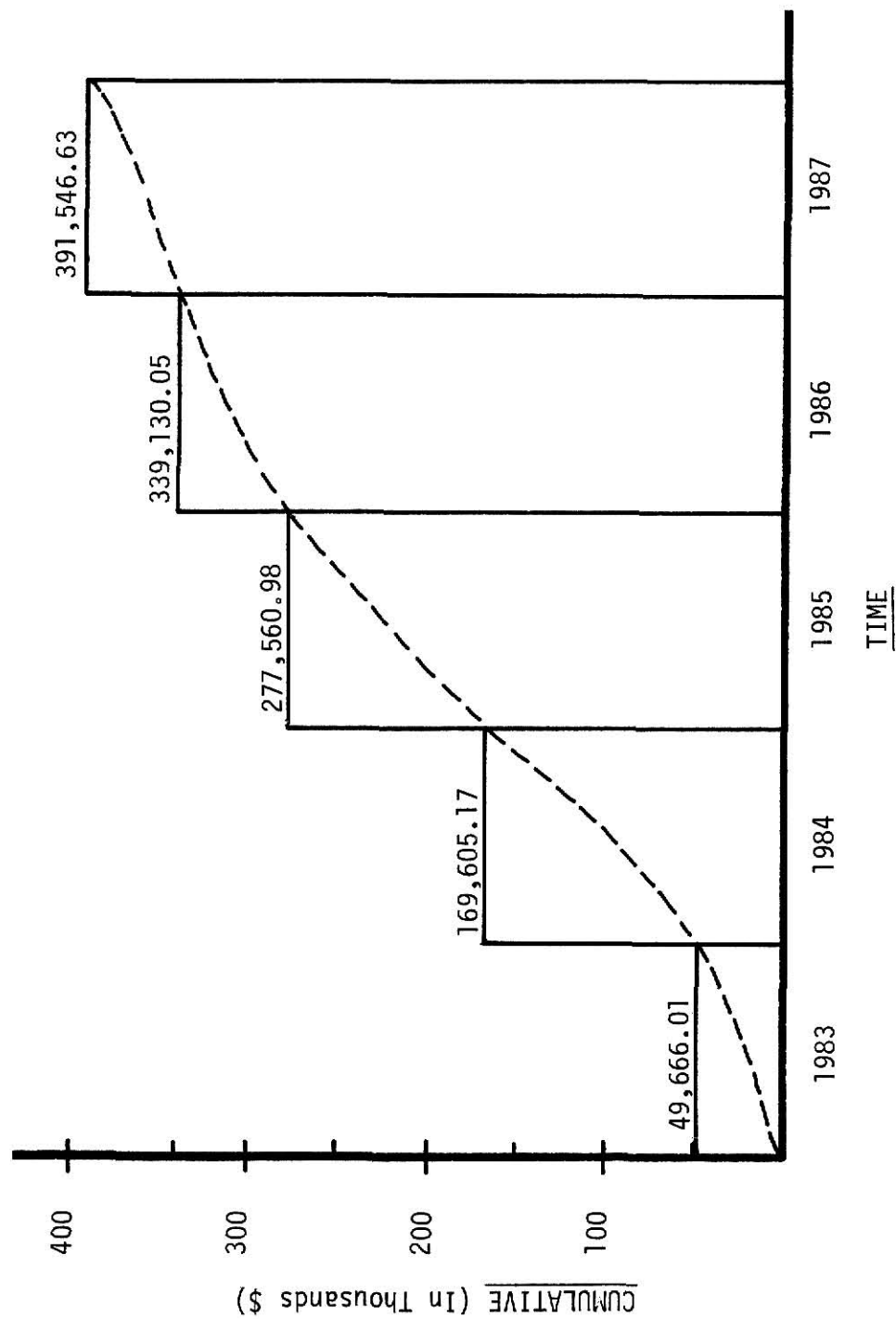


Figure 33 Accumulated Construction and Management Principal

Table 12
Annual Principal and Loan Interest Requirements*

	Principal	Interest Requirement**
1983	49,666.01	2,483.30
1984	119,939.16	10,963.56
1985	107,955.81	22,358.31
1986	61,569.07	30,834.55
1987	52,416.58	36,533.83
Total:	391,546.63	103,173.55

*In Thousand \$.

**Estimate based on 10% annual construction loan interest.

Table 13
Appraised Value and Monthly Payment*

1. Land Value	5,480.00
2. Construction Cost	315,763.42
3. Management Expenses	75,783.21
4. Loan Interest	103,173.55
5. Total Appraised Value ("1"+"2"+"3"+"4")	500,200.18
6. Loan Term Mortgage Amount ("5"x75%)	375,150.13
7. Monthly Payment (Principal and Interest) ("6"x0.0090871)**	3,409.03
8. Annual Payment ("7"x12)	40,908.36

*In Thousand \$.

**Estimate based on a 10%, 25year long term mortgage.

Table 14

Preliminary Cash Flow Statement*

A. EXPENSE	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
1. DEVELOPER EXPENSE:										
LAND VALUE	5,480.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DEVELOPER MANAGEMENT SALARIES	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00
DEVELOPER MANAGEMENT EXPENSE	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00
A & E FEE	10,743.38	7,387.06	4,425.83	2,529.92	0.00	0.00	0.00	0.00	0.00	0.00
PROJECT MANAGEMENT	4,408.26	4,425.78	4,425.83	3,161.32	12,529.02	0.00	0.00	0.00	0.00	0.00
MARKETING	0.00	3,143.80	6,304.98	9,465.40	12,627.62	0.00	0.00	0.00	0.00	0.00
SUBTOTAL	20,708.64	15,226.64	15,226.64	15,226.64	15,226.64	70.00	70.00	0.00	0.00	0.00
2. CONSTRUCTION COST:										
SITE WORK	1,491.53	1,491.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RESIDENTIAL COMPLEX	33,017.06	36,033.68	33,017.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OFFICE TOWER	0.00	1,189.94	33,017.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00
LANDSCAPE	0.00	1,123.13	1,123.13	45,051.84	22,529.02	0.00	0.00	0.00	0.00	0.00
HOTEL & SHOPPING MALL	0.00	0.00	22,529.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AEROSPACE MUSEUM	0.00	235.46	235.46	235.46	14,498.56	0.00	0.00	0.00	0.00	0.00
ENCLOSED SKYWALKS	0.00	0.00	0.00	235.46	235.46	0.00	0.00	0.00	0.00	0.00
SUBTOTAL	34,509.37	40,778.62	92,799.17	46,472.43	37,259.94	0.00	0.00	0.00	0.00	0.00
3. OPERATING EXPENSE:										
MARKETING	0.00	0.00	0.00	0.00	0.00	13,890.33	11,112.30	7,778.61	5,445.03	4,356.02
MAINTENANCE	1,725.47	6,352.05	12,998.41	15,317.84	17,828.01	15,317.84	16,577.38	17,406.45	19,190.05	19,190.05
TAXES	2,682.69	10,900.92	22,558.24	30,771.72	35,708.40	37,908.72	36,011.38	34,210.81	30,879.05	30,879.05
INSURANCE	172.55	869.01	1,856.92	3,255.27	2,971.34	3,157.64	3,157.64	3,157.64	3,157.64	3,157.64
UTILITIES	0.00	510.83	1,309.03	2,492.66	2,905.40	3,094.05	3,094.05	3,094.05	3,094.05	3,094.05
ACCOUNTING	0.00	0.00	0.00	0.00	25.00	50.00	50.00	50.00	50.00	50.00
DEPRECIATION	0.00	0.00	0.00	4,077.22	4,281.08	6,188.10	6,497.51	6,822.33	7,163.50	7,521.63
SUBTOTAL	4,580.71	19,232.81	39,222.60	55,212.41	67,719.23	80,705.06	76,503.45	72,519.93	69,887.25	68,245.22
4. FINANCING EXPENSE:										
CONSTRUCTION LOAN INTEREST	2,483.30	10,963.56	22,358.31	30,834.55	36,533.83	40,908.36	40,908.36	40,908.36	40,908.36	40,908.36
LONG TERM PAYMENT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SUBTOTAL	2,483.30	10,963.56	22,358.31	30,834.55	36,533.83	40,908.36	40,908.36	40,908.36	40,908.36	40,908.36
TOTAL DEVELOPMENT EXPENSE	62,280.02	150,205.60	169,606.70	147,686.00	152,739.60	121,053.40	117,473.80	113,428.20	110,595.60	109,153.50
B. REVENUE										
1. RESIDENTIAL COMPLEX										
RENTAL	0.00	0.00	0.00	1,784.00	2,352.00	2,499.00	2,645.00	2,793.00	2,793.00	2,793.00
SALE	0.00	0.00	0.00	8,400.00	4,200.00	4,200.00	2,103.00	1,050.00	1,050.00	0.00
2. OFFICE TOWER										
RENTAL	0.00	0.00	0.00	48,760.00	58,752.00	68,544.00	78,336.00	83,232.00	88,128.00	93,024.00
3. HOTEL										
RENTAL	0.00	0.00	0.00	0.00	8,144.00	8,623.12	9,102.19	9,102.19	9,102.19	9,102.19
SERVICE & GENERAL	0.00	0.00	0.00	0.00	7,329.60	7,780.81	8,191.97	8,191.97	8,191.97	8,191.97
4. SHOPPING										
RENTAL	0.00	0.00	0.00	0.00	0.00	39,170.83	41,619.12	44,067.24	46,515.36	48,963.60
SALE	0.00	0.00	0.00	0.00	0.00	7,869.15	2,623.05	1,311.52	1,311.52	0.00
5. AEROSPACE MUSEUM										
ADMISSION	0.00	0.00	0.00	0.00	0.00	1,000.00	1,125.00	1,125.00	1,250.00	1,250.00
SERVICE & GENERAL	0.00	0.00	0.00	0.00	0.00	750.00	343.75	843.75	937.50	937.50
6. PARKING										
RENTAL	0.00	0.00	10.00	1,485.29	2,411.64	3,001.82	3,377.05	3,752.28	3,752.28	3,752.28
7. AMPHITHEATER										
ADMISSION	0.00	0.00	0.00	160.30	518.40	576.00	576.00	576.00	576.00	576.00
8. WATERFRONT PLAZA										
SERVICE & GENERAL	0.00	0.00	50.00	182.00	204.75	227.50	227.50	227.50	227.50	227.50
SUBTOTAL	0.00	0.00	60.00	61,252.09	83,912.39	144,222.23	150,787.80	158,272.40	163,835.30	168,818.03
C. CASH FLOW										
EXPENSE	62,280.02	150,205.60	169,606.70	147,686.00	152,739.60	121,053.40	117,473.80	113,428.20	110,595.60	109,153.50
REVENUE	0.00	0.00	0.00	1,784.00	2,352.00	2,499.00	2,645.00	2,793.00	2,793.00	2,793.00
ANNUAL CASH FLOW	-62,280.02	-150,205.60	-169,606.70	-145,902.00	-150,387.60	-118,554.40	-114,828.80	-110,635.20	-107,802.60	-106,360.50
ACCUMULATED EXPENSE	62,280.02	212,485.60	382,092.30	527,994.30	682,517.90	801,072.30	921,050.10	1,034,478.00	1,145,073.60	1,251,434.10
ACCUMULATED REVENUE	0.00	0.00	0.00	1,784.00	4,136.00	6,635.00	9,280.00	12,073.00	14,866.00	17,659.00
ACCUMULATED CASH FLOW	-62,280.02	-212,485.60	-382,092.30	-526,210.30	-678,381.90	-794,437.30	-912,177.80	-1,022,405.20	-1,130,207.60	-1,233,775.10
20% RETURN ON ACC. EXPENSE	74,736.02	254,982.70	459,510.70	635,733.90	819,021.40	964,285.50	1,115,260.00	1,241,373.00	1,374,087.00	1,505,071.00

*In Thousand \$.

encompassed a period of 10 years. Then the cash flow was projected out to 20 years, showing the annual cash flow with a positive figure at 1988, and with the accumulated cash flow beginning its positive trend at 1977--15 years after the beginning of the project. Although this projection shows that the project is not quite satisfactory in recovering the initial investment in a short period, some important compensating factors should be mentioned. Since this cash flow statement is only for the preliminary analysis purpose, the long-term monthly payments translates into 40 million dollars annually, and the tax expenses have been counted in as part of the development expenses. As to the revenue projection, it will be accelerated in relation to the pace of development and will be a reflection of real, constant dollars, and should include the locational value gains, the value and revenues created through the market synergy of components, and more importantly, the inflationary increase in the revenue received from each use. Since all of these factors are not easily measured and require an extended financial analysis, they were not included in this preliminary analysis. If all of these factors were counted into the cash flow statement, we might even see that a positive accumulated cash flow could begin within ten years of the initial construction with an early higher percentage of return on expenses. For these reasons, the cash flow analysis shows a feasible situation, in which the individual use could reach a desired scale to promote the mixed-use character, and the initial front-end investment would be satisfactory recovered in time.

Because of a great market potential, a design fitted into the site using unique mixed-use characteristics, and a positive financial projection, we can conclude that the West Bank Development is a feasible project. With limited modification, the project could be executed immediately in conjunction with compatible construction, marketing, and management plans.

CONCLUSION

By creating a 24-hour life cycle and a human-oriented environment, mixed-use developments can solve many central city problems. As a new type of urban development, a mixed use projects provide and concentrate some frequently missing urban functions, such as housing, convention facilities, hotel, recreation, and entertainment, and makes these functions more integrated than traditional land use developments. Mixed-use developments could also serve as tools to treat blight and decay of the downtown area. Therefore, through the creation of a focal point of regional significance, a mixed-use development provides a means for organizing metropolitan growth.

Since these types of large scale urban developments always influence the economics of the central city, it is necessary to develop an evaluation process to examine these project from both design and economic feasibility standpoints. By reviewing some of the outstanding mixed-use development cases, the feasibility evaluation process and an implementation model for mixed-use development has been developed and submitted in this thesis. This evaluation process could serve as a general analysis tool to decide whether or not to carry out a project.

The mixed-use development approach has been applied to a case study, the West Bank Development of Wichita, Kansas. The project calls for a great mix of multi-functions, which includes residential complex, office tower, hotel, shopping mall, aerospace museum, memorial rose garden, amphitheater, waterfront plaza, and an enclosed, elevated skywalk system connecting the major components of the project. Intended to create a new regional focal point in the CBD area, the project will

serve as an impetus for future revitalization of the central city and the surrounding deteriorated and undeveloped areas. Admittedly, the author's committee believe that some of the program assumptions presented in this thesis are too high, but approved developing a plan based on these higher figures to test the site and the author's handling the project.

For the 39.16 acres site, the resulting master plan has a GBA of 7,625,930 square feet and an FAR of 4.47, leaving around 60% open space. By comparison with the mixed-use development cases that were presented, this land use data seems feasible for the site.

Finally, the feasibility evaluation process was applied to the West Bank Development case study. The significant physical and functional integration of project components provide for a highly intensive use of the site and a totally human-oriented environment. The phasing plan, expense estimate, revenue estimate, and cash flow analysis show a positive financial picture based upon the author's projections for the operation of the project, and the author concludes that the West Bank Development is a feasible project. The submitted feasibility evaluation process proved a useful tool for decision making concerning this type of urban development.

Since the mixed-use development is still in an early stage, the feasibility evaluation process submitted in this thesis is necessarily in an exploratory state. And, there is still a need for the extended counselling provided by other professions concerning some of the technical portions of the study.

Although many designers have the ability to create fantastic schemes, without the ability to sell his services to the developer, the ideas may never leave the paper. Knowledge of financial analysis, and the feasibility evaluation process discussed in this thesis, are very important means for getting our ideas accepted, and therefore also contribute to the further success of our profession.

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FEASIBILITY EVALUATION PROCESS FOR URBAN DEVELOPMENT PROJECTS--
A CASE STUDY OF THE WEST BANK DEVELOPMENT, WICHITA, KANSAS

by

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B. E., FENG CHIA UNIVERSITY, 1977

AN ABSTRACT OF A MASTER'S THESIS

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MASTER OF LANDSCAPE ARCHITECTURE

Department of Landscape Architecture

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Urbanization of many industrialized nations has contributed to the decentralization of many urban functions, and in turn has created some central city problems in the recent decades. The quest for revitalization and redevelopment of the CBD area, as well as optimizing developments of high value land, are the main concerns of mixed-use development, which had its origins in early 1960's.

Since most urban development projects are always large enough to influence the economic situation of the central city and surrounding region, there is a need for a feasibility evaluation process for these type of projects. Through case studies of significant urban development projects, such as Crown Center in Kansas City, Embarcadero Center in San Francisco, Kalamazoo Center in Kalamazoo, and Illinois Center in Chicago, some experiences have been gained which contribute to the making of general guidelines for decision making for mixed-use developments. The prototype model for this type of urban development depicts the major steps of development and their relationships to each other. In the model, through which the importance of the design feasibility study and the economic feasibility study have been recognized, the economic feasibility evaluation process represents a comprehensive, analytic procedure for planning and evaluating the development of mixed use projects.

The West Bank Development of Wichita, Kansas serves as the case study for this research. The model and the feasibility evaluation process have been applied to this case study. Having a great market potential, the project provides a full mix of multi-functions, a human-oriented environment, and a new regional focal point. The development of the west bank of the Arkansas River will contribute to the revitalization of downtown Wichita and surrounding areas. By following the process from a design and an economic standpoint, with the significant physical and functional integration of the project components, the West Bank Development offers a positive financial opportunity, leading to the author's conclusion that the West Bank Development is a feasibility urban development project.