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# The Economic Feasibility of the Re-use of the Louisville and Nashville Railroad Depot, Knoxville, Tennessee

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## Recommended Citation

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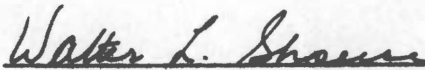
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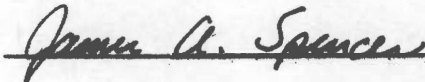
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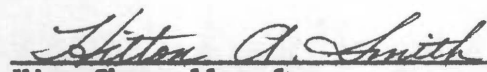
  
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THE ECONOMIC FEASIBILITY OF THE RE-USE OF THE LOUISVILLE  
AND NASHVILLE RAILROAD DEPOT, KNOXVILLE, TENNESSEE

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A Thesis  
Presented to  
the Graduate Council of  
The University of Tennessee

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In Partial Fulfillment  
of the Requirements for the Degree  
Master of Science in Planning

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by  
William J. Schwartzkopf

March 1970

## ABSTRACT

A problem which exists in many cities today is the abandonment of railroad depots. Re-use should be considered both by the railroad industry and cities. If the property is to remain vacant or underused, there may be an unfavorable effect on the surrounding uses. It is the purpose of this thesis to determine the economic feasibility of re-use of the abandoned Louisville and Nashville depot in Knoxville, Tennessee. A case study was conducted to determine the highest and best re-use for this parcel of land. The main assumption is that the architectural quality of the shell of the structure will be preserved, and this will limit the re-use of this depot.

The methodology used in this thesis narrowed down the potential uses by examining the characteristics of the site and the surrounding areas and determining what families of uses would be compatible. Each proposed use was evaluated according to location criteria, and a summary of the sales and expenditure potential of Knoxville's trade area was stated to determine the economic feasibility of the proposed uses. Next, an income flow analysis for retail and office space was established to determine the capitalization rate on the investor's equity. This rate of return was compared with alternative investments.

Information for this thesis was obtained from interviews with railroad officials, planners, realtors, and investment consultants. Planning studies for the Knoxville Metropolitan area were reviewed as well as literature pertinent to the subject.

The survey of the site and surrounding planning units established five proposed families of uses. These proposed re-uses were: industry, residential, institutional, retail and office use. The examination of the proposed uses in regard to location criteria eliminated the following uses:

1. Industrial use was eliminated because of the high property cost, property taxes and restoration costs, plus the availability of other suitable industrial sites.
2. Residential use was not feasible because of the structural character of the building.
3. Institutional use could be possible if a particular use could be established that would not require interrelationships with other public uses.

The income flow analysis established that retail use was not desirable because of the high capitalization rate and the lack of sufficient parking. A mixture of office and retail use was evaluated and determined to be economically unfeasible because of the low capitalization rate. Office space has been established as the highest and best use for the property. This use would be compatible with the surrounding uses, and meets the location criteria with few exceptions and yields a capitalization rate favorable to alternative investments.

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## CHAPTER I

### INTRODUCTION

When railroads were first locating in most cities, it was desirable to have a central location. The depots built at these locations are monuments of a specialized architectural style, that through neglect and the decline of railroads is fast disappearing from the American scene.<sup>1</sup> Many of these stations are distinguished landmarks and proper consideration should be given to their historic value.

Today a large number of these rail depots are being sold or leased, freeing valuable land for re-use. This re-use should be given due consideration by the cities, railroads and private investors. This is an excellent opportunity for local planning commissions to help establish re-uses that would be in accordance with the city's comprehensive plan. If these stations are to remain vacant or underused it could have an unfavorable effect on the surrounding uses. The only accurate method to determine re-use of abandoned rail facilities is through adequate planning within the framework of the city's comprehensive plan. Proper re-use may also provide incentive for self-renewal of adjacent properties which have been blighted by the presence of the railroad facilities. The purpose of this thesis is to analyze all criteria to determine the highest and best re-use of the Louisville and Nashville depot in Knoxville, Tennessee.

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<sup>1</sup>Wendy Buehr, "Station Closed," American Heritage, Vol. 17, No. 2 (February, 1966), p. 33.

To determine the highest and best use, the following factors will have to be surveyed:

1. Examine the characteristics of the site and the surrounding areas and determine what families of uses would be compatible.
2. Evaluate each proposed use according to location criteria as either favorable or unfavorable.
3. Summarize the sales and expenditure potential of Knoxville's trade area to determine the economic feasibility of the proposed uses.
4. Establish income flow analyses for retail and office space, which determine the capitalization rate on the investor's equity.
5. Compare the rate of return for the proposed use with that of alternative investments.

Information for this thesis was obtained from interviews with railroad officials, planners, realtors, and investment consultants. Planning studies for the Knoxville Metropolitan area were reviewed as well as literature pertinent to the subject.

The methodology used in this thesis could be applied to other cities that face similar problems of underuse or abandoned railroad facilities. This study will deal only with the depot site but further consideration could be given to the re-use of rail right of way for mass transit or related uses.

## CHAPTER II

### HISTORY AND PAST TRENDS OF THE RAILROAD INDUSTRY

#### A. ABANDONMENT OF DEPOT SITES

In the early development of this nation the railroads were very important and as a result amassed large amounts of land and prestige. Being the only significant land mode of transportation, they grew independent--reflected in their attitude toward services. The advent of the automobile provided the railroads' first land orientated competition, but the railroad still did not yield to the desires and conveniences of its customers. This independence has proven to be one of the factors causing the decline of the industry. Growth of new highways also accelerated the decline of the railroads. Automobiles, buses, and trucks brought conveniences and speed.

In the 1930's, competition increased between the railroads, which led to the development of more rail facilities. In many instances this development proceeded without due consideration of planning implications. Railroads acquired an enormous amount of track and supporting facilities that required increasing maintenance. The descent hastened after World War II, due to increase cost of materials, replacement of rolling stock (due to rigorous use during the war), higher labor costs, track repair and improvements.

### Technological Improvements

Technological improvements have caused the abandonment of many depot facilities. Innovations required more land and the railroads were forced to move to locations where land was available. An example of such an improvement was the Diesel engine. Before the Diesel, yards were designed to accommodate 40 to 60 cars, but with the Diesel yard space was required to handle in the neighborhood of 150 to 200 cars. Urban growth had surrounded rail facilities causing the railroads to relocate and acquire large tracts of land to utilize these technological improvements.

At the turn of the century, the railroad transported 90 percent of the inter-city freight, but by 1954 it had decreased to 50.5 percent. Table I shows the proportion of inter-city freight carried by five types of carriers. There has been an increase in freight carried by the railroad but a decline in the overall proportion of freight being transported by rail.<sup>1</sup> Passenger traffic has also dropped significantly; for example, from 1950 to 1967 there has been a decrease of 4.9 percent. Table II illustrates the percentage of passenger traffic by the five modes of transportation.

#### B. CENTRAL LOCATION OF TERMINALS

Passenger and freight depots are usually located within the central portion of the city to provide the convenient movement of passengers

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<sup>1</sup>William I. Goodman and Eric C. Freund, ed., Principles and Practice of Urban Planning (Washington: International City Managers' Association, 1968), p. 164.

TABLE I  
 PERCENTAGE DISTRIBUTION OF DOMESTIC INTER-CITY FREIGHT TRAFFIC  
 BY TYPE OF TRANSPORTATION: 1940-1967

Year	Railroads <sup>a</sup>	Motor Vehicles	Inland Waterways <sup>b</sup>	Oil Pipe Lines	Airways <sup>c</sup>
1940	63.2%	9.5%	18.1%	9.1%	--
1945	68.6	6.2	13.3	11.8	0.01%
1950	57.4	15.8	14.9	11.8	0.03
1954	50.5	18.6	15.2	15.7	0.04
1955	50.4	17.2	16.7	15.7	0.04
1960	44.7	21.5	16.6	17.2	0.06
1964	44.0	22.5	16.2	17.2	0.10
1967	41.9	21.9	15.5	20.4	0.15

<sup>a</sup>Includes electric railways, express and mail.

<sup>b</sup>Includes Great Lakes.

<sup>c</sup>Includes Alaska and Hawaii.

Source: United States Department of Commerce, "Statistical Abstracts of the United States," June, 1969 (Washington: Bureau of Census, 1969), p. 490.



TABLE II  
 PERCENTAGE DISTRIBUTION OF DOMESTIC INTER-CITY PASSENGER TRAFFIC  
 BY TYPE OF TRANSPORTATION: 1950-1967

Year	Railroads <sup>a</sup>	Private Autos	Com. Motor Vehicles Carriers	Inland Waterways <sup>b</sup>	Airways <sup>c</sup>
1950	6.4%	86.2%	5.2%	0.2%	2.0%
1954	4.4	88.7	3.8	0.2	2.9
1955	4.0	89.0	3.6	0.2	3.2
1960	2.8	90.0	2.5	0.3	4.3
1964	2.1	89.6	2.5	0.3	5.5
1965	1.9	88.9	2.6	0.3	6.3
1967	1.5	87.2	2.4	0.3	8.5

<sup>a</sup>Includes domestic commercial revenue service and private and business flying.

<sup>b</sup>Includes electric railways.

<sup>c</sup>Includes Great Lakes.

Source: United States Department of Commerce, "Statistical Abstracts of the United States," June, 1969 (Washington: Bureau of Census, 1969), p. 489.

and freight. This location also furnishes allied services such as restaurants, administration offices, mail and express buildings.<sup>2</sup> Land uses that usually surround railroad properties and considered compatible are commercial and industrial uses. Other uses that are adjacent to railroad facilities are susceptible to blight because of noise, vibration and smoke.<sup>3</sup>

Railroad property within the city amounts to 5 percent of the urban area.<sup>4</sup> When abandonment or relocation occurs, large tracts of land are available for re-development.

#### C. RESTORATION AND RE-USE

In cases where the railroad passenger service was running a deficit, stations have been sold. New York Central at one time had 406 freight and passenger depots for sale; however, in some cases space is leased back from the new owners of these stations by the railroads to provide the needed services.<sup>5</sup> The purpose of selling these stations is to provide relief of high property taxes and reduce the deficit of passenger and freight service.

In reviewing past conversions of railroad freight stations, one finds that re-use usually occurs in the form of feed stores and storage

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<sup>2</sup>Ibid., p. 174.

<sup>3</sup>Wilbur Smith and Associates, Transportation and Parking for Tomorrow's Cities (New Haven: Wilbur Smith and Associates, 1966), p. 246.

<sup>4</sup>Ibid., p. 239.

<sup>5</sup>Railway Age, Vol. 146, No. 9 (March 3, 1958), pp. 9-10.

buildings. Passenger stations have had a greater impact and have been re-used for commercial use, fraternal lodges and museums.

The depot in Concord, New Hampshire, retained only the passenger service and developed a shopping center with office space on the remainder of the site.<sup>6</sup> In Boston, the South Side Station was remodeled with retail establishments sharing the ground floor with the needed passenger facilities. The upper floors were to be used for office space.<sup>7</sup> The New York Central sold several of its depots in Westchester and Putnam Counties. Retail stores and possibly supermarkets were to be the primary re-users and improvements were to be made in passenger facilities.<sup>8</sup> Illinois Central sold its freight station and a 20 story motel was constructed on the property.<sup>9</sup> One of the most energetic ventures is that of the railroad property in New York City where a 50 story building will supply office space, terminal facilities, three theaters, an exhibition area, a parking garage for 2,000 cars, and possibly a heliport.<sup>10</sup> The above examples are railroad properties which are restored but still retained the necessary rail facilities.

There are several examples of re-use without the railroad facilities. This has been accomplished by remodeling the existing structure

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<sup>6</sup>Railway Age, Vol. 147, No. 11 (September 14, 1959), p. 70.

<sup>7</sup>Railway Age, Vol. 148, No. 17 (April 25, 1960), p. 60.

<sup>8</sup>Ibid.

<sup>9</sup>Railway Age, Vol. 149, No. 17 (November 21, 1960), p. 60.

<sup>10</sup>Railway Age, Vol. 147, No. 11 (September 14, 1959), p. 70.

or by demolition and redevelopment. Where the existing structure has been restored, some re-uses have been gasoline service stations, gifts shops, retail establishments and libraries. In Chicago and Philadelphia, stations have been converted to supermarkets.<sup>11</sup> Briarcliff Manor, New York, the former passenger station is now a public library.<sup>12</sup> One of the largest restorations is occurring at Washington's Union Station. This structure is to be a National Visitors Center, with four theaters, exhibition halls, lounges and restaurants.<sup>13</sup>

The location of abandoned depots provides the city and private investors with an opportunity to establish necessary services within the central business district. The aforementioned are only a few examples of re-use of railroad property. It does indicate the potential value of these obsolete sites.

#### D. SPECIFIC PROBLEMS OF THE LOUISVILLE AND NASHVILLE RAILROAD

The abandonment of the Louisville and Nashville depot is due to general problems that face the industry. Passenger traffic has declined partly because Knoxville is not on a direct line between larger cities. Also, the interstate highway system has increased competition on l.c.l.

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<sup>11</sup>Railway Age, Vol. 147, No. 19 (May 12, 1960), p. 10.

<sup>12</sup>Ibid.

<sup>13</sup>Railway Age, Vol. 165, No. 13 (September 30, 1968), p. 7.

(less than car load) freight. The above-mentioned factors are the principal criteria needed to support a central location. The Louisville and Nashville Railroad is forced to operate at their competitive advantage--that being long hauls, car load lots, and large bulk items. The above services do not require a central location. Therefore, the railroad feels that the site is not being utilized at its highest and best use and plans to sell or redevelop the site.

## CHAPTER III

### PROPOSED FAMILIES OF RE-USE

The purpose of this chapter is to determine the possible families of uses for the depot site. Interaction is the principal factor since the proposed re-use must be compatible with the adjacent and neighboring uses.

Knoxville has been delineated into planning units and for the purpose of this thesis only districts One, Two, Four and Five will be considered. Figure 1 is a location map for the depot and surrounding area.

#### A. PLANNING UNIT TWO

This planning unit is known as the University area. There are 1,195 acres of land within this planning unit, and a population of 14,000.<sup>1</sup> The area is predominately institutional with The University of Tennessee occupying the southern part of the area. Residential and commercial uses are also a vital part of this unit. Land use is divided approximately as follows: institutional, 234 acres; residential, 207 acres; and commercial 96 acres.<sup>2</sup> This planning unit lies

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<sup>1</sup>Knoxville Metropolitan Planning Staff, Land Unit Data, Prepared for the Knoxville Metropolitan Planning Commission, Knoxville, Tennessee, June, 1966 (Knoxville, Tennessee: Knoxville Metropolitan Planning Commission, 1966), p. 5.

<sup>2</sup>Ibid.

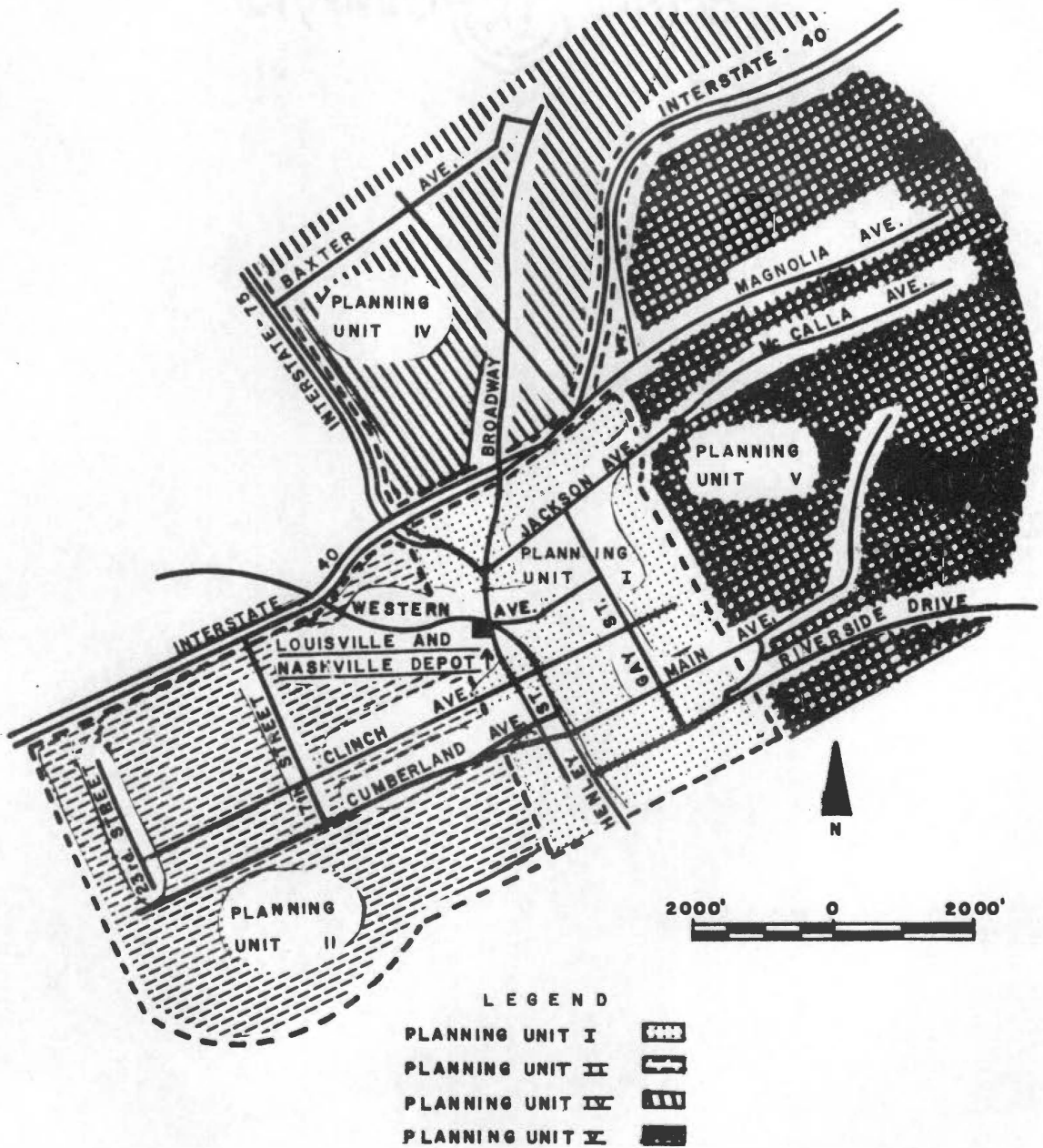


Figure 1. Location map.

west of the study area and the boundaries are as follows: north is Interstate 40, west is Neyland Drive, east is the Louisville and Nashville Railroad, and south is Fort Loudoun Lake. There are three major roads within the area: Cumberland Avenue, Twenty-Third Street, and Seventeenth Street.

#### B. PLANNING UNIT FOUR

Planning Unit Four which is commonly known as Broadway is north of the study area. It contains 1,241 acres and has a population of 12,800.<sup>3</sup> This unit is residential in character but does have a heavily built up area of commercial development along Central and Broadway. The residential use amounts to 470 acres and land devoted to commercial uses is 146 acres.<sup>4</sup> The boundaries of this area are: to the north, Woodland Avenue and Washington Pike; to the east, Cherry and Brice Streets; to the west, Interstate 75; and to the south, Interstate 40. The major roads which bisect this unit are Broadway and Central Street and Baxter and Cecil Avenues.

#### C. PLANNING UNIT FIVE

This area is characterized by residential development; however, it does have areas devoted to commercial, industrial and institutional uses. The residential portion consists of 627 acres from the 1,573 acres in the total unit.<sup>5</sup> There are 91 acres devoted to commercial use, 102 acres for

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<sup>3</sup>Ibid., p. 9.

<sup>4</sup>Ibid.

<sup>5</sup>Ibid., p. 11.



industrial use and 84 for institutional use.<sup>6</sup> This unit is the eastern boundary of the study site and supports a population of 15,100 persons.<sup>7</sup> Its boundaries are: north, Interstate 40; east, Cherry Street and McCalla Avenue; west, First Creek and the Downtown Loop; and south, Fort Loudoun Lake. The major roads within the area are Magnolia Avenue, Main Avenue and Riverside Drive.

#### D. PLANNING UNIT ONE

Planning Unit One is the prime area because it is within this area that the railroad property is located. This area consists of 382 acres of which the major portion is devoted to commercial uses, 137 acres.<sup>8</sup> It does have a small section of industrial use located at the northwest corner. Interstate 40 acts as the northern boundary, the Downtown Loop and First Creek are the boundaries to the east, Second Creek is the boundary to the west, and Fort Loudoun Lake is the boundary to the south. The population of the area is relatively small at 2,050 persons with approximately 14 acres of land used for residential dwellings.<sup>9</sup> Major roadways in this area are Gay and Henley Streets and Clinch and Main Avenues. These roads bisect the unit and afford a fairly adequate transportation network.

#### E. DEPOT SITE

The depot site is situated at the edge of the central business district, on the corner of Broadway and Western Avenue. It is readily

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<sup>6</sup>Ibid.

<sup>7</sup>Ibid.

<sup>8</sup>Ibid., p. 3.

<sup>9</sup>Ibid.

accessible to most parts of the urban area by way of city streets and the high speed, limited access interstate system. The depot building is three and one-half stories and has approximately 30,000 square feet of net rentable space. The depot was built in 1904 at a cost of \$175,000.<sup>10</sup> At the present time only about one-third of the structure is in use, and the building is in need of major repairs.

The site consists of 17 acres of land with the majority of the property lying within a flood zone. The building and about two acres of the land adjacent to it are not in the flood zone. Figure 2 shows the depot building in relationship to the flood and industrial zones and the site location of the depot.

#### F. RESTRAINTS

Several restraints are imposed in the assumptions of this thesis that will have an effect on the proposed re-use of the property. The shell of the structure will be restored thus limiting the specific re-use. The re-use will have to adapt to the confines of the present structure with little hope of expansion.

The City Hall complex, which could have a great bearing on re-use, is proposed to be developed into part of the West Leg of the Business Loop. Also, the major portion of the railroad property is to be taken by this West Leg Loop; however, the assumption is made that the depot and approximately 35,000 square feet of the adjacent land will remain, and

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<sup>10</sup>John Neal, private interview, Knoxville, Tennessee, November 25, 1969.

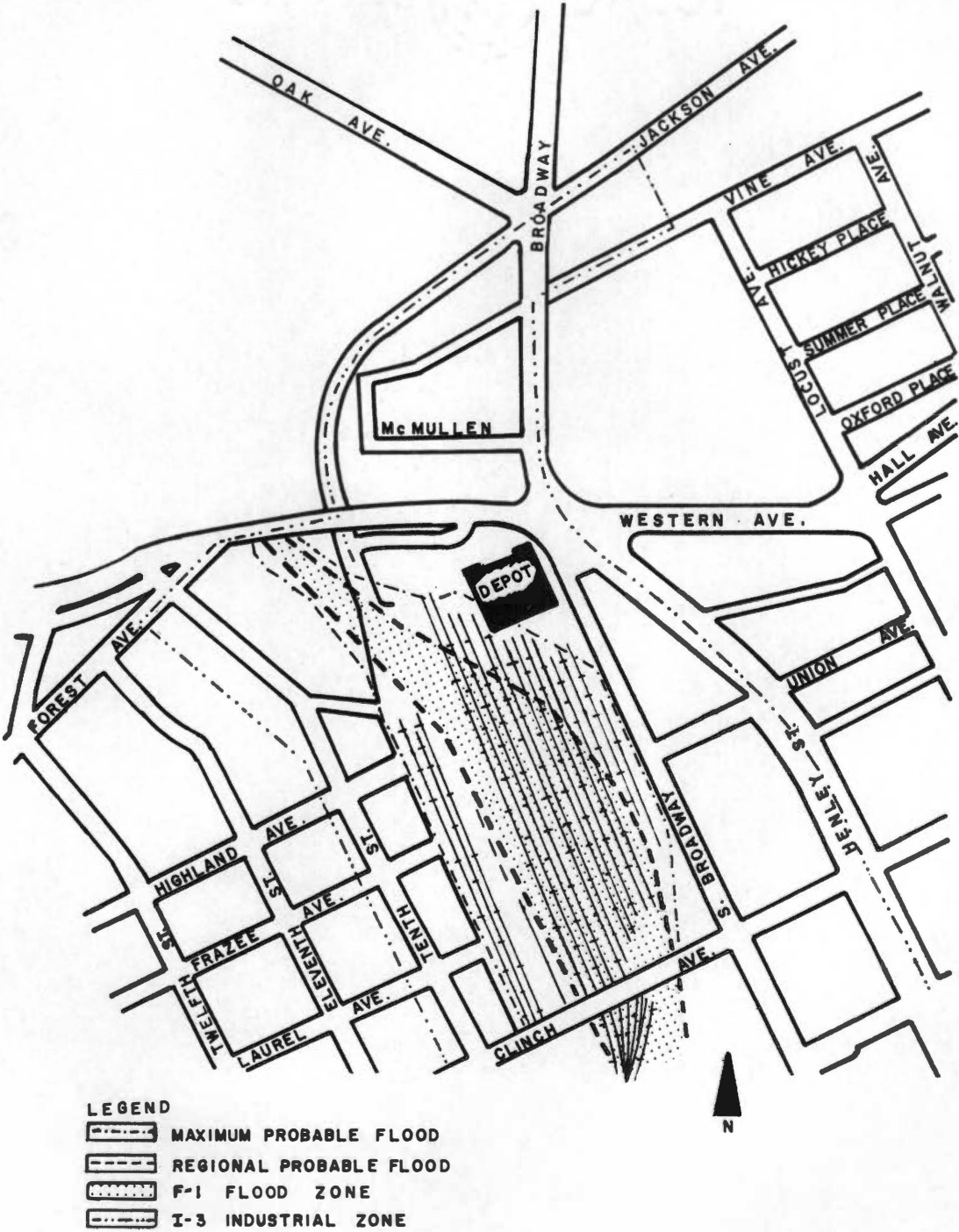


Figure 2. Zoning map.

be sold or redeveloped. This assumption is based on interviews with railroad and city planning officials.

At the present time the railroad property is zoned industrial and acts as barrier to the expansion of surrounding districts. Rezoning of the area will not be a problem as long as the re-use will be compatible with adjacent uses.<sup>11</sup>

#### G. SUMMARY

It is the intent of this chapter to set forth the general categories of uses that will provide proper interaction with the surrounding uses. The potential uses for the study area are general in character and specific uses will be discussed in the following chapter. Figure 3 identifies in general form, the predominant uses in the area. This is done to achieve an overall view and to provide a framework in which to evaluate and establish the interactions of the possible re-uses. It is clearly visible that the railroad property is located in a flexible and advantageous position due to the fact that any of the zones could be extended to include this property.

The methodology set forth is an attempt to approach the problem of re-use on a broad scale. The potential uses will be evaluated in reference to their effect on surrounding uses and the general welfare of the city.

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<sup>11</sup>Tom Crossman, private interview, Knoxville, Tennessee, November 25, 1969.

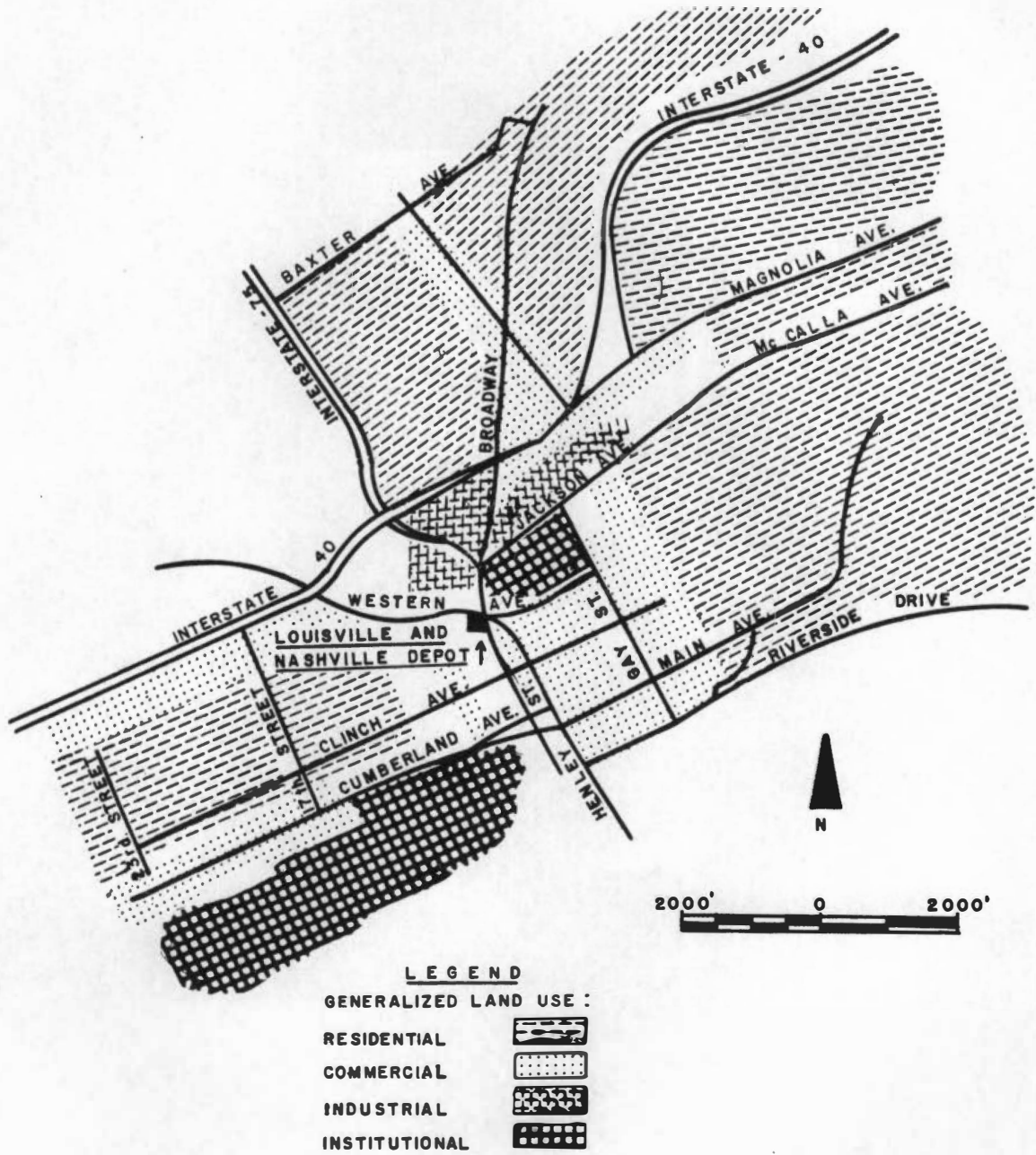


Figure 3. Generalized land use map.

Re-uses fall in the general classifications: residential (apartments and multi-family dwellings), retail use (an extension of the central business district), office use, institutional and light industry. These are probable uses and the following chapter will determine the market demand and set forth location criteria to determine the highest and best use.

## CHAPTER IV

### LOCATION AND GROWTH CRITERIA

The selection of an optimum use for a location involves balancing and evaluating the linkages of each proposed use. No single location is optimum for all uses.

The purpose of this chapter is to narrow down the families of uses to establish the highest and best use of the depot property. A location analysis will be carried out for each classification of use. The advantages and disadvantages of the site in accordance with the location criteria will be stated. The location criteria are general in nature so that they can be applied to classification of uses. Greater detail will be given to specific uses once the families of uses are narrowed down.

Each classification of use will be reviewed using separate criteria that pertain to that use. To remain as objective as possible, the author has used several criteria to eliminate subjectivity.

There are common location criteria that can be attributed to the families of uses that are being considered. These will be discussed at the beginning of this chapter to avoid repetition.

## A. GENERAL LOCATION CRITERIA

Favorable Criteria

1. Accessibility. The study site affords good accessibility, resulting from its proximity to Interstate 40 and Interstate 75. Also, Henley Street and Western Avenue direct traffic to the site by both private and public carriers. Immediate accessibility, however, is difficult due to the congestion associated with the various turning movements resulting from the five-corner intersection at which the depot is located.

2. Central Location. The site is located at the edge of the central business district. Although it is not within the central core of the business district the location can take advantage of the overall attraction of the area.

3. Utilities. Under the present density standards the existing utilities can adequately service the area; however, certain industrial wastes could exceed the capability of the sewage treatment plant. This depends on the particular type of industrial re-use.<sup>1</sup>

Unfavorable Criteria

1. Physical Appearance. The deteriorating occupancy of the surrounding properties detracts from the desirability of the site. The surrounding buildings are obsolete and dilapidated--negatively affecting

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<sup>1</sup>John Ulmer, private interview, Knoxville, Tennessee, November 25, 1969.



the general area. Restoration of the depot structure could inspire adjacent property owners to rehabilitate their buildings.

2. Pedestrian Accessibility. Because of the lengthy walking distance from the central business district to the depot site, the difficulty in street crossings, and the lack of those neighboring uses which would normally attract pedestrians in any large volume, this cannot be considered an advantage for any prospective use. This could be significantly altered if there were extensive re-development of the adjoining properties.

3. Future Expansion Possibilities. The possibilities of future expansion are limited if parking requirements of future uses are considered.

#### B. INDUSTRIAL USES

Analysis of the potential industrial re-use of this site requires that past trends of industry be reviewed and several factors of site location be considered.

Recent growth in industrial uses is scattered within Knox County, with industrial parks and rural sites competing for a share of the new growth. Knoxville Metropolitan Planning Commission is in the process of preparing industrial policies that will favor industrial growth in planned industrial parks.<sup>2</sup>

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<sup>2</sup>Richard Golden, private communication, Knoxville, Tennessee, February 5, 1970.

### Unfavorable Criteria

There are also features which mitigate against development of the site. They are as follows:

1. Cost of Property. The present price the railroad is seeking is \$1.50 per square foot.<sup>3</sup> This would be a deterrent to most industries. Lower priced land is available in industrial parks in the region that have the necessary facilities to support industrial development.

2. Property Taxes. The property taxes for this site do not encourage industrial development. When rehabilitation costs are included (to meet the assumption of the thesis), the site becomes undesirable for most industries.

3. Multi-Store Structure. With few exceptions, most industries can operate more efficiently in single-story structures.

4. Social Costs. All additional considerations to be made relative to industrial use of the property is related to air pollution. At the present time, Knoxville is confronted with serious air pollution problems. The re-use of the site for industry could add to this problem. Pollution control devices could be constructed and thereby increasing the cost of re-use. Again this would depend on the type of industry which would re-use the site.

### Industrial Use Potential

In reviewing the location criteria for industrial use, it appears that the high taxes, property costs and rehabilitation costs would be

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<sup>3</sup>John McCallie, private interview, Knoxville, Tennessee, January 11, 1970.

the main deterrents in re-use of this site for industry. The city must also consider the possibility of air pollution and the ability of the sewage system to handle industrial waste. An extremely labor intensive industry, such as a clothing company, could utilize this site. This type industry does have a high employee to floor space ratio. Such industries can operate efficiently in multi-story structures.

The site is now zoned for industry only because railroads fall in that category under Knoxville's Zoning Ordinance. Certain industries could utilize the site but the author feels it would be economically unfeasible and would not follow sound land use practice.

#### C. RETAIL USE

Richard Nelson sets forth criteria to examine and evaluate the strengths and weaknesses of retail locations.<sup>4</sup> For the purpose of this analysis local retail activities will be categorized as follows: shopping goods, convenience goods, automotive and miscellaneous. The retail potential of the area will be reviewed along with the expenditure potential. Only the main factors will be considered and assumptions will be drawn from these.

##### Favorable Criteria

1. Adequacy of Present Trade Area Potential. A steady moderate gain characterizes the population trends of Knox County since 1950. The

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<sup>4</sup>Richard L. Nelson, The Selection of Retail Locations (New York: F. W. Dodge Corporation, 1958), pp. 52-55.

population in 1950 was 233,007.<sup>5</sup> In 1968 the population increased by 45,787 persons to a total of 268,794.<sup>6</sup> This represents a total increase of approximately 17 percent.

Knox County's income growth has been steady. The income of the average household was \$4,816 in 1960 and is expected to be \$12,782 in 1990.<sup>7</sup>

Table III shows the population and average income per household for the years 1960 to 1990. The population of Knox County is expected to follow a moderate growth rate throughout the forecast period. In 1990 the population of Knox County is estimated to be 357,500 persons.<sup>8</sup>

The growth in personal income is expected to continue at a solid pace and will not be erratic as it was between 1960 and 1968. The increase in personal income and the number of families will generate an increase in local retail sales potential.

Retail sales in Knoxville's central business district were approximately \$83,074,000 in 1963. This represents a gain of \$7,182,000 or 9.5 percent from 1958 to 1963.<sup>9</sup>

Table IV shows that the overall percentage of retail sales is declining in both the central business district and Knoxville with an

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<sup>5</sup>Real Estate Research Corporation, Community Improvement Program, Prepared for Metropolitan Planning Commission, Knoxville, Tennessee, June, 1969 (Real Estate Research Corporation: New York, 1969), p. 27.

<sup>6</sup>Ibid., p. 26.

<sup>7</sup>Ibid., p. 34.

<sup>8</sup>Ibid., p. 80.

<sup>9</sup>Ibid., p. 151.

TABLE III  
KNOX COUNTY POPULATION AND INCOME TRENDS  
AND FORECAST: 1960-1990

Year	Number of Persons	Number of Families	Number of Persons Per Family	Mean Household Income
1960	223,007	66,768	3.34	\$ 4,816
1968	268,794	81,452	3.30	8,842
1970	276,100	84,956	3.25	9,202
1980	314,100	98,156	3.20	10,992
1990	357,500	115,322	3.10	12,782
1960-1968				
Change:				
Number	45,787	14,684		4,026
Percent	20.5	21.8		83.5
1968-1990				
Change:				
Number	88,706	33,870		3,940
Percent	24.8	29.4		30.8

Source: Real Estate Research Corporation, Community Improvement Program, Prepared for Metropolitan Planning Commission, Knoxville, Tennessee, June, 1969 (Real Estate Research Corporation: New York, 1969), pp. 80-97.

TABLE IV

RETAIL SALES TRENDS FOR KNOX COUNTY, KNOXVILLE AND CENTRAL  
BUSINESS DISTRICT: 1958-1963

Area	1958	1963
Knoxville	\$ 154,483	\$ 191,764
Central Business District	75,892	83,074
Knox County	32,967	64,632
Total	263,342	349,632
Percent of C.B.D. Sales to Knoxville and Knox County	28.8	26.7
Percent of Knoxville Sales C.B.D. and Knox County	58.6	54.8
Percent of Knox County's Sales to Knoxville and C.B.D.	12.6	18.5

Source: Real Estate Research Corporation, Community Improvement Program, Prepared for Metropolitan Planning Commission, Knoxville, Tennessee, June, 1969 (Real Estate Research Corporation: New York, 1969), pp. 151-53.

increase in Knox County between 1958 and 1963. The percentage of retail sales of the central business district and the city of Knoxville (excluding the central business district) has also declined for the same period. In 1958 the central business district had 32.9 percent of the sales in Knoxville and in 1963 declined to 30.2 percent.<sup>10</sup>

The number of retail outlets has declined in all three areas, as illustrated in Table V, along with changes in square feet of retail space and absolute sales.

The sales potential of Knox County will be estimated by reviewing the following statistical data. The combination of increases in personal income and expenditures of family income (55 percent) on personal items will increase the potential demand of retail sales.<sup>11</sup> Expenditure potential of Knox County is estimated to be \$429,962,316 and will increase to \$810,598,338 in 1990. Retail sales forecast are higher due to sales from out of the primary trade area. Table VI shows expenditure potential and sales potential forecast by selected intervals from 1968 to 1990.

After examining the past trends and forecast of retail sales for trade area, the assumption is made that retail sales will continue to decrease within the central business district. The Mall and Promenade--originally intended to bolster the activity within the central business district--have not substantially increased retail sales if they have increased at all. At best they may have postponed temporarily the decline of the retail economy of the central business district. Should the

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<sup>10</sup>Ibid., pp. 151-53.

<sup>11</sup>Ibid., p. 173.

TABLE V  
 RETAIL SALES AND SPACE TRENDS IN KNOXVILLE, CENTRAL  
 BUSINESS DISTRICT AND KNOX COUNTY: 1958-1963

	Retail Outlets	Square Feet	Sales
C.B.D.	- 35	- 201,122	\$ 7,182,000
Knoxville	- 2	832,035	37,281,000
Knox County	- 55	559,355	31,727,000

Source: Real Estate Research Corporation, Community Improvement Program, Prepared for Metropolitan Planning Commission, Knoxville, Tennessee, June, 1969 (Real Estate Research Corporation: New York, 1969), pp. 151-53.



TABLE VI  
RETAIL SALES POTENTIAL, KNOXVILLE (EXCLUDING C.B.D.)  
AND KNOX COUNTY: 1968-1990

Year	Expenditure Potential	Retail Sales
1968	\$ 396,101,076	\$ 400,785,000
1970	429,962,316	433,437,000
1980	593,363,020	620,823,000
1990	810,598,338	827,758,000

Source: Real Estate Research Corporation, Community Improvement Program, Prepared for Metropolitan Planning Commission, Knoxville, Tennessee, June, 1969 (Real Estate Research Corporation: New York, 1969), p. 174.

proposed major shopping facility be constructed within the western portion of the city, it is very probable that a substantial portion of current central business district's retail activity will be transferred to the new center.

2. Business Interception. In selecting a site according to the principle of business interception, the site should be between the market (trade area) and the market place (source of goods).<sup>12</sup> This enables the firm to attract people en route to the central business district.

3. Minimization of Competitive Hazards. The retail competition from shopping centers within Knox County is not impressively strong at this time. These shopping centers lack the size, diversification and strength to compete for the overall market. Downtown Knoxville still has a competitive edge in the market although its degree of dominance is declining. The department stores are its strongest assets and will continue to act as magnets for customers. Revitalization within the central business district could stimulate retail sales and improve its competitive position.

4. Site Economics. The site provides adequate space for small retail establishments although the layout of the structure will not allow large open areas. The building is supported by load bearing walls that cannot be removed; therefore, there would be considerable broken display areas. The structure would be better suited for small retail outlets.

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<sup>12</sup>Nelson, op. cit., p. 54.

Sidewalks, streets lighting, and utilities are adequate although the steps leading to the depot from Western Avenue have to be redesigned to eliminate the steep pitch.

As stated previously, the site borders a flood zone that can be used effectively for parking. The amount of land available for parking would not be adequate if the entire building were to be devoted to retail use. The site provides a ratio of floor to parking 1:1 1/2 which is below the desired 1:4 ratio.<sup>13</sup> The required ratio is 1:3 but this would not be adequate.<sup>14</sup>

Restoration of the building would have to provide the modern conveniences that are offered in competing retail outlets. The building would have its unparalleled attractiveness that could be promoted and become an asset for the tenants.

#### Unfavorable Criteria

Although the site offers a number of advantages it also has the following liabilities:

1. Cumulative Attraction. Similar retail outlets can sometimes draw a large number of customers when they are located together. The uses surrounding the depot do not provide the basis for cumulative

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<sup>13</sup>Ibid., p. 110.

<sup>14</sup>Knoxville Metropolitan Planning Staff, Knoxville Zoning Ordinance, Prepared for the Knoxville Metropolitan Planning Commission, Knoxville, Tennessee, June, 1966 (Knoxville, Tennessee: Knoxville Metropolitan Planning Commission, 1966), p. 5.

attraction; however, an appropriate mix within the building can help achieve cumulative attraction.

2. Compatibility. The principle of compatibility requires that there be no interruption in customer traffic and that customer interchange be at a maximum.<sup>15</sup> Due to the lack of a department store within the area and the number of street crossings, this is a serious disadvantage.

#### Retail Use Potential

Retail use could be feasible but at a marginal level. Population and income within the county and city have increased at a lower percentage than the nation.<sup>16</sup> At the present time Knoxville has a larger proportion of land devoted to retail sales than most cities its size.<sup>17</sup> A certain amount of future growth can be absorbed in the existing retail stores before additional space is needed. The Community Improvement Program for Knoxville states that the majority of new growth will take place in the western part of the city.<sup>18</sup> This is a reflection of the direction of growth within the area.

Retail use may be desirable if it is a supporting use for this site. This would have to be on a relatively small scale because of the parking required. The site does not offer good pedestrian accessibility.

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<sup>15</sup>Nelson, op. cit., p. 54.

<sup>16</sup>Real Estate Research Corporation, op. cit., pp. 26-34.

<sup>17</sup>Ibid.

<sup>18</sup>Ibid., p. 102.

## D. OFFICE SPACE USE

The optimum site for private office activities within Knoxville can be described in both economic and locational terms. Only the main elements for determining office potential will be considered and the assumption will be made based on these factors as to the potential of future office space.

The function of downtown Knoxville is changing from a retail nucleus to an office center. Since the establishment of Tennessee Valley Authority, office space has expanded to include a large number of the area's business and service outlets. At the present time the Tennessee Valley Authority is the principal user of office space within Knoxville. The majority of the space they lease is in buildings which are fifty years old and privately owned.<sup>19</sup> The Tennessee Valley Authority is having difficulty today finding adequate office space.<sup>20</sup>

Demand for private office space in Knoxville appears certain to increase in the years ahead. The population and income growth will generate increased demand for customer services of all types. Employment forecast in service and finance--insurance--real estate indicates a growth of approximately 10,000 new jobs by 1990.<sup>21</sup> Table VII shows a

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<sup>19</sup> Donald Boyette, private interview, Knoxville, Tennessee, January 10, 1970.

<sup>20</sup> Ibid.

<sup>21</sup> Real Estate Research Corporation, op. cit., p. 167.

TABLE VII  
 SELECTED EMPLOYMENT FORECAST,  
 KNOX COUNTY, 1968-1990

Year	Finance, Insurance, Real Estate	Service	Government
1968	3,755	13,800	21,794
1970	3,869	14,420	23,045
1975	4,168	16,097	26,575
1980	4,490	17,973	30,787
1985	4,837	20,170	35,831
1990	5,211	22,413	41,408

Source: Real Estate Research Corporation, Community Improvement Program, Prepared for Metropolitan Planning Commission, Knoxville, Tennessee, June, 1969 (Real Estate Research Corporation: New York, 1969), p. 155.

break down of employment forecast. Other factors that will create greater demand are: national trends toward more regional offices of national firms, increase in the number of office machines and more space per employee.<sup>22</sup>

The Real Estate Research Corporation has conducted a survey of rentable office space within the central business district.<sup>23</sup> They used such criteria as location, impressiveness, maintenance, nature of tenancy, elevators, and lobbies and air conditioning to determine a class rating of A, B, or C. This survey determined that 490,243 square feet of office space (excluding Tennessee Valley Authority) was located within the central business district in 1968. Class A rating was given to 124,741 square feet or 24 percent.<sup>24</sup> The results of this survey are shown on Table VIII.

#### Favorable Criteria

1. Parking. The site could provide sufficient parking for office use. Applying the standard of 325 square feet of parking to 150 square feet of office space, this could accommodate 120 cars.<sup>25</sup>

2. Building as an Address. Prestige to many business concerns can be attained by location and association with leading businesses. In many instances prestige is established primarily by the character of

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<sup>22</sup>Ibid., p. 156.

<sup>23</sup>Ibid., p. 154.

<sup>24</sup>Ibid., pp. 154-55.

<sup>25</sup>L. Ross McKeever, ed., The Community Builders Handbook (Washington: Urban Land Institute, 1968), p. 247.

TABLE VIII

KNOXVILLE'S PRINCIPAL CENTRAL BUSINESS DISTRICT OFFICE SPACE, 1968  
(EXCLUDING TVA)<sup>a</sup>

Class	Year Built	Net Rentable Space (sq. ft.)	Percent Vacant	Range of Rental Per (sq. ft.)
A	1962-1965	125,741	--	\$ 3.60-\$ 5.50 <sup>b</sup>
B	1907-1962	277,348	4.7	3.75- 4.00
C	1876-1960	88,154	9.2	3.50- 3.75
Total		490,243	4.9	\$ 3.50-\$ 5.50

<sup>a</sup>In 1968 the TVA occupied 349,896 square feet of office space within the central business district.

<sup>b</sup>This information obtained in interviews with Donald Boyette and John McCallie.

Source: Real Estate Research Corporation, Community Improvement Program, Prepared for Metropolitan Planning Commission, Knoxville, Tennessee, June, 1969 (Real Estate Research Corporation: New York, 1969), p. 155.



building improvements and the occupants.<sup>26</sup> The depot building is a landmark and well known within the community. Restoration can furnish the aesthetics that create the attitude of prestige.

3. Building Appearance. The age of the building itself does not determine the level of desirability. Maintenance of the structure frequently does; however, the building must still provide the modern conveniences that are offered in competing sites. Proper restoration could furnish essential aesthetics which could make this building one of the most desirable.

#### Unfavorable Criteria

Of the several uses considered, office use of the depot seems to pose the fewest difficulties. Although many of the mitigating circumstances negatively affecting other considered uses would operate against office use as well.

#### Office Use Potential

Analysis of the past trends and future estimates leads to the assumption that the market for quality office space has great potential. Most of the available office space is in the older buildings constructed just after the turn of the century. These structures display serious physical and functional obsolescence and in some cases lack modern conveniences such as air-conditioning and proper lighting. The market

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<sup>26</sup>James C. Downs, Principles of Real Estate Management (Chicago: Institute of Real Estate Management, 1964), p. 282.

demand for office space that is well-designed and in a prestigious building shows a very good potential.

#### E. RESIDENTIAL USE

The re-use of this site for residential purposes is unfeasible due to the structural character of this building. Renovation required to convert this structure into apartment facilities would necessitate the removal of the existing load bearing walls. Such extensive alteration would prove to be economically prohibitive.

#### F. INSTITUTIONAL USE

Local government activities have a major impact on land use. In Knoxville there is an apparent need for additional government structures. The existing city and county buildings are physically and functionally obsolete.

Location criteria for institutional use and office space are similar. Only criteria that are unfavorable will be discussed in detail to avoid repetition.

#### Unfavorable Criteria

1. Interrelationships. The interrelationship between public and private activities is a prime consideration in site location for institutional uses. The main library, federal building, Court House and Jail, Tennessee Supreme Court and Post Office are all located at the opposite end of the central business district. These government functions

should be grouped together if at all possible. This facilitates inter-relationship for both public and private activities. Although the city hall complex is located in a close proximity to the depot site, proposed plans call for relocation of the complex; therefore, eliminating any benefit that could be derived from this possible interrelationship.

2. Parking. Parking would be a problem because of the number of government service vehicles, employee parking, and visitors to institutional offices.

#### Institutional Use Potential

The location on the edge of the central business district is ideal for institutional use. The major difficulty is that the majority of public buildings and functions are at the opposite end of the central business district. The amount of available land does not warrant the consideration of a civic center. It is possible, however, that a particular public use could utilize this site--a public use which does not have strong relationships with other institutional uses and does not have to be in the near proximity of these uses.

#### G. SUMMARY

An assessment summary of the families of uses in relationship to location criteria is shown in Table IX. The main factors in determining the potential families of use will be re-examined below.

The disadvantages for industrial re-use outweigh the advantages. High property cost, property taxes, and restoration costs make it economically unfeasible. There is available land in several industrial

TABLE IX  
ASSESSMENT SUMMARY OF LOCATION CRITERIA

Location Criteria	Industrial	Retail	Office	Institutional
Accessibility	+	+	+	+
Central Location	+	+	+	+
Utilities	-	+	+	+
Physical Appearance	-	-	-	-
Pedestrian Accessibility	0	-	-	-
Future Expansion Possibilities	-	-	-	-
Cost of Property	-	0	0	0
Property Taxes	-	0	0	0
Multi-Story Structure	-	+	+	+
Adequacy of Present Trade Area Potential	+	0	+	+
Business Interception	0	+	+	0
Minimization of Competitive Hazards	0	+	0	0
Site Economics	-	-	+	+
Cumulative Attraction	-	-	-	-
Compatibility	-	-	+	+
Parking	0	-	+	-
Building as an Address	0	+	+	+
Institutional Interrelationships	0	0	+	-
Social Costs	-	0	0	0

Key: - unfavorable; + favorable; 0 no effect.

parks and in Knox County at lower cost that provide the facilities needed for a good industrial location. Social costs such as air pollution and sewage system are questionable--depending on the specific type of industrial re-use. Knoxville, however, at the present time is faced with a serious air pollution problem and cannot afford to add to this issue. In considering these factors industrial re-use is not recommended for this site.

A limited number of retail outlets could be located within the depot structure. This assumption is based on the following criteria:

1. Sufficient parking could not be provided if the entire building were to be used for retail outlets.
2. Increased sales could be absorbed by existing retail establishments, before additional space is needed.
3. Growth is occurring in the western portion of the city and if the proposed major shopping center is constructed will have an adverse effect on the central business district.
4. Decreases in the percentage of retail sales will continue to occur unless serious efforts are made to revitalize the central business district.
5. The site does not offer good pedestrian accessibility.

If, however, serious efforts are made to restore the downtown area and the business district loop is completed, the central business district may maintain its present position as a market center.

Office re-use meets the location criteria with few exceptions. The demand for this space and its future potential makes it a very

desirable re-use. The following are the main criteria in establishing office space as a potential use:

1. The site has sufficient parking for office use.
2. The building is a distinguished landmark and well known which provides the ingredients for a prestigious location.
3. Forecast for related employment indicates a desirable potential.
4. Proper restoration will furnish the needed aesthetics.
5. Vacancy rates for quality office space is almost nonexistent.

Restoration of the building would have to provide modern conveniences that are offered in quality office space. Residential re-use is omitted at this time because of the physical character of the depot structure. There is a possibility for institutional re-use. This use would have to be independent of other public uses. Care should be given that parking would be sufficient for the particular re-use. The following chapter will determine if retail and office space would be feasible when considering development costs, operating costs, and operating income.

## CHAPTER V

### ECONOMIC ANALYSIS

In this chapter an income stream forecast will be applied to office and retail uses. This will determine if the particular use or a combination of uses can be justified by a reasonable rate of return on the investment.

Income productivity is dynamic. Past income experiences may indicate a certain trend and present income flow may add to its validity, but anticipated future income expectancy may differ on the basis of national, regional and local business activities.

The degree of risk will vary with the type of investment. This income stream forecast estimates the most probable level of income return. It must be realized that there are varying degrees of risk and that the stated return will not be exactly as reported. Income forecasts are based on market prices and revenue is determined by the willingness of tenants to pay for these services. The supply and demand function will be the determining factor of future income. The objective of this analysis is to predict the most probable future income.

#### A. RELATED COSTS

##### Fixed Costs

There are two costs that will remain constant throughout this chapter: they are exterior restoration costs and land costs. They will be stated here to avoid repetition:

1. Exterior Restoration Costs. The building will be restored to its original quality. This cost will average approximately \$9.00 a square foot with a total cost of \$190,000.<sup>1</sup>

2. Land Cost. To avoid differences in the stated value of the railroad property, the author felt that it would be advantageous to use the property cost the railroad is requiring to purchase the site. The total cost would be \$114,000 at \$1.50 a square foot.

3. Property Taxes. Real estate taxes for the city are based on 40 percent of evaluation at \$2.85 per \$100 and county taxes are 25 percent of evaluation at \$3.80 per \$100. These rates will be applied to each use to determine the property taxes.

#### Costs Omitted

1. Depreciation. For the purpose of this analysis, depreciation is not included. Depreciation is neither a cash outlay nor an operating expense. The treatment of depreciation is a matter of financial policy since it does not affect productivity. Since the investor is primarily interested in the amount of net profit, depreciation will be adapted to his own special investment objectives and his tax position.<sup>2</sup>

2. Income Tax. Income tax is not considered because it reflects the special circumstances of the investor.<sup>3</sup>

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<sup>1</sup>Judson Robertson, private communication, Knoxville, Tennessee, January 19, 1970.

<sup>2</sup>Richard U. Ratcliff, Real Estate Analysis (New York: McGraw-Hill Book Company, Inc., 1961), p. 110.

<sup>3</sup>Ibid.



### Other Cost

1. Capitalization Rate. The application of this analysis of business risk is a process of converting the productivity prediction into a capital value for the investment. The selection of a capitalization rate is an important step in this procedure. The rate is largely a function of risk; a safe and sure return will justify a low capitalization rate; an uncertain return will call for a higher rate.<sup>4</sup>

#### B. OFFICE SPACE INCOME STREAM ANALYSIS

1. Interior Costs. Remodeling costs for similar office space occupied by Tennessee Valley Authority was estimated to be \$15.00 per square foot.<sup>5</sup> This same amount will be used for the depot building. After remodeling, the building would be comparable to any competing office space within Knoxville.

2. Operating Income. The rental rates of quality office space within Knoxville is \$4.50 to \$5.50 per square foot. The depot building can offer as many conveniences as competing sites; therefore, it is assumed that \$5.50 per square foot would be a reasonable rent. Proper promotion of this site could possibly increase this rate because the site does have a definite advantage in that on-site parking is available.

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<sup>4</sup> Ibid., p. 113.

<sup>5</sup> Donald Boyette, private interview, Knoxville, Tennessee, January 10, 1970.

3. Vacancy Rate. The rate of occupancy for class A office space in Knoxville is 100 percent. As a safety factor, a vacancy rate of 2 percent is assumed.

4. Operating Expenses. In operating expenses such items as materials and labor for maintenance, insurance, cleaning, air conditioning and heating are included. A cost of \$1.50 per square foot is assumed for these expenditures based on similar office space in Knoxville.<sup>6</sup>

Table X shows the detailed income flow and capitalization rate for office space. Equity of \$203,500 or 25 percent of the total cost would yield a capitalization rate of 15 percent. The amount of mortgage would be \$610,500 at 10 percent for 25 years. This rate of return on equity is considered to be a good investment.<sup>7</sup>

#### C. RETAIL SPACE INCOME STREAM ANALYSIS

1. Interior Costs. This cost includes centralized air-conditioning, new elevators, and all necessary items that would make the interior attractive and functional for retail use. The total cost would be approximately \$238,000 or \$7.00 per square foot.<sup>8</sup>

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<sup>6</sup>John McCallie, private interview, Knoxville, Tennessee, January 11, 1970.

<sup>7</sup>Gerald Garner, private interview, Knoxville, Tennessee, January 29, 1970.

<sup>8</sup>Jack Ayres, private interview, Knoxville, Tennessee, January 26, 1970.

TABLE X  
INCOME STREAM ANALYSIS FOR OFFICE SPACE

DEVELOPMENT COST		
Interior Restoration	34,000 sq. ft. x \$15.00	\$ 510,000
Exterior Restoration		<u>190,000</u>
		700,000
Land Cost		<u>114,000</u>
		\$ 814,000
OPERATING STATEMENT:		
Income	30,000 sq. ft. x \$5.50	\$ 165,000
Vacancy Rate	2%	<u>- 3,300</u>
		\$ 161,700
Expenses	30,000 sq. ft. x \$1.50	\$ 45,000
Property Tax		<u>21,256</u>
		\$ 66,256
NET OPERATING INCOME:		\$ 75,360
	Before Debt Service, Depreciation, and Income Taxes.	
EQUITY (25%)		\$ 203,500
MORTGAGE		610,500
INTEREST 10% for 25 Years		1,029,300
CAPITALIZATION RATE		15%

2. Operating Income. The average rent for retail space in Knoxville is approximately \$2.25 per square foot.<sup>9</sup> This amount is assumed for this analysis. The total income received from rent would be \$67,500.

3. Vacancy Rate. A vacancy rate of 2 percent is used, based on interviews with realtors.<sup>10</sup> This rate, however, applies to ground floors. The lack of information for upper floors leads the author to assume the same vacancy rate.

4. Operating Expenses. Mr. Martin, maintenance engineer for Miller's Department Store, has determined operating cost to be approximately \$0.36 per square foot.<sup>11</sup> The total operating cost is estimated at \$10,800.

Table XI shows the break down of the income stream for retail space. The investor's equity for retail use would be \$135,000, or 25 percent and \$406,500 mortgage at 10 percent for 25 years. This yields a capitalization rate of 22 percent on the investor's equity. This capitalization rate is rather high, indicating a greater risk on the investment.

The preceding chapter has established that the entire structure should not be devoted to retail use. The main reasons for these assumption are: the large amount of land devoted to retail use, decline

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<sup>9</sup> Charles McHenry, private interview, Knoxville, Tennessee, January 29, 1970.

<sup>10</sup> Wallace McClure, private interview, Knoxville, Tennessee, February 5, 1970.

<sup>11</sup> Edward Martin, private interview, Knoxville, Tennessee, February 10, 1970.

TABLE XI  
INCOME STREAM ANALYSIS FOR RETAIL SPACE

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DEVELOPMENT COSTS:		
Interior Restoration	34,000 sq. ft. x \$7.00	\$ 238,000
Exterior Restoration		190,000
		<u>428,000</u>
Land Costs		114,000
		<u>\$ 542,000</u>
OPERATING STATEMENT:		
Income	30,000 sq. ft. x \$2.25	\$ 67,500
Vacancy Rate	2%	- 1,350
		<u>\$ 66,150</u>
Expenses	30,000 sq. ft. x \$0.36	\$ 10,800
Property Tax		10,540
		<u>\$ 21,340</u>
NET OPERATING INCOME:		\$ 44,810
Before Debt Service, Depreciation, and Income Taxes.		
EQUITY (25%)		\$ 135,500
Mortgage		406,500
INTEREST at 10% for 25 Years		702,000
CAPITALIZATION RATE		22%

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in percentage of sales in the central business district, and large parking requirements for retail use. The possibility of mixed uses will be examined next.

Table XII illustrates the income flow for office and retail uses. Under this plan the street level would be used for retail space and all other floors for office space. Figure 4 shows the layout for the street level floor of the depot structure.

This analysis shows that the investor is required to have an equity of \$181,900, and carry a mortgage of \$546,100 at a 10 percent interest rate for 25 years. The return on the investor's equity would only be 10 percent. This return is not considered reasonable for the risk involved.<sup>12</sup>

#### D. ALTERNATIVE INVESTMENTS

To present an accurate approach to the re-use of the site, the investor should consider the rates of return on alternative investments. The investor can take advantage of higher interest yields because of the large amount of capital he is willing to invest. Several possible investments are listed in Table XIII, but it must be stated that the rate of return on the following are stable with little risk involved.

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<sup>12</sup>Gerald Garner, private interview, Knoxville, Tennessee, January 29, 1970.

TABLE XII

## INCOME STREAM ANALYSIS FOR OFFICE AND RETAIL SPACE

## DEVELOPMENT COSTS:

Interior Restoration		
Office	23,500 sq. ft. x \$15.00	\$ 348,000
Retail	10,500 sq. ft. x \$7.00	75,600
Exterior Restoration		<u>190,000</u>
		613,600
Land Cost		<u>114,000</u>
		\$ 727,600

## OPERATING STATEMENT:

Office	20,000 sq. ft. x \$1.50	\$ 110,000
Retail	10,000 sq. ft. x \$0.36	<u>22,500</u>
Vacancy Rate		- 2,650
Expenses		
Office	20,000 sq. ft. x \$1.50	\$ 30,000
Retail	10,000 sq. ft. x \$0.36	3,600
Property Tax		<u>16,143</u>
		\$ 49,743

## NET OPERATING INCOME:

Before Debt Service, Depreciation, and Income Taxes.	
EQUITY (25%)	\$ 181,500
MORTGAGE	46,100
INTEREST 10% for 25 Years	943,100
CAPITALIZATION RATE	10%

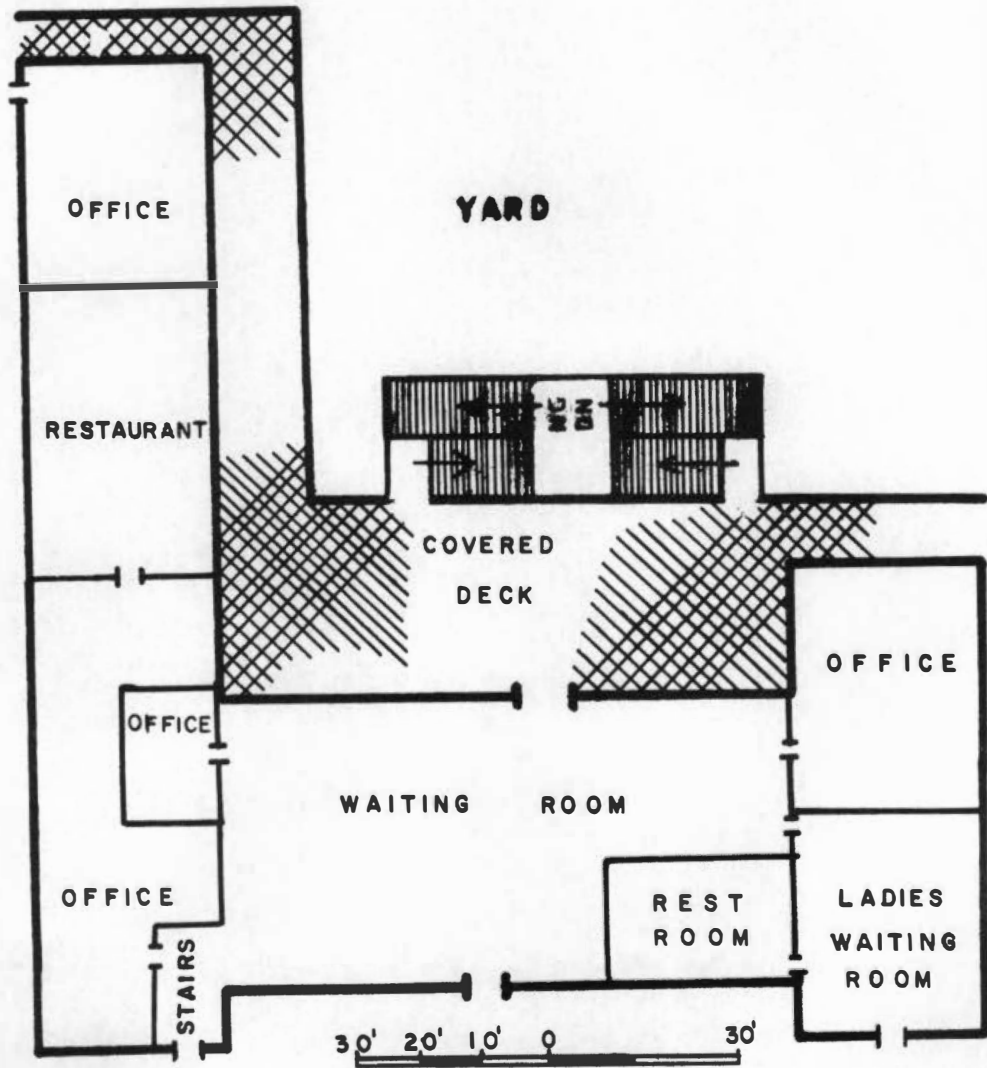


Figure 4. Street level floor layout.



TABLE XIII  
ALTERNATIVE INVESTMENTS AND RATE OF RETURN: 1970

Type Investment	Rate of Return
Municipal Bonds	8%
Corporate Bonds	6-9%
Saving and Loan Association	7 1/2%
Triple A Bonds	8%
General Motors Acceptance Corporation	8%

Source: Gerald Garner, private interview, Knoxville, Tennessee, January 29, 1970.

## E. SUMMARY

This chapter has examined income flows for office, retail and a mixture of office and retail space. Office space would yield a capitalization rate of 15 percent, which indicates it is a relatively safe and profitable investment. The capitalization rate for retail space is high at 22 percent, suggesting a greater degree of risk is involved in such an undertaking. Also, a mixture of office and retail space was analyzed and the capitalization yield was 10 percent. This return is too low when compared with alternative investment yields.

The present interest rate of 10 percent for commercial loans is used to determine the yield on the investor's equity. It should not be overlooked that changes in the national, regional, and local economic conditions will affect the above capitalization rates and appropriate adjustments would have to be made.

## CHAPTER VI

### CONCLUSION

#### A. SUMMARY OF ANALYSIS

Decline in passenger and l.c.l. freight service within the railroad industry has led to the abandonment of central rail facilities. These central locations are a prime importance and proper consideration should be given to their re-use. A number of cities throughout the nation have taken part in the re-development of abandoned depots.

The intent of this thesis is to determine the highest and best use of the Louisville and Nashville railroad depot. This study has identified three groups of factors that influence the possible re-use of the depot site: (1) recognition of adjacent planning units, (2) the location criteria, and (3) income flow analysis.

#### B. HIGHEST AND BEST USE

The survey of the site and surrounding planning units established five proposed families of uses. These proposed re-uses were: industry, residential, institutional, retail and office use.

The examination of the proposed uses in regard to location criteria eliminated the following uses:

1. Industrial use was eliminated due to the high property cost, property taxes and restoration costs, plus the availability of other industrial sites and the physical character of the structure.

2. Residential use was not feasible because of the structure character of the depot building.

3. Institutional use could be possible if a particular use could be established that would not require interrelationships with other public uses.

The income flow analysis determined the economic feasibility of the remaining proposed uses, office and retail space. Retail space was not desirable because of the high capitalization and lack of sufficient parking. A mixture of retail and office uses was evaluated and determined to be economically unfeasible because of low capitalization rate. Alternative investments that are considered stable yield approximately the same return on the investor's equity. Therefore, office space has been established as the highest and best use for the property. This use is compatible with adjacent uses, meets the location criteria with few exceptions and yields a capitalization rate favorable to alternative investments.

#### C. ALTERNATIVE USES

This entire thesis has been postulated on the assumption that the major determinant in any decision relating to the re-use of the terminal building or any other structure, for that matter was an economic one modified only by existing regulations. It is evident from this writer's examination that while this may be a major consideration in private decision making, there are far too many exceptions to not acknowledge them. The assumptions within this thesis are reasonably valid and are

based on an extrapolation of current trends within the Knoxville region. Furthermore, they are based on the stated plans of both the public and private sectors for both the railroad properties and those areas around the property which would most likely influence the re-development of the entire site. Given these assumptions, the contentions of this thesis are reasonably valid.

No validity is claimed, however, if certain assumptions are altered. It is reasonable, for example, to raise certain questions about the stated plans. At this writing the prospect for implementation of the downtown loop as it affects the railroad property is in doubt. Should this plan be significantly altered, then other re-use considerations could be made. A similar case can be made for the expansion plans of the University. Should the University decide to expand in a northerly direction, an intention it presently disclaims, then obviously, the railroad property would have to be viewed in a different light.

Beyond the scope of the economic analysis employed within this thesis is the possibility of an investment in the railroad properties by government. It is not inconceivable, for example, to envision the acquisition of all the railroad properties from Western Avenue to Fort Loudoun Lake as part of a massive inner city revitalization plan. Such a decision, while not likely, is not inconceivable.

A massive immediate investment in properties described could be employed as the triggering device for inner city economic revitalization. As such, certain forms of economic analysis could be employed, but on a long range basis.

Other alternatives, even less likely than government subsidy, but nevertheless possible, would be the acquisition of the entire site by private enterprise for full-scale private re-development. With urbanization in the United States proceeding at its present pace, such an investment is possible. That it has already occurred in other cities in the country suggests it could happen here.

In reassessing the economic approach to evaluating the re-use of the terminal building this writer has drawn the conclusion that while an economic analysis provides considerable information for the ultimate decisions which must be made, the noneconomic could weigh more heavily. For the most part, unfortunately, they cannot be quantified except in the long run. The investment in Central Park could not be judged at the time of the setting aside of the land. There is some doubt that it could be quantified even at this date. That it has had a positive economic impact upon Manhattan is beyond question. How much, is something else.

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APPENDIX

## APPENDIX

### INTERVIEWS AND PERSONAL COMMUNICATION

Interview with Susan Adams, staff member of the Knoxville Metropolitan Planning Commission, on January 9, 1970.

Personal communication with Jack Ayres, Knoxville businessman, on January 26, 1970.

Interview with Charles Blowers, planner with the Tennessee Valley Authority, on January 12, 1970.

Interview with Donald Boyette, property manager with Tennessee Valley Authority, on January 10, 1970.

Personal communication with Dennis Cody, planner with Bost Engineering Company, on January 8, 1970.

Interview with Tom Crossman, staff member of the Knoxville Metropolitan Planning Commission, on November 25, 1969.

Personal communication with George Fritts, realtor with Brownlow Real Estate, January 8, 1970.

Interview with Gerald Garner, financial consultant with Home Federal Association, on January 29, 1970.

Interview with James Gober, planner with the Tennessee Valley Authority, on January 12, 1970.

Personal communication with Richard Golden, staff member of the Knoxville Metropolitan Planning Commission, on January 5, 1970.

Personal communication with Edward Martin, maintenance engineer with Miller's Department Store, February 10, 1970.

Interview with Wallace McClure, realtor in Knoxville, on February 5, 1970.

Interview with Charles McHenry, realtor with Tate and McCallie Real Estate Agency, on January 29, 1970.

Interview with John Neal, superintendent of the Louisville and Nashville Railroad, on November 25, 1969.

Personal communication with Richard Rawson, interior design architect with Tennessee Valley Authority, on January 10, 1970.

Personal communication with Judson Robertson, private architect in Knoxville, on January 19, 1970.

Interview with William Simms, staff member of the Knoxville Housing Authority, on January 16, 1970.

Interview with John Ulmer, staff member of the Knoxville Metropolitan Planning Commission, on November 25, 1970.

## VITA

William Joseph Schwartskopf was born in Massena, New York, on May 2, 1938. He attended and graduated from Massena High School in 1957. The following two years he worked construction and in 1959 entered the United States Army for six months active service. After separation from the service he worked in Plattsburgh, New York.

He entered East Tennessee State University, Johnson City, Tennessee, in September, 1963, and received a Bachelor of Science degree in Business Management. During his senior year at East Tennessee State University he was a part-time employee for the State Planning Commission in Johnson City. In June, 1967, he accepted a full-time position with the State Planning Commission. He entered the Graduate School of Planning in September, 1968, at The University of Tennessee and received a Master of Science in Planning in March, 1970.

He is married to the former Judith Marion Brown of Plattsburgh, New York, and has a four year old son, Eric.