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University of Nebraska at Omaha

# REVIEW

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## Interstate Freeways Attract New Office Sites

By Murray Frost and Armin K. Ludwig

### ACKNOWLEDGEMENTS

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### Introduction

COMPLETION OF THE INTERSTATE highway network in American metropolitan areas has opened a wide variety of locational options for urban land uses. New office sites have been salient among these developments. The purpose of this study is to compare Interstate radial freeway corridors with other spatial units in Omaha and six other metropolitan areas to determine their differential attraction for new office sites in the period 1970-1976. The seven metropolitan areas studied were Atlanta, Dallas, Denver, Louisville, Minneapolis-St. Paul, Omaha, and San Jose.

### Definitions

For this study an office site is one in which the prime functions of the units which occupy it are the creation, storage,

and dissemination of information regarding services performed, goods held or transferred, and personnel employed. A site may comprise a single office building, an office park of several buildings, or a complex of buildings built by the same developer within a limited time period. A service may be performed at the same location; e.g., physicians see patients and insurance agents sell policies, but rarely are the goods for which the records are surrogates present at the office location. No steel ingots, for example, are found in the U. S. Steel headquarters building.

The study included office sites which were both renter-occupied and owner-occupied. It excluded all office sites that were wholly occupied by Federal, state and local government agencies whether these buildings were leased from the private sector or not. This was done because most government office location decision makers were assumed to operate under a different set of constraints from those in the private sector. The study also excluded corporate headquarters located at the site of production facilities. Buildings with less than 25,000 square feet of gross floor area were excluded from the study. This allowed the establishment of a manageable universe of sites within each city's metropolitan area. It also permitted the study to make maximum use of some existing public and private agency inventories which provided relevant data only on office sites in their cities that contained at least 25,000 square feet of gross floor area.

An Interstate radial is defined as a federally funded Interstate highway anchored at or near the central business district (CBD) of that metropolitan area. It extends outward from the CBD like a spoke of a wheel and, in most cases, intersects the Interstate circumferential

highway. A non-Interstate radial has the same geographic pattern as the Interstate radial, but it is not necessarily a limited access route. A radial corridor is defined as that area which lies within one mile on either side of a radial highway and extends from the CBD to a point four miles beyond the Interstate circumferential. A corridor two miles wide is also developed along the Interstate circumferential in each metropolitan area.<sup>1</sup>

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Between 1970 and 1976 the largest proportion of office site growth in seven metropolitan areas occurred in Interstate radial freeway corridors.

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Each of the metropolitan areas under study contains a cluster of downtown office sites that are roughly coincident with the CBD. In no case, however does this cluster extend more than 1.4 miles linearly, and in most it is less than one mile. Consequently the downtown cluster in every metropolitan area can be enclosed with a circle whose radius is .7 mile. The CBD as defined in the Census of Retail Trade might be used as the base for some metropolitan areas, but in others it is not spatially coincident with the cluster of downtown office sites. In this study the term core rather than CBD will be used to designate the downtown office area.

The non-corridor area comprises all space inside a line four miles from the Interstate circumferential, space not included in one of the types of spatial units described above. The number and types of the spatial units described above and the square miles they contain in each metropolitan area are shown in Table 1. They also appear individually on Maps 1 through 7.

TABLE 1  
NUMBER AND AREA OF SPATIAL UNITS IN THE SEVEN METROPOLITAN AREAS

	Atlanta		Dallas		Denver		Louisville		Minneapolis-St. Paul		Omaha		San Jose		Total	
	No.	Sq. Mi.	No.	Sq. Mi.	No.	Sq. Mi.	No.	Sq. Mi.	No.	Sq. Mi.	No.	Sq. Mi.	No.	Sq. Mi.	No.	Sq. Mi.
Interstate Corridors	5	120.4	4	98.5	4	88.3	2	38.6	5	111.5	1	18.5	2	24.1	23	499.9
Non-Interstate Corridors	4	80.0	4	87.0	3	53.5	2	38.0	5	113.4	1	19.1	4	62.7	23	453.7
Interstate Circumferentials	1	80.0	1	88.0	1	19.5	1	21.5	1	114.0	1	29.4	0	0.0	6	352.4
Core and Core Extensions	1	4.5	1	2.7	1	2.7	1	1.5	2	3.0	1	1.5	1	1.5	8	17.4
Non-Corridor Areas	254.1		310.8		282.6		51.4		398.1		64.1		66.2		1,427.3	
Total	539.0		587.0		446.6		151.0		740.0		132.6		154.5		2,750.7	

The period from 1970 to 1976 was selected for study because, for most of the metropolitan areas, it marks both the completion of the Interstate system and a sharp increase in office site development (Table 1).

**Selection of Metropolitan Areas**

The seven metropolitan areas studied were selected from among 60 SMSA's (Standard Metropolitan Statistical Areas) that met the following criteria: (a) a central city population of at least 100,000 but fewer than one million inhabitants, (b) a central city with at least one core-anchored Interstate radial that was toll-free and that contained at least three interchanges between the core and the circumferential, and (c) the existence of a comprehensive and accurate office site inventory.

An attempt was made to provide as good a regional distribution as possible. Selection from diverse geographical areas allowed for the inclusion of metropolitan areas of differing ages with differing regional functions and ties. Their distribution represents most of the large regions of the United States. San Jose represents the West Coast; Denver, the West; Dallas, the Southwest; Omaha and Minneapolis-St. Paul, the Midwest; and Louisville and Atlanta, the Southeast. Only the traditionally industrial and commercial Northeast, where most of the cities are old and well built up with little space for office site development between the core and the circumferential, is not represented.

**Increase and Centrifugal Movement of Office Sites and Gross Area**

The 1976 pattern of office sites in the seven metropolitan areas is a product of seven years of growth that might well be referred to as an office "boom" in some areas. The 480 sites developed during the 1970 to 1976 period represent a more than 90 percent increase over the number of sites developed prior to 1970.<sup>2</sup> (Maps 1 through 7 and Tables 2 and 3) More than 62.5 million gross square feet of space were put in place in this period,

increasing the pre-1970 footage by 85 percent. By 1976, San Jose, Denver, and Louisville had more than doubled the number of their pre-1970 office sites, and Atlanta nearly did so. A similar pattern held across the seven metropolitan areas for increases in gross square footage. Among the seven only Omaha and Minneapolis-St. Paul could be described as showing but modest growth during the 1970-1976 period.

This seven-year period saw not only a rapid expansion but also an outward shift—a centrifugal movement—of office sites in all the metropolitan areas under study. In the aggregate the cores of these metropolitan areas witnessed modest growths of 23 percent in number of sites and 40 percent in gross square footage (Table 4). The non-core areas, on the other hand, experienced growth

rates of over 200 percent in the number of sites and more than 170 percent in gross square footage. The growth rate differentials between number of sites and gross square footage resulted from the fact that non-core sites tended to be smaller than those in the cores. Two areas with strong and active urban redevelopment programs, San Jose and Louisville, both more than doubled their pre-1970 square footage during the 1970-1976 period. Nevertheless, non-core growth in even these two areas exceeded 200 percent. In every metropolitan area the number of sites in the non-core area more than doubled in the period. This was the single most important growth rate in the metropolitan area, for, regardless of the square footage involved, these new sites represented an aggregate of individualized location decisions.

TABLE 2  
HISTORICAL GROWTH OF OFFICE SITES

	Sites			1970-1976 Growth as % of Pre-1970 Sites
	Pre-1970	1970-1976	1976 Total	
Atlanta	119	118	237	99.2
Dallas	120	102	222	85.0
Denver	68	98	166	144.1
Louisville	33	39	72	118.8
Minneapolis-St. Paul	120	60	180	50.0
Omaha	44	22	66	50.0
San Jose	24	41	65	170.8
Total	528	480	1,008	90.9

TABLE 3  
HISTORICAL GROWTH OF GROSS SQUARE FOOTAGE (in 000's)

	Gross Square Footage			1970-1976 Growth as % of Pre-1970 Gross Square Footage
	Pre-1970	1970-1976	1976 Total	
Atlanta	19,257	17,456	36,713	90.6
Dallas	20,512	17,322	37,834	84.4
Denver	5,819	11,003	16,822	189.1
Louisville	2,889	4,393	7,282	152.1
Minneapolis-St. Paul	18,000	7,753	25,753	43.1
Omaha	5,333	1,751	7,084	32.8
San Jose	1,499	2,846	4,345	189.9
Total	73,309	62,524	135,833	85.3

TABLE 4  
GROWTH IN NUMBER AND AREA OF OFFICE SITES IN CORE AND NON-CORE AREAS BETWEEN 1970 AND 1976

	Sites				Gross Square Footage			
	Cores		Non-Core Areas		Cores		Non-Core Areas	
	Number 1970-1976	Percent Increase	Number 1970-1976	Percent Increase	Gross Square Footage 1970-1976	Percent Increase	Number 1970-1976	Percent Increase
Atlanta	10	13.6	108	234.8	4,687	41.1	12,769	162.4
Dallas	11	17.8	91	193.6	4,378	29.2	12,944	233.6
Denver	15	36.5	83	307.4	3,597	84.6	7,406	472.0
Louisville	14	53.8	25	280.0	2,409	103.3	1,984	280.7
Minneapolis-St. Paul	12	14.3	48	133.3	2,815	23.9	4,938	79.3
Omaha	3	11.5	19	105.6	465	15.2	1,286	56.4
San Jose	11	110.0	30	214.3	1,013	150.0	1,833	222.5
Total	76	23.6	404	207.2	19,364	40.0	43,160	173.5

TABLE 5  
INCREASE IN NUMBER OF OFFICE SITES IN EACH TYPE OF LOCATION AS A PERCENTAGE OF TOTAL GROWTH IN METROPOLITAN AREA FROM 1970 TO 1976

	Interstate Radials		Non-Interstate Radials		Circumferentials		Cores and Core Extensions		Non-corridor Areas		Total Number
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	
Atlanta	47	39.8	23	19.5	25	21.2	10	8.5	13	11.0	118
Dallas	42	41.2	26	25.5	15	14.7	11	10.8	8	7.8	102
Denver	39	39.8	15	15.3	4	4.1	15	15.3	25	25.5	98
Louisville	12	30.8	7	17.9	3	7.7	14	35.9	3	7.7	39
Minneapolis-St. Paul	11	18.3	11	18.3	18	30.0	12	20.0	8	13.3	60
Omaha	3	13.6	14	63.6	0	0.0	3	13.6	2	9.2	22
San Jose	10	24.4	9	22.0	--	--	11	26.8	11	26.8	41
Total	164	34.2	105	21.9	65	13.5	76	15.8	70	14.6	480

TABLE 6  
INCREASE IN GROSS SQUARE FOOTAGE OF OFFICE DEVELOPMENT IN EACH TYPE OF LOCATION AS A PERCENTAGE OF TOTAL GROWTH IN METROPOLITAN AREA FROM 1970 TO 1976

	Interstate Radials		Non-Interstate Radials		Circumferential		Cores and Core Extension		Non-Corridor Areas		Total Gross Square Footage (000's)
	Gross Square Footage (000's)	Percent	Gross Square Footage (000's)	Percent	Gross Square Footage (000's)	Percent	Gross Square Footage (000's)	Percent	Gross Square Footage (000's)	Percent	
Atlanta	4,896	28.1	2,395	13.7	4,422	25.3	4,687	26.9	1,056	6.0	17,456
Dallas	5,426	31.3	5,186	29.9	1,660	9.6	4,378	25.3	672	3.9	17,322
Denver	4,160	37.8	1,330	12.1	300	2.7	3,597	32.7	1,616	14.7	11,003
Louisville	1,129	25.7	263	6.0	308	7.0	2,409	54.8	284	6.5	4,393
Minneapolis-St. Paul	1,040	13.4	1,024	13.3	1,911	24.6	2,815	36.3	963	12.4	7,753
Omaha	245	14.0	825	47.1	0	0.0	465	26.6	216	12.3	1,751
San Jose	742	26.1	581	20.4	--	--	1,013	35.6	510	17.9	2,846
Total	17,638	28.2	11,604	18.6	8,601	13.7	19,364	31.0	5,317	8.5	62,524

**Channeling of the Centrifugal Movement**

Office site growth outside the cores was not, however, evenly distributed over the non-core areas. The largest proportion of growth in the seven metropolitan areas in the 1970-1976 period occurred in Interstate radial freeway corridors (Table 5). In Atlanta, Dallas, Denver, and Louisville Interstate radial corridors ranked first among all non-core spatial units in office site growth. In San Jose the Interstate radials ranked second, but the proportions of the metropolitan increase were

unusually well distributed among the three non-core spatial units. This was not the situation in Omaha where the non-Interstate radial (Dodge Street) absorbed the bulk of the increase, and the Interstate radial corridor was thus a distant second. Nor was it the case in Minneapolis-St. Paul where the Interstate circumferential ranked first in non-core growth and the Interstate radial corridors second.

On the basis of the increase in gross square footage, Interstate radial corridors in Atlanta, Dallas, Denver, and Louisville

recapitulated the site rankings and led all non-core spatial units in these metropolitan areas (Table 6). The larger size of office sites in the San Jose Interstate radial corridors contributed to raising these spatial units to first ranking. Interstate radial corridors in Omaha and Minneapolis continued to lag behind the non-Interstate radial corridors and the Interstate circumferential, respectively, in their proportion of the total metropolitan growth in gross square footage in the 1970-1976 period.

### Role of Accessibility Factors

The role of the Interstate freeway as an attractive force encouraging office development to locate nearby can be traced through several variables usually found in industrial location theory. Primary among these is accessibility. The concept of accessibility, however, is most useful in explaining the impact of an Interstate freeway—or any other linkage in the transportation network—when it is differentiated rather than generalized into a single measure.

At a minimum the accessibility of a site can be viewed from several different levels. Macro-accessibility relates the office development site to other important activity nodes within the metropolitan area. These nodes should be differentiated. Accessibility to the CBD or core, the traditional center of office and governmental functions, must be considered. Accessibility of the site to potential employees (i.e., white collar workers) should also be examined, especially since labor supply is a prominent variable in industrial location models. The realities of office location decision-making also require an examination of the relationship between the site selected and the residences of the decision makers and other executives. Accessibility to clients (or markets) is another standard factor in industrial location models. However, offices are not an undifferentiated mass, and the location of clients may be of no concern to the purely administrative (or headquarters) office but of considerable importance to offices oriented toward a local market because of its "sales" activities (e.g., real estate, law, and insurance).<sup>3</sup>

A second level of accessibility is meso-accessibility which refers to the relation between the office development site and the freeway. The speed and ease of entry to and exit from the freeway system can be an important factor. Development is much more likely at freeway intersections than between exits, and the data presented earlier indicate office development is generally more likely to occur within a mile of a freeway than farther away. An example of the effect of meso-accessibility is the attractiveness of Interstate freeways for office development in Dallas, which is strongly influenced by the extensive use of frontage or service roads paralleling the freeway. A negative example is San Jose where an office building, adjacent to the freeway but with limited access to freeway drivers because a nearby exit is provided only for eastbound traffic, has had a high

vacancy rate for several years.

The third level of accessibility is micro-accessibility, which refers to the ease of entry and exit from the office development and includes such factors as the number and location of driveways and parking facilities. This factor is almost totally controllable by the developer of the site and is unrelated to the location of freeways or other major linkages in the transportation network. However, this factor may enter the decision making of a potential office space renter or user and therefore may contribute to the attractiveness of the specific development. This in turn may contribute to the broad pattern of office development location because the speed at which a development is developed influences other investors and occupiers who may not adequately assess the reasons for success or failure.

### Accessibility for White Collar Workers

Accessibility of office developments to residences of white collar office workers is highly related to the attractiveness of a freeway corridor for office development. In general, office development occurs in the direction of the predominant concentration of the residences of white collar workers. For instance, the largest concentrations of white collar workers' residences in the metropolitan Louisville area occur in the eastern portions near I-64E. This freeway is also marked by a large proportion of recent office development. Similarly, in the Dallas area, the white collar population is concentrated north of the CBD, and recent population trends suggest a continuation of this concentration. Not unexpectedly, therefore, all of the office development since 1970 has been north of, or inside, the CBD. The result is that I-35E north of the CBD exhibits much growth in this decade, while the continuation of this freeway south of the CBD shows no attraction for new development (and relatively little development prior to 1970).

The pattern is repeated in San Jose where the highest white collar accessibility occurs in the western portion of the study area served by I-280, which in turn is highly attractive to office developments. In contrast, the continuation of I-280 east of the CBD, designated as I-680 does not serve white collar workers and does not have any large office developments. Atlanta's concentration of white collar workers is north of the CBD, as is most of its office development.

### Accessibility for Executives

Even more important than accessibility for secretaries and clerks is accessibility

for their bosses, who are the decision makers on office locations. The importance of accessibility of office developments to the residences of these decision makers has been noted by analysts and practitioners alike. For instance, Quante concluded, "The most important consideration in headquarters relocation is usually an interest in reducing the commuting burden of senior executives. Indeed, this factor is so important that many headquarters choose locations close to the residences of top management."<sup>4</sup> Location theories stress the economic rationality of maximizing profit and/or minimizing costs and may exclude this factor as subjective and exogenous, but Quante argues that corporations which place a high value on the well-being of their senior executives are making a rational economic decision.

Manners observed, "The reasons for the growth of suburban office activities are not difficult to find. Above all else, it is the transportation convenience of suburban locations which has been the most influential with office managers and developers alike. A shorter journey to work for at least the key executives, the ability to use automobiles with free or low cost parking at the office. . . are all decisive in the locational trend."<sup>5</sup>

A Dallas leasing agent expounded on an "intercept theory" explaining, "This theory is nothing more than the idea that if you can put a building close to where the decision makers live, you will lease your space."<sup>6</sup> Dallas provides some additional data to support this contention. Although northeast Dallas and neighboring Garland have some large concentrations of white collar workers, corporate managers are more likely to live northwest of the CBD, and this is where new office development has been concentrated.

This factor becomes especially important for office location decisions because traditional industrial location theory with its emphasis upon labor, raw materials, and marketing costs is not applicable for offices. Their "main products—decisions—are intangible, and most of their inputs are unquantifiable."<sup>4</sup>

In summary, accessibility of office sites to white collar workers, especially top executives, is an important factor determining location of recent office developments. The freeway, therefore, contributed to the suburbanization of office space by first contributing to the suburbanization of residences. Once the executive lived in the suburbs and commuted to the CBD, he began to think of suburbanizing his place of work as well.

### Accessibility to the Core

The traditional site for office buildings, government centers, and auxiliary services has been the CBD or core of a city. This area has been declining in recent years for a number of reasons. One of these reasons, certainly, is that developments away from the core may still enjoy excellent access to it because of improvements in the transportation network. The completion (or near-completion) of the freeway system, with radials extending from the core and linking into a circumferential freeway, has given outlying areas excellent access to the business and cultural attractions remaining in the core. The decline of the core can also be traced to the physical decline of the area and the physical and social decline of surrounding neighborhoods. Another factor contributing to the relative decline of the core as a site for offices has been the improvement of the communication system which has resulted in a decreased need for face-to-face communication. In addition, the increasing size and complexity of modern businesses have resulted in corporations relying more and more upon their own staffs for financial, legal, and other services, rather than purchasing them from nearby firms.

More firms, therefore, find that they do not need the amenities of the core and so are willing to move further from it. In fact, in Dallas in 1974, a concentric zone four to five miles from the core contained 13 percent of the office buildings and 12 percent of the gross floor area, but the zone only one to two miles from the core had only 7 percent of the buildings and 3 percent of the office space. A zone still further away from the CBD (five to ten miles from the core) contained more than one-fourth (28 percent) of all office buildings and almost one-fifth (19 percent) of the gross floor area in Dallas County.<sup>7</sup>

In Louisville no office site on the I-64 radial is closer than seven miles to the core, and only one office development exists between the core and the core side of the two-mile circumferential freeway corridor. Office developments 10 miles east of this core but near the radial freeway have been successful, and local developers expect still more development three miles farther out when a new outer circumferential freeway intersects with the radial.

Similarly, in Minneapolis-St. Paul the nearest new office developments not in the cores are eight miles out, and I-94, which links the two cores, has not had any office development in the 1970's.



NEW OFFICE BUILDINGS along the I-680 corridor in Omaha are typical of those built between 1970 and 1976 in the seven metropolitan areas studied. The picture was taken looking northeast from the Pacific Street overpass.

The next office boom is expected to occur 16 miles south of the Minneapolis core where I-35E and I-35W will merge.

The circumferential freeways—or, more accurately, portions of them—are often more attractive to new office developments than the radials which extend into the core (the heaviest concentration usually occurs near the intersections of a radial freeway and the circumferential freeway).

In summary, distance from the core is of virtually no importance in the location of office development. Access to the core, however, is still important; office developers and rental agents still boast "only minutes from downtown" by the freeway. However, the additional five to ten minutes spent as a result of a location farther away is easily tolerated, especially as these trips to the core become rarer.

### Role of Dollar Costs

The second broad category of variables potentially useful in explaining office development location patterns is dollar costs, some of which are translatable from the accessibility measures just noted. Several types of costs are theoretically relevant for the office location decision maker. For the developer, price of land and construction may be crucial, and these costs are in turn passed on to the user of office space. Taxes are another cost factor frequently relied upon as an explanation for differentials in the rate of economic growth. Labor cost is the final theoretical cost category, although

its usefulness in explaining intrametropolitan location decisions is quite limited as wage rates do not vary appreciably within a metropolitan labor market.

### Tax Differentials

Theoretically, any cost differential should act as a factor that attracts development to the less expensive site. Some business people point to higher tax rates to explain why they leave an area for another. Generally, these tax differentials are relatively small, however. For instance, in Dallas a \$1,000,000 office building would pay \$10,463 in real property taxes to the city; in University Park, an enclave surrounded by Dallas, the same building would pay \$5,720 in city real property taxes. This \$4,743 difference may seem large, but when it is proportioned over the typical size for a \$1,000,000 building, the difference is approximately 10 cents per square foot of floor area per year. This is less than the 50-cent variation in cleaning service costs experienced by different office building managers in the Dallas area.<sup>8</sup> This differential is only a small proportion of the average annual rental rate of \$6.42 per square foot and an even smaller proportion of the total costs of operating an office when labor costs, which can be as high as \$40 to \$60 per year per square foot and represent approximately 85 percent of total expenses,<sup>5</sup> are included.

Not only is the tax rate differential between cities usually small,<sup>9</sup> but it may be less significant than inter-city variations in assessment practice. A Denver developer

added that differences in the "sophistication" of cities in the development process may be more important; a city such as Denver may be better prepared than some of the satellite communities to aid a developer by cutting time delays in granting permits, thus reducing the developer's front-end costs.

Any evaluation of the impact of tax (or other cost) differentials upon office development patterns should include the fact that office occupancy rates are more sensitive to quality considerations than cost considerations.<sup>5</sup> Buildings with low rental rates are often those with high vacancy rates because the building is not considered prime space.

**Price of Land**

The relationship of the price of land to attractiveness for office development is not a simple one. At a minimum, as the land becomes more attractive (e.g., when accessibility is improved through improvements to the transportation network), its price increases.

The price of land may not be a critical factor for development because the higher price of a land parcel can be compensated for through more intensive development. When high-rise development is substituted for garden-type development, the core in the study cities is still

a viable site for office development, even though land costs in the core are as high as \$25 to \$75 per square foot.

However, the lower price for land farther away from the core enables the development of larger parcels that can provide ample space for free parking. This is an important inducement for firms currently located in the CBD. One observer sees it as the equivalent of a \$30 per month salary increase.<sup>7</sup>

The use of larger parcels of land also permits the use of cheaper garden-type development or low-rise construction. Less expensive land and less expensive construction combine to contribute to cheaper office space than can be found in buildings of comparable age in the core.

In summary, if all other factors are equal, cheaper land will attract office development, but all other factors are rarely equal. Therefore, one must conclude that within limits, the price of land is not a determinant of where offices are developed.

**Availability of Land**

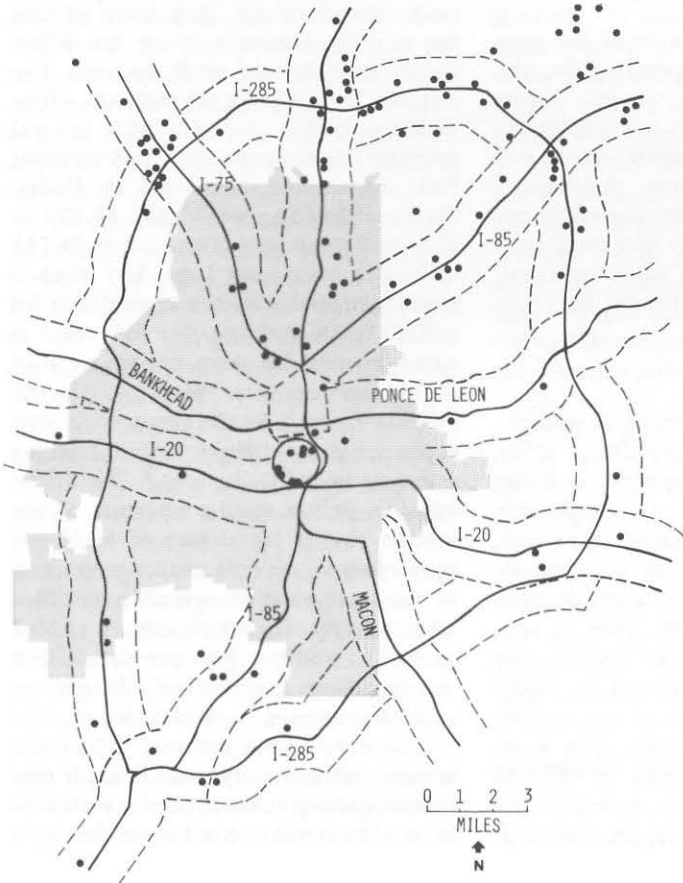
Another variable that may be considered a "necessary" condition before development can occur is a supply of available land. An analysis of the impact of freeways upon the location of office

development should examine this variable.

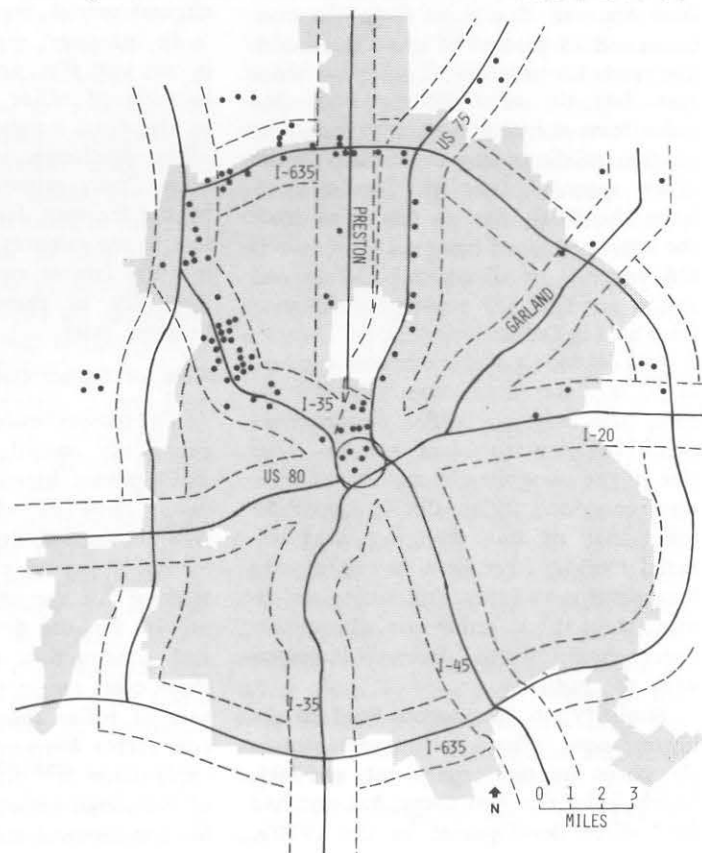
Freeways play an important role in making land available for development by providing access to it for potential users in the metropolitan area. An analysis of the location pattern of new office development must consider the role of available land in shaping the patterns. For instance, one freeway can pass through vacant land that, when combined with improved accessibility, attracts new development to the area, while another freeway is routed through an already developed area that may serve to inhibit new development despite the added accessibility. This is one explanation offered for the extensive office development along I-35W and the southwestern portion of I-494 in Minneapolis and the virtual lack of new development along I-94 linking Minneapolis and St. Paul.

An examination of vacant land in the seven cities studied leads to the conclusion that available land may be a necessary condition but is not sufficient to attract development. For example, large tracts of vacant land are found along the southern terminus of I-35 in Dallas, and yet the new development is along the portion of I-35 north of the CBD (Stemmons Freeway). Similarly, more vacant land occurs near the southern leg of the I-635 circumferential than near

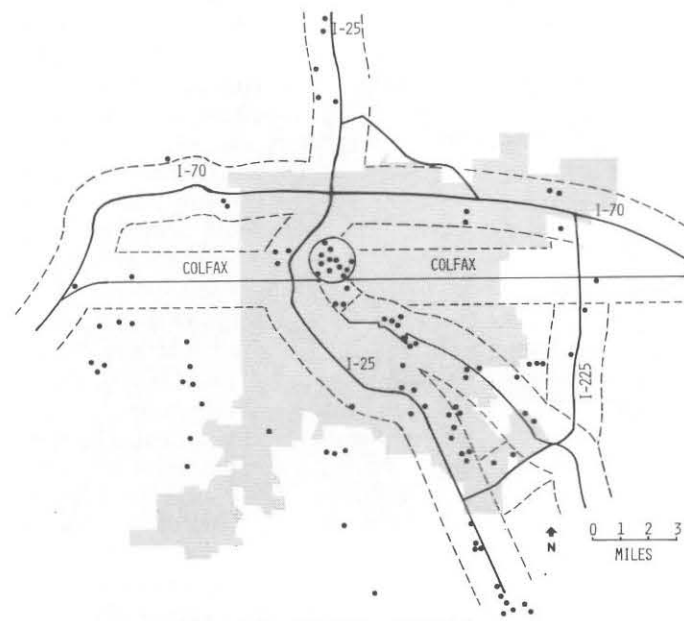
Map 1  
Metropolitan Atlanta Corridor Office Sites Initiated 1970-76



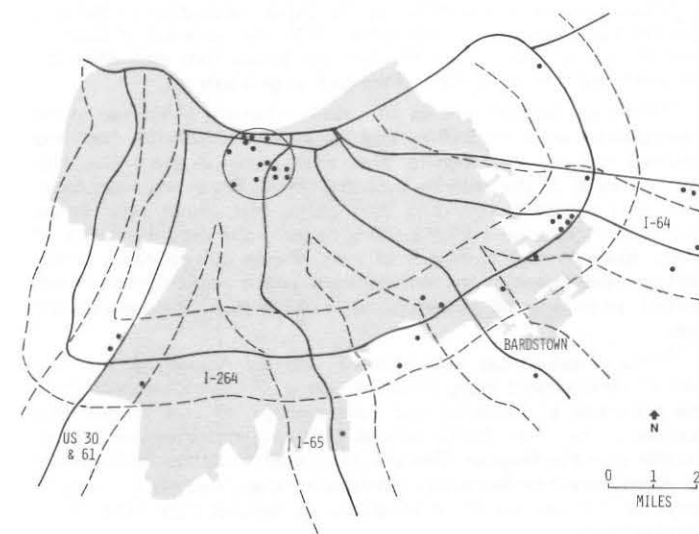
Map 2  
Metropolitan Dallas Corridor Office Sites Initiated 1970-76



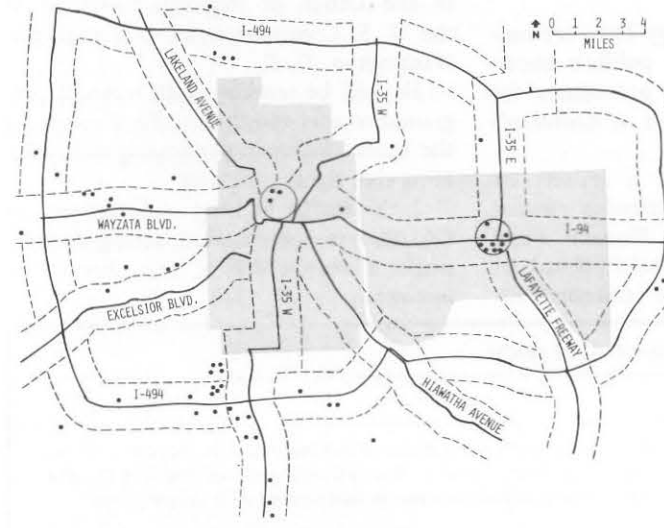
Map 3  
Metropolitan Denver Corridor Office Sites Initiated 1970-76



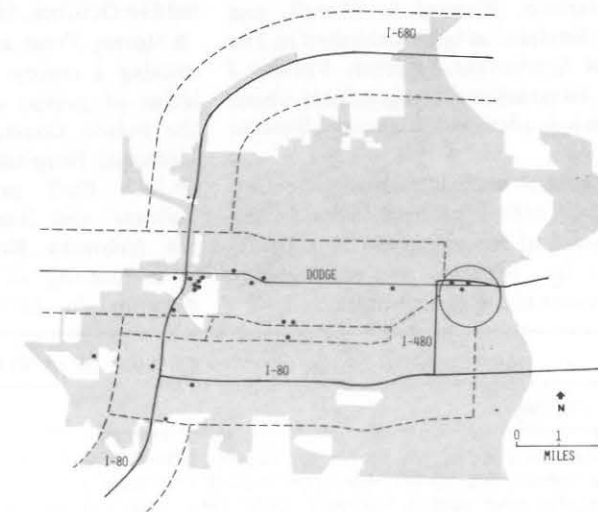
Map 4  
Metropolitan Louisville Corridor Office Sites Initiated 1970-76



Map 5  
Metropolitan Minneapolis-St. Paul  
Corridor Office Sites Initiated 1970-76



Map 6  
Metropolitan Omaha Corridor Office Sites Initiated 1970-76



its northern leg, and yet the latter is considered the "hot" area for development in the Dallas metropolitan area.

Even the conclusion that available land is a necessary condition for office development must be tempered by raising the question of what constitutes available land. The concept cannot be limited to vacant lots or larger parcels, because much of the new development in "suburban" areas occurs on land converted from agricultural use (e.g., much of San Jose's office development is in former fruit orchards). If land is devoted to another use—whether it be agricultural, residential, or commercial—it may still be considered available for office development if the cost of purchasing and clearing it is no higher than the price of "vacant"

land elsewhere and if zoning and other land use restrictions permit it. The availability of price and zoning and not of current land use.<sup>10</sup> It may also be a function of the size of the parcel; outlying land is more likely to be available in large parcels, whereas already developed land may be divided into smaller parcels spread over broader ownership, which makes the aggregation of a sufficiently large land package in a difficult process. The importance of zoning and other land use restrictions (e.g., building height or setbacks) will vary with the ease with which they may be amended in any city. Increased concern for the environment and increased citizen participation have made variances more difficult to acquire,

especially if residential land is affected.

<sup>1</sup>In some of the metropolitan areas the circumferential is not composed entirely of Interstate routes. The short segments of state routes used to close the circumferential are included as part of the Interstate circumferential.

<sup>2</sup>Pre-1970 sites include only those that were developed before 1970 and that were still in place in 1976.

<sup>3</sup>Regina Belz Armstrong, *The Office Industry: Patterns of Growth and Location* (Cambridge: The MIT Press, 1972).

<sup>4</sup>Wolfgang Quante, *The Exodus of Corporate Headquarters from New York City* (New York: Praeger, 1976).

<sup>5</sup>Gerald Manners, "The Office in Metropolitan America," *Economic Geography*, Vol. 50, No. 2 (April, 1974).

<sup>6</sup>Quoted by David Wolfe, "Why Office Buildings Have Become a Space Odyssey," in Dallas Chamber of Commerce, *1974-75 Guide to Dallas Office Buildings* (Dallas, 1974).

<sup>7</sup>Dallas Chamber of Commerce, *1974-75 Guide to Dallas Office Buildings* (Dallas, 1974).

<sup>8</sup>According to data supplied by the Dallas Association of Building Owners and Managers in September, 1976, the variation in cleaning service costs was more than 50 cents per square foot even when the most extreme rate at each end of the cost range is ignored.

<sup>9</sup>Although tax differentials are usually relatively small, two of the metropolitan areas studied in this report (Minneapolis-St. Paul and Atlanta) had tax rates two to three times higher in the central city than in some of the outlying suburbs. Developers in Minneapolis-St. Paul were especially strong in their claims that higher taxes in the two central cities were an important factor in the suburbanization of office space in that metropolitan area, despite the provision of the Metropolitan Development Act of 1971 which redistributes a small portion of commercial property taxes to all cities in the metropolitan area.

<sup>10</sup>This is not to say that adjacent land use is unimportant. The lack of development along much of I-80 in Omaha is attributable to the attraction of industrial and warehousing land uses to this area because of the Union Pacific railroad tracks which are adjacent to and parallel with the freeway. Similarly, the pattern of office development locations shown on Maps 1-7, indicates some agglomeration of similar units, as it is rare for an office site to be isolated from other office developments.

### STAFF ACTIVITIES

- A 55-page chapter, "The Settlement System of the United States," by David R. DiMartino, Richard L. Morrill, and Robert Sinclair has been published in *The National Settlement Systems, Volume I* by the International Geographical Union and Polish Academy of Sciences in Warsaw, Poland.

- The CAUR staff is assisting the City of Norfolk with a pre-application to the Department of Housing and Urban Development for housing and community development block grant funds.

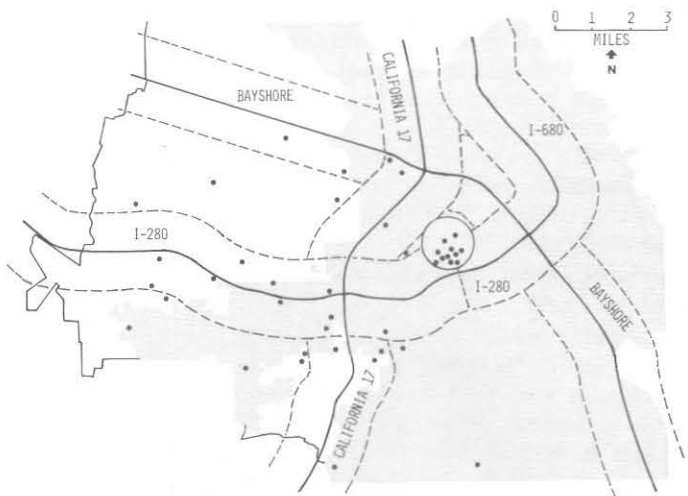
- Ethel Hill Williams is helping the North Omaha Community Development Corporation in planning a Midwest regional convention on neighborhood issues to be held in October, 1980.

- Murray Frost and Peggy Hein are conducting a survey of the public's knowledge of poison control procedures for the Poison Control Center at Children's Memorial Hospital.

- Jack Ruff presented a report on builders' and lenders' attitudes toward the Nebraska Mortgage Finance Fund at a meeting of the NMFF board of directors in Lincoln on October 12.

Map 7

Metropolitan San Jose Corridor Office Sites Initiated 1970-76




### DEPPE GOES TO WASHINGTON

Don Deppe has resigned as director of the Center for Applied Urban Research to accept a position as program officer in the Office of Regional Programs of the U. S. Commission on Civil Rights in Washington, D. C.

He will be working with regional program directors and their staffs throughout the United States in developing and evaluating civil rights programs.

Jack Ruff, housing coordinator at CAUR, has been named acting director while a search for a new director is instituted.

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<p>Published monthly by the Center for Applied Urban Research as a public service and mailed free upon request in Nebraska. Annual subscription rate outside Nebraska \$3.60. The views and opinions</p>	<p>expressed in the <i>Review</i> are those of the individual authors and do not necessarily represent those of the University of Nebraska at Omaha. Material in this publication may be reproduced with proper credit.</p>
 <p>UNIVERSITY OF NEBRASKA AT OMAHA Delbert D. Weber, <i>Chancellor</i></p> <p>COLLEGE OF PUBLIC AFFAIRS AND COMMUNITY SERVICE John E. Kerrigan, <i>Dean</i></p> <p>CENTER FOR APPLIED URBAN RESEARCH Jack Ruff, <i>Acting Director</i></p>	<p>Murray Frost, <i>Senior Research Associate/Coordinator of Research</i> Ethel Hill Williams, <i>Community Development Associate</i> Marian Meier, <i>Editor</i> Genevieve Burch, Paul S.T. Lee, Armin K. Ludwig, <i>Senior Research Associates</i> David R. DiMartino, <i>Senior Research Fellow</i> Carole M. Davis, Gene M. Hanlon, <i>Research/Community Development Assistants</i> Yeshen J. Chen, <i>Research Assistant</i> Margaret A. Hein, <i>Urban Data Base Coordinator/Interviewer</i> Joyce Carson, Betty Mayhew, Beverly Walker, <i>Clerical</i></p>

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