

FREEWAY IMPACT ON THE CENTRAL BUSINESS DISTRICT: THE CASE OF LONG BEACH

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In the United States there is an increasing awareness of a revolution in metropolitan transportation. One outstanding characteristic of this revolution is the construction of numerous freeways to facilitate circulation both between and within urban areas. Wide interest has developed concerning the effect of freeways on cities, which is not surprising since most cities are faced with the prospect of immense and complex freeway systems that will substantially alter existing circulation patterns.

The broad question of "freeway impact" has been the subject of a number of different investigations. For example, attempts have been made to measure the effects of freeways on the city in general, on particular sections of the city, on particular activities within the city, on strips of land use along a freeway, and on small towns.¹ Since it is not possible to consider all those topics in one brief study, the focus here is on one section of the city, the Central Business District (CBD). The main problems to be considered are: first, upon what factors is the measurement of freeway impact upon the CBD dependent; second, what are some of the outstanding findings relevant to freeway impact on the CBD; and third, what were some important downtown changes as they occurred in one middle-sized city (Long Beach, California) after freeway connections were established between the CBD and outlying areas?

FACTORS INFLUENCING THE MEASUREMENT OF FREEWAY IMPACT

A successful study of freeway impact on the CBD depends upon several factors: (1) the presence of a well developed freeway-CBD combination, (2) a sound research procedure, and (3) the application of measures of Central Business District change that are likely to reflect the influence of a freeway. A closer look at each of these requirements reveals the following facts. First, good freeway-CBD combinations are hard to find, as most cities have freeways either in the planning stage or only partially completed.² Despite this difficulty, in order to realize a successful impact study a significant freeway development should have been in existence for several years, and should be located near enough to the CBD for a substantial flow of traffic to have developed between them.

Second, the problem of selecting an adequate research procedure has been met in the past through employment of the "before and after"

¹ See, Raymond E. Murphy, Robert J. Huhtanen, Paul J. Mika, and Richard E. Preston, *A Study of the Effects of Freeways on Central Business Districts*, (Worcester: Clark University, 1961); Edgar M. Horwood, Ronald R. Boyce, and other, *Studies of the Central Business District and Urban Freeway Development*, (Seattle: University of Washington Press, 1959); William L. Garrison and Marion E. Marts, *Geographic Impact of Highway Improvement*, Highway Economic Studies, (Seattle: University of Washington, 1958); and W. L. Garrison and M. E. Marts, *Influence of Highway Improvements on Urban Land: A Graphic Summary*, Highway Economic Studies, (Seattle: University of Washington, 1958).

² Murphy, *op. cit.*, p. 5 and pp. 133-136.

technique. For example, the land use structure and traffic flow pattern, as they existed within the CBD and its immediately surrounding area, are reconstructed for a period prior to public awareness of the freeway route to the district; several years after the freeway is completed, information is compiled for an indential study area, and the changes in land use and traffic pattern are then measured.

Third, the "multiple-criteria" approach to the measurement of freeway impact and CBD change is generally superior to the single criteria approach because in virtually every situation there are at least several indicators of impact which should be studied together. For example, changes in access, in traffic pattern, in land values, in land use, and in general economic trends were all employed in one study of the effects of freeways on CBDs.³ In addition to these measures others have been employed, such as changes in central retail sales, central office space, banking deposits, employment, park-and-shop revenue, parking meter revenue, number of telephones, zoning, time-distance relationships between the CBD and outlying areas, and the decentralization of certain establishments due to alteration of time-distance relationships.

However, even investigations satisfying the requirements set forth above have largely failed to reveal specific information relevant to the effect of freeways on CBDs. This failure to delve beyond generalities can be attributed in part to a number of problems, among the most serious of which are the indentification of the rival influences effecting change in the CBD, and the assessment of the influence of each rival force on the CBD. In other words, although improvements in transportation may have a marked effect on a city center, there are numerous simultaneous changes occurring within the urban structure which may also have a definite impact. These include interregional migration, defense spending, national market conditions, labor demand, and the multiplying effects of urban growth.

A second problem faced in every impact study is that of the "time lag," or, "How long does it take after completion of a freeway for its influence to appear in the form of changes in the CBD?" For example, it is reasonable to assume that an increase in business within the downtown will not immediately be reflected in the expansion of central business space; rather business might increase over several years before it is reflected in new or expanded establishments.

SELECTED FINDINGS CONCERNING FREEWAY IMPACT⁴

Prior to presenting a summary of selected findings from certain studies of freeway impact on the CBD, it must be emphasized that there is little or no evidence which directly relates these findings to the presence of a freeway. However, some of those studies have produced interesting factual information relevant to the problems being considered here.

When a freeway is located near enough to a CBD to bring about a new circulation pattern in the core area, *changes occur in access and in traffic flow pattern*. These might be classified as obvious responses to the com-

³ *Ibid.*, pp. 2-3, 7-8.

⁴ *Ibid.*, pp. 115-120, and Horwood and Boyce, *op. cit.*, pp. 117-126.

pletion of the freeway; however, the responses have been varied. For example, the new freeway may attract substantial through-traffic, making more space available on surface streets for traffic concerned with the CBD. When this happens, the economic position of the district is usually improved even though the total volume of traffic on its streets does not increase. On the other hand, there may occur a marked gain in total traffic; this often represents a movement across the CBD and has little apparent effect on the business of the district.

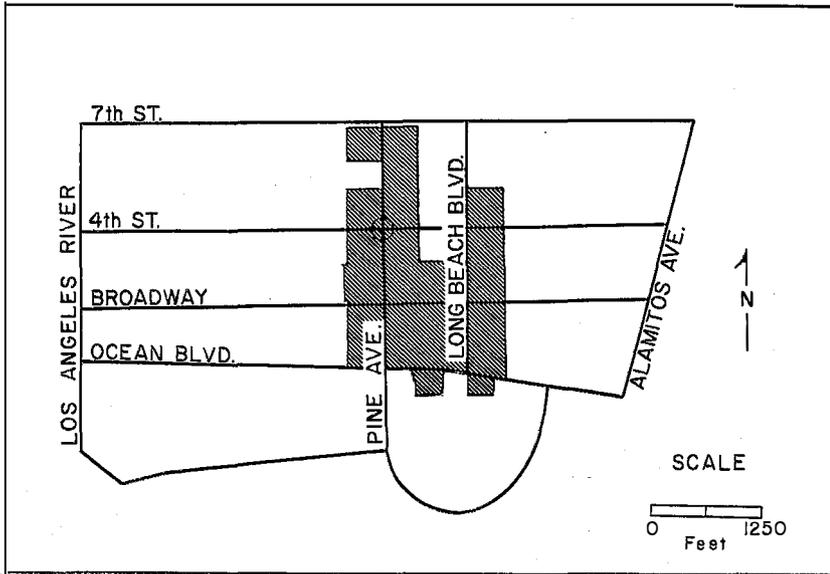


Fig. 1. The "Central Business District" as delimited by the Bureau of the Census (outlined by a solid black line on this map), and the CBD as delimited by Murphy and Others in 1960 (stippled). (After the study by Murphy and Others)

Frequently, freeways are not built specifically to serve the downtown, which explains in part the difficulty of directly relating the presence of a freeway to CBD change. Freeways that only incidentally serve the district are not likely to tie in well with its internal traffic flow pattern, or to be located where they might best serve the major desire lines between residential areas and the CBD.

Investigations of *changes in land values* in the city center have also provided information which might be related to the presence of a freeway. For example, findings based on a limited number of repeat sales indicate that land values tend to have increased more in the CBD than in the immediately surrounding area.

In most CBDs, *changes in land use* have been substantial, the most significant change commonly being the loss of floor space in retail business relative to the gain in floor space by service, financial, and office establishments. Transportation improvements are usually associated with changes in parking space in the CBD (bringing about, in most cases, a net gain).

This is not surprising, as access improvement and parking expansion should be related. Vacancy also appears to have increased considerably in the district. While this may be a result of obsolescence and competition from suburban centers, it could be an ephemeral condition brought about by recent expansion into new buildings. Therefore, in CBDs experiencing overall growth, much of the current vacancy may disappear.

At the present time the zone surrounding the CBD appears to be a more fertile field for the study of freeway impact than the CBD proper. This zone of mixed land use is the scene of accelerated land use change along normal lines, urban redevelopment, and zoning activity. Also, and unlike the CBD with its high property investments and internal linkages which are not usually disturbed by freeway routes, the bordering zone is characterized by lower investments in property and by primarily external linkages which are usually disrupted in some way by a new freeway.

FREWAY IMPACT AND THE LONG BEACH CBD

Long Beach is a major center of business, finance, administration, and recreation for a substantial part of Los Angeles and Orange Counties. The city proper fronts on the Pacific Ocean in the southern section of the Los Angeles-Long Beach Standard Metropolitan Statistical Area, the second largest SMSA in the United States. Although overshadowed in most urban functions by the nearby metropolis of Los Angeles, and only well known for its convention and recreation facilities, Long Beach has the second largest business center in the SMSA, shares San Pedro Bay with the port of Los Angeles, and has important industrial developments.

Long Beach is served by a relatively fixed network of major arterials, and an expanding freeway system. The Long Beach Freeway, the major link between that city and the rest of the Los Angeles Basin, was planned in 1947. The first major segment of the freeway, opened to traffic in July of 1953, was a one-half mile strip with an interchange at Anaheim Street, several blocks north of the CBD. The connection with Santa Ana Freeway, and hence with the immense freeway system focusing on Los Angeles, came in 1958, but it was not until 1959 that the ramps directly serving downtown Long Beach were opened. Upon completion, the southern portion of the freeway was located parallel to the Los Angeles River several blocks to the west of the city center, and was connected with it by east-west surface streets serving five access ramps (Figures 1 and 2).

The first task is to consider the role of the freeway as a connection between the Long Beach CBD and surrounding areas. Toward this end, it must be pointed out that the freeway was not specifically built to serve the Long Beach CBD, but to improve the connection between the harbor area and Long Beach and the remainder of the Los Angeles Basin. It is clear from Figure 3 that the freeway has made downtown Long Beach and the harbor area more accessible from all those areas served by the Los Angeles Freeway system. On the other hand, the freeway has not improved access to the CBD from the densely populated residential sections of the Long Beach Metropolitan Area. Most of the people within thirty minutes driving time of downtown Long Beach live to the east and northeast of the CBD, and it is in these areas, as is shown in Figure 2, that the

principal desire lines centering on the district originate. Clearly, the freeway does not improve accessibility to the CBD from the east and northeast.⁵

The effect of the freeway on the CBD is next viewed from the standpoint of, "What changes have taken place within the district since the opening of the freeway in 1953?" Changes have been measured in downtown Long Beach on the basis of three different study areas: (1) the CBD as delimited by the Murphy-Vance technique in 1960, (2) the district as delimited by the Long Beach Planning Department in 1959, and

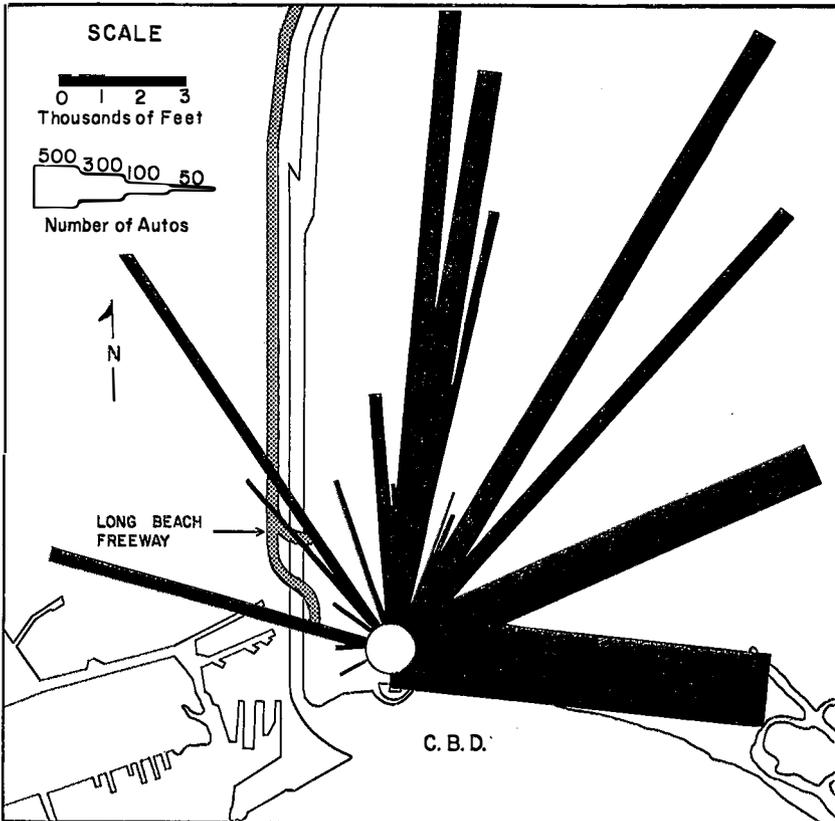


Fig. 2. Desire lines of automobile travel from the Long Beach CBD to areas within the Long Beach metropolitan region. (After report prepared by DeLeuw, Cather and Company)

(3) as delimited by the U.S. Bureau of the Census in 1958. As the first two delimitations were basically determined by the Murphy-Vance technique, and since they are really quite similar, they are not differentiated on the map (Figure 1).

According to the study by Murphy and others, there have been marked changes in access to, and in the traffic pattern within downtown Long

⁵ Report on Traffic Distributors in the Central Area: Long Beach, California (Chicago and San Francisco: De Leuw, Cather and Company, 1953), pp. 1-4.

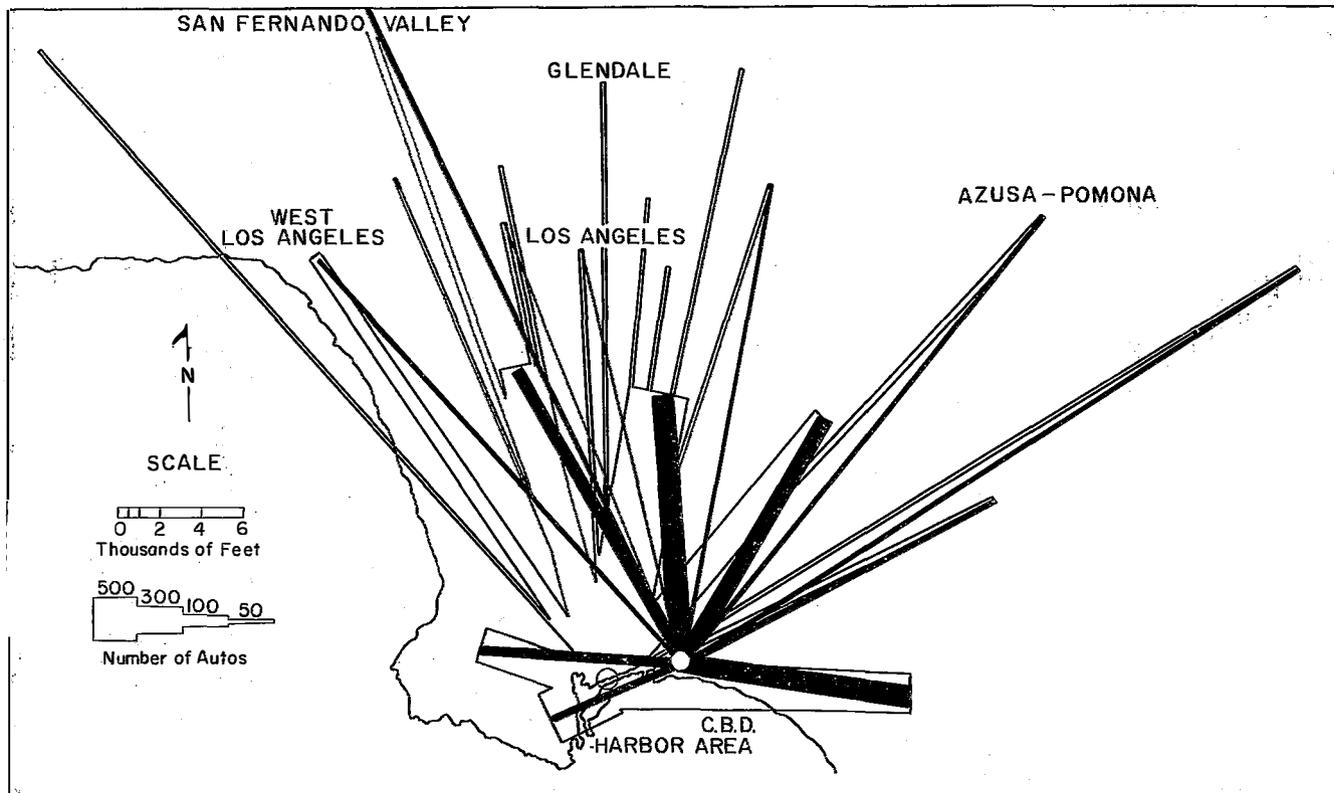


Fig. 3. Desire lines of automobile travel from the harbor area and CBD to areas beyond the Long Beach metropolitan region. (After report prepared by Deleuw, Cather and Company)

Beach, which reveal that even though the freeway was not built specifically to serve the CBD, it has strongly effected its circulation pattern.⁶ It was shown that traffic within the CBD increased approximately 20,000 vehicles on an average week day between the pre-freeway (1953) and freeway (1960) study periods. However, this did not automatically mean an increase in CBD business, but only that more cars are passing *through* the CBD to reach the freeway. Also revealed was a major reorientation of traffic within the CBD, with the north-south streets showing a pronounced loss in traffic and the east-west streets showing substantial gains, especially those with direct access to the freeway.

The most outstanding aspect of *land use change* in the CBD, according to Murphy and others, was the expansion in floor space occupied by service, office, and financial establishments relative to the loss in floor space occupied by retail business, plus 32 per cent and minus 6.7 per cent, respectively. Increased office space was particularly important, and parking, which has been considered as an important variable in the assessment of freeway impact, gained significantly, both in number of lots and in total floor space. A marked increase also occurred among the atypical land uses in the CBD, such as: residential, public and organizational, industrial, wholesale-storage, and vacancy, a total increase of 9.2 per cent. In the Murphy-Vance CBD, as a whole, total floor space increased 12.8 per cent, and the types of land use they considered typical of the district increased 14.0 per cent. However, it should be pointed out that one large office building accounted for over half of the increase.

Specific land use changes in the CBD delimited by the Long Beach Planning Department (an area slightly larger than the Murphy-Vance CBD), revealed that between 1948 and 1959 there occurred a 13 per cent decrease in the number of offices, but that during the same period a substantial increase in office space took place, which indicates that although there are now fewer offices in the CBD, those remaining actually occupy more floor space.⁷ Also, while the CBD proper was experiencing a decrease in its number of offices, the area immediately surrounding it was undergoing a 115 per cent increase.

It was commonly felt that vacancy was increasing rapidly in the CBD, but a recent study by the Long Beach planners shows that no sizable increase has taken place during the last twelve years. In fact, it was shown that in 1948, total vacancy was 5.2 per cent in the district, while in 1961 total vacancy was 7.1 per cent, a very slight increase for twelve years.⁸

Changes in land values, although based on a limited number of repeat sales, revealed that on the average, the price of the second sale was 73 per cent higher than the initial price. There were too few transactions to establish a significant trend, but there was nothing unusual about the

⁶ Murphy, *op. cit.*, pp. 63-89.

⁷ Part I, *Basic Research for the Central Business District, Long Beach, California*. A Report Prepared by the Department of Planning (Long Beach: The City of Long Beach, 1961), p. 34.

⁸ "The Economic Effect of One-Way Streets on Downtown Long Beach, Prepared by the Long Beach City Planning Commission" (Long Beach; August, 1961) pp. 7-8. (Mimeographed).

sample properties that would explain why they would increase in value more than other properties in the CBD.⁹

Changes in business activity caused by any single factor, such as a freeway, are difficult to isolate and measure; however, sound statements concerning changes in the CBD's economy can be developed from the observation of several indicators of business activity (Table 1).

Indicators of Retail Business Activity in the Long Beach CBD*			
	1948	1954	1958
Number of Retail Establishments	561	654	598
Retail Sales in CBD	\$ 121,686,000	134,075,000	120,519,000
GAF Sales in the CBD	\$ 82,150,000	72,260,000	66,720,000

Table 1.

* (1) The Central Business District, as defined by the U. S. Bureau of Census, bounded by Seventh Street, Alamitos Avenue, Pacific Ocean and Los Angeles River Channel (See Figure 1).

(2) All data in this table are from U. S. Census of Business (1948, 1954, and 1958).

(3) All data adjusted to 1958 dollars by U. S. Department of Labor Consumer Price Index.

It would appear from Table 1 that the 1958 decrease in retail activity in the Census CBD was indicative of a downward trend. However, 1958 was a year of nationwide recession which reduced retail sales as well as other activities. It has been estimated that if no recession had occurred, retail sales in the CBD could have been approximately ten per cent higher, which would have been a substantial increase over the 1954 figure. In addition, when CBD retail sales are taken over a longer period of time, it is seen that, in terms of 1958 dollars, sales in the CBD only declined about one per cent between 1948 and 1958 despite the recession and tremendous competition from surrounding business centers. The fact that retail sales in the CBD remained level during this period rather than suffering a severe decline is amazing, as most CBDs in the country showed a decrease in total retail sales over the same period.¹⁰

General merchandise (G), apparel (A), and furniture (F) sales (the GAF group) are thought to be assuming a proportionately greater importance in the CBD.¹¹ This assumption is based on the fact that despite the decentralization tendencies currently affecting the CBD, the GAF group becomes increasingly important as city size increases. In the Long Beach CBD this is not the case as GAF sales dropped more than total retail sales (Table 1), which may imply that this CBD's strength lies in the diversity of its activities.

Data for CBD park-and-shop and parking meter revenues provide other accurate indicators of downtown business activity, since both of these measures reflect the number of cars parking downtown, thus giving a

⁹ *Ibid.*, pp. 9-10

¹⁰ *Ibid.*, pp.

¹¹ Horwood and Boyce, *op. cit.*, pp. 36-38.

good indication of the number of shoppers, tourists, clients, conventioners, and employees entering the CBD.¹² Between 1954 and 1957 park-and-shop revenues rose abruptly in response to expanded parking facilities and increased ticket validations; over the same period the number of drivers using the meters on the streets declined. However, in 1957, meter revenue reversed its trend and again started upward despite the recession, at the same time park-and-shop revenues declined somewhat. This post-1957 up-swing in meter use is explained by the closing of a major user of park-and-shop in 1958, a five cent raise in rates on validation tickets, and changes in the location of validation desks in stores. On the whole, however, combined parking revenues for the CBD show a significant increase. Another indicator of overall business activity is the number of telephones in the CBD; these had maintained a constant level since 1955, but showed an increase in 1960.¹³

In summary, the main effect of the Long Beach freeway has been to improve the connection between the entire Los Angeles Metropolitan Region and downtown Long Beach and the Harbor area. As the freeway was not specifically designed to serve the Long Beach CBD, its impact on that district has been indirect, and thus difficult to assess. Nevertheless, changes have taken place within the CBD, for example in the overall size and structure of the district itself. Growth in size was characterized by more rapid expansion in the floor space occupied by service, financial, and office uses than in floor space occupied by retail business. There have also been notable changes in parking space. However, these changes are going on in most CBDs. On the other hand, daily traffic has increased in the CBD (especially on the east-west streets connected with freeway access ramps), the traffic pattern within the district has definitely been reoriented, and not only did downtown Long Beach suffer less from the nationwide recession in 1958 than most cities, but parking revenues and other indicators showed definite growth tendencies. To what extent the foregoing changes can be attributed to the coming of the freeway is not known, but since they have definitely come about since its completion, a relationship of some type is possible.

¹² "The Economic Effect of One-Way Streets on Downtown Long Beach, Prepared by the Long Beach City Planning Commission," p. 5.

¹³ *Ibid.*