

The Central Business District and Its Implications for Highway Planning

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●IN EVERY American city there is one major focus or area of concentration known as the Central Business District or the CBD (Fig. 1). This area is variously treated in highway planning. In some cities major routes still pass through the district, causing serious traffic congestion at busy periods. In other cities major through routes by-pass the CBD or at least avoid its peak intersection. In still others, although major arteries do not enter the district they are routed around its circumference with shuttle buses or other arrangements to take pedestrians into the CBD. However it is treated the district remains a major target area for those planning the transportation routes of the metropolis.

This paper proposes to discuss the CBD. First, some of the area's distinguishing characteristics will be considered.

The characteristic that most people probably think of immediately is the presence of high buildings. Though isolated buildings may stick up above the skyline elsewhere in the city the CBD has the greatest concentration of such buildings, the greatest average building height.

A concentration of certain functional establishments is even more of an index to the CBD. Here, typically, are the major office buildings and banks, the major hotels, the principal concentration of business services, and various associated establishments. Department stores and specialized clothing stores are likely to be present also in spite of the growing competition from outlying shopping centers. Typically, the whole CBD assemblage serves the entire city rather than a section of it, and people of all levels rather than those of any one class or group.

A feature of the CBD that will play an important role in this paper is the peak land value intersection. The district is likely to have one intersection around which land values average higher than anywhere else in the city.

There are still other features and characteristics. In the largest cities the CBD ordinarily shows a pronounced regionalization, with a financial district, a theater district, and the like. And, unfortunately, many CBDs show their age, since the district was one of the first parts of the city to be built and hence is likely to be suffering from obsolescence. This suggests still another element of the picture: a zone of deterioration that characteristically borders much of the district.

But how are these aspects of the CBD related to highway planning? A few relationships seem obvious. In the first place, in every city the primary CBD transportation problems are those of access and parking. These are the basic concerns. Closely related are decisions regarding mass transit, and decisions as to whether to allow direct access to the CBD or, instead, to take such drastic steps as restricting individual cars to circumferential routes, leaving the district a pedestrian's domain.

The value of routes built to the CBD has been questioned on the grounds that freeways for moving people into and out of the district may use up so much land that nothing worth reaching is left at the center. But an opposite point of view recently expressed is that highway programs may do more to rejuvenate the CBD than urban renewal will.

Certainly, care must be taken in planning routes that traverse the district. It is coming to be realized that an office and banking complex is likely to form the vital heart of the CBD. This must be left intact. Nearly every CBD has barriers to expansion in several directions—a steep slope, a stream, railroads, possibly a park. There may be some one direction, on the other hand, in which the district is growing. A freeway would certainly fail of its purpose if it blocked this direction of natural growth.

Considerations such as these point to the need for more knowledge about the district—not just more about a certain CBD but more about CBDs in general.

This is not to imply, of course, that no research thus far has been aimed at the district. Numerous local CBD studies have been carried out in connection with city planning, and a few more basic studies have been made or are in progress. The latter attack has taken several directions. A few of these may be noted.

There have been, for example, attempts to calculate or estimate the population of the CBD for various hours of the day (2, 3). Origin and destination surveys have formed the bases for the chief studies along this line. It need hardly be pointed out that such estimates are of prime importance in traffic planning.

This has been just one line of CBD research. Various others might be mentioned. An urban land economist used directories as a basis for analyzing changes in functional establishments in the CBD of Madison, Wisconsin (7). This was an attempt to discover more about the reputed decline of CBDs. The Alderson and Sessions study of the Philadelphia CBD (1) has attracted wide attention since it was aimed at forecasting future space demands in the CBD of that city and hence future transportation needs. And there have been various other lines of research initiated which will not be discussed here.

For the most part these studies have had two characteristics which limit their value. Almost without exception they have been focused upon only one CBD—that of some particular city. Secondly, little attention has been paid to the delimitation of the district that they have focused on.

This matter of delimitation has not been given the attention it deserves. If the planning board in a city wishes to make studies of that city's CBD for local planning purposes, it is obviously their prerogative to delimit the district as they see fit. But it is the author's belief that one of the best ways to learn more about the nature and functioning of the CBD is through comparative studies of such districts in a number of cities. For these comparisons to mean anything, a standardized method of delimiting the CBD must be used in the various cities.

A few years ago the author collaborated with J. E. Vance, Jr., now on the faculty at the University of California, in a comparative study of the CBDs of nine moderate-sized American cities: Grand Rapids, Mobile, Phoenix, Roanoke, Sacramento, Salt Lake City, Tacoma, Tulsa, and Worcester. A primary aim of this study was the development of a standardized delimitation method so that a comparison of the districts of several cities would mean something.

After investigating various possibilities it was decided that the only practicable approach was through land-use mapping. In each of the nine cities mapping covered the land use of what might be called the obvious CBD and extended well beyond, including

all of the area that by any stretch of the imagination might be considered as belonging in the district. From this field work three maps were made for each city—one of ground floor use, one of second floor use, and a third map on which the use of the third and higher floors was generalized. Calculations from these maps formed the basis for the delimitation technique and for various comparisons of the CBDs of the nine cities.

The technique developed (5) can be only briefly summarized here. It was early decided that it should be based upon complete city blocks, since to split blocks would involve too many subjective decisions. Another element of the method was the designation of certain types of land-use occupancy as noncentral-business in character. These included residences, industrial establishments, organizational establishments, wholesaling, governmental and

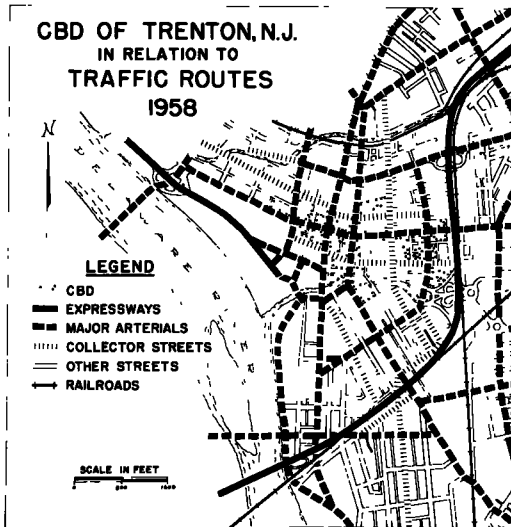


Figure 1. The Central Business District of Trenton, delimited according to the technique described in this paper.

public use, vacant building space and vacant lots, and commercial storage. In contrast, all other land uses were considered to be central business uses.

The technique involves the application of two indexes. To be considered as lying within the CBD a block has to have a Central Business Height Index of 1 or more; that is, central business uses (in contrast to noncentral-business uses) have to average one story or more for the block. Secondly, the block has to have a Central Business Intensity Index of 50 percent or more; that is, at least 50 percent of all floor space at all levels combined has to be in central business uses. In addition to qualifying on the bases of both of these indexes, the block has to be one of a contiguous group of such blocks surrounding the peak land value intersection. Finally, a few special rules were set up to meet frequently recurring problems.

It is not claimed that the area delimited by this method is the CBD. The district's edge is gradational so that no line boundary can be more than an approximation. But it is believed the area arrived at represents a fair approximation of the extent of the district. The most important point is that since the same delimitation technique is used in each city the delimited areas should be comparable.

Of course, the purpose of a standardized delimitation procedure is to give a basis for comparing CBDs. In the previous work (4) only nine were compared, and these were in cities which did not depart far from 200,000 in population. But a comparison even within these limits made possible the beginnings of some generalizations regarding the CBD.

For example, for the cities studied the average land use was determined. Total CBD floor space was found to be greatest in Salt Lake City and least in Mobile. Particularly notable was the great relative importance of service, financial, and office uses in Tulsa's CBD, especially the high proportion of space devoted to headquarters offices and general offices. Worcester's CBD was found to have a higher proportion of residential and industrial use than any of the others. The importance of these non-central uses reflects the fact that Worcester is an old northeastern city, established at a time when homes as well as factories were built as closely as possible to the center of the city. These are only samples of the many conclusions made possible by a comparison of the one land use proportions of the several CBDs.

Land use was also analyzed in terms of walking zones (6), based on the peak land value intersection: Zone 1, 0-100 yd from the intersection; Zone 2, 100-200 yd, etc. The analysis was carried out for each floor in each zone for each city, and for an average of eight of the cities.

Some interesting facts emerged. For example, the tallest buildings were found not to occur close to the peak intersection, but, instead, in the second 100-yd zone from the intersection. Department stores tended to cluster near the peak intersection; so, too, did clothing stores. Hotels, on the other hand, were more common several hundred yards from the intersection than in its immediate vicinity. Similarly, offices seemed to avoid the first 100-yd walking zone around the peak intersection.

Variation in CBD size from city to city was also a subject of concern. Does the CBD size vary directly with city size? Though the investigations suggested that this was the case, the cities studied were too limited in size range to give much information on this point.

Another subject investigated was barriers. Railroads, steep slopes, parks, water bodies, public buildings and expressways are among the barriers that have impeded expansion of the district and thus have affected CBD shape. It is rare indeed for the district to be open for growth in all directions. Much more often the types of barriers mentioned have limited growth in certain directions thus doing much to account for the present CBD outline.

The studies told something, too, of the actual mechanics of CBD growth. Typically, the district is not static, but, instead, is shifting in one direction or another, and zones of assimilation and of discard are observable. Interestingly, the center of area of the CBD generally lies in that direction from the peak land value intersection in which the district appears to be expanding.

Enough has been said to indicate the nature of the results. They are just a beginning

on what could be learned about the CBD through comparative studies based on districts delimited by the same technique in various cities.

The most important step in expanding such comparative studies should be the delimitation of CBDs in a complete size range of cities. In the research described in this paper only cities of approximately 200,000 population were studied, but there is no reason the technique should not work for much larger cities. Just how does the CBD change in size, in land use, and in other respects with increasing city size? Does central business floor space vary directly with city size no matter how large the city? At what size does the CBD begin to exhibit functional subregions—a financial district, a theater district, and the like? Such knowledge should be useful in transportation planning.

A second line of attack that seems promising has to do with the mechanics of growth. Reference was made earlier to the fact that the CBD is not static but, instead, seems to be advancing along some edges and retreating or declining along others. This process needs to be examined more carefully through the comparative study method.

There are other questions for further research. How does the CBD vary with type of city? One might expect it to be better developed in cities that are predominantly commercial than in industrial cities but this remains to be proved. How can differences in CBD quality be measured? The same amount of floor space may be devoted to central business functions in one city as in another, but in one the hotels and other establishments are of much higher quality. An objective method of measuring such quality differences is badly needed.

Another general problem that needs further study has to do with the functions that add most to the CBD in contrast to those that are of little value. What, might be asked, is the ideal assemblage? Agreed that a prosperous CBD is desirable for a city, just what combination of functions best achieves this end?

In summary, what this paper has tried to point out is that the CBD should be better understood if it is to be dealt with properly either in route planning or in other ways. A recommended line of attack is through comparative studies of CBDs, delimited on a standardized basis. But this is a type of research for which it is difficult to find support since it is basic rather than applied and particularly since it is multi-city in character.

All this may seem distant to highway research, but this is not necessarily true. Good planning of transportation routes in urban areas requires an understanding of the city, and there is no section of the city that is more complex and sensitive than the Central Business District.

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