

Urban Freeways and Social Structure— Some Problems and Proposals

MARVIN G. CLINE, Research Associate, Washington Center for Metropolitan Studies,
and Assistant Professor of Psychology, University of Maryland

•THIS PAPER treats a newly identified force that those who build highways and other large-scale physical developments in congested urban areas have encountered. That force is society. Although a powerful force, its strength is transmitted through the political system in a more emotional way than land values or economic activity which are more commonly recognized. The force of society is expressed in anxieties and fears, frustration and loneliness, but also in loyalty and love. The intrinsically public decisions of highway building have already encountered these powerful forces in public hearings, in elections and referendums, in the press, and in legislative deliberations. They have effectively blocked some specific highway developments. Because the social sciences offer a way to understand these forces and to accommodate necessary public works to them, a beginning should now be made at a long, difficult, but inescapable study of social structure as it is influenced by large-scale physical changes, particularly urban expressways.

In the social world, as in the physical world, for each action there is a reaction. To the extent that reactions can be adequately anticipated, actions can be adequately planned. No better example of this proposition can be found than the planning and construction of highways. Consider the reactions or consequences of highway construction, and the precision with which they can be anticipated. The cost of moving great volumes of traffic from one point to another can be precisely established and related to the anticipated benefits accruing to the users of the highway. Further, the changes in the value of the regions connected by the highway can be estimated in advance, as can the changes in the value of the land through which the highway passes. All of these changes in value can be compared to the cost of moving traffic (land acquisition, construction, maintenance, etc.)—so that a net worth of the highway can be stated in advance of its construction. Certain other effects (or impacts) can also be estimated in advance, such as the change in accessibility of some functions and institutions (schools, churches, medical facilities, recreation areas, shopping centers, etc.) which can be used to predict changes in location of residential populations. All of these consequences have been measured after the fact (2, 7, 26, 31, 33, 38, 39) and they undoubtedly have been incorporated in the decision-making processes for most of the larger highways recently constructed.

This is an admirable accomplishment. One cannot help but be impressed by the skill with which these measures have been taken, and the accuracy of the predictions made. It is to be hoped that all aspects of planning reach this level of precision before too long.

However, one gets an impression that some consequences of considerable importance may not be included in the balance sheet, and that this formula for decision-making may be lacking some critical variables. For example, a gross variable (which may be so gross that it cannot be entered into the formula) has to do with the kind of urban structure one wishes to develop. The construction of a freeway system connecting the suburban fringes with the central city may be contributing to the destruction of the central city by enhancing the dispersion of precisely those functions which are critical to the central city. That is, it is the concentration of retail, industrial, recreational, cultural, and educational functions in the central city that makes it the vital core of the whole city. The freeway system, by enhancing the dispersion of populations, may at the same time enhance the flight of many of these activities to the new outlying

population centers. This can, of course, place added burdens on the freeway system in order to make the new locations of these activities more accessible. These consequences may or may not be desirable, but they are, at least at present, inadvertent. To that extent, freedom to plan in the future is being restricted by a lack of planning in the present. At the same time, if freeway planning is not integrated with more comprehensive urban planning, the freeways may become self-defeating (the more one builds, the more dispersion, the more one has to build). Hence, they become less economic (32).

However important this variable is, it is not the only one which appears not to be included in the current methods of evaluating highway plans. Another variable involved here is becoming an increasing source of political conflict and, for the transportation planner, embarrassment. This variable has to do with the reactions to the freeway on the part of the resident through whose neighborhood the freeway is to go. It is not necessary to document the rapidly growing number of instances in which irate citizens, civic organizations, and political groups are complaining about routes, interchanges, and access streets. Every transportation official must be painfully aware of the complaints arising from this ill-considered population. To date, the primary complaint has to do with the problem of relocation, but this is by no means the only significant issue.

Those who will not be removed from the path of the freeway, who will have to live with it, may shortly discover that they too have a considerable stake in the planning of urban transportation systems. These people will be challenging a critical and implicit (rather than an explicit) assumption of highway designers—the space between the points joined by a freeway is a social wasteland, devoid of human significance. This assumption is, of course, sometimes correct as in the case of purely industrial regions, or in undeveloped suburban or rural areas. Here, the only contact human beings have with the freeway is in using it for transportation purposes.

In somewhat more developed suburban regions, the assumption is still correct in a large portion of the cases, because the freeway can be effectively isolated from the residential spaces (26). However, referring to those very few impact studies which deemed it desirable to query residents' views of the freeways (and in each case, only suburban populations were queried), it is apparent that the freeway must be a considerable distance away from homes (200 to 300 ft) before those who consider it a nuisance are reduced to 25 percent of the population (39). A more developed Rhode Island residential community (6) through which a freeway was driven produced a large group of residents severely disturbed by the facility. A search of the impact literature failed to turn up a single instance in which an urban population was asked its opinion about a freeway in its midst. Nevertheless, from the data just presented, an extrapolation can easily be made. Urban residents living in greatest proximity to the freeway would have the greatest objections. These residents would present the greatest challenge to the assumption that freeways through urban areas run through social wastelands. Actually, these regions may be the locale for viable, cohesive communities, to which the residents have strong attachments. Although residents may state their objections in terms of the perceived noise, smell, and danger of the freeway, it is likely that the less obvious impact of physical disruption on the social structure will be more damaging (13, 14).

Not all residents living in close proximity to a freeway, however, will have the same kind or same degree of objections. Physical proximity is not the meaningful variable, unless it is directly coordinated to psychological proximity. Thus, residents whose use of the physical space surrounding their homes is restricted to a pathway function (streets are important only as a means of getting to or away from the home) will not be disturbed by freeway construction beyond the inconveniences of noise, smell, and danger. This is most likely to be found in highly urbane populations, living in apartment houses and oriented toward highly dispersed social spaces. These people are also likely to be high users of the freeway, and only occasional users of whatever open spaces are provided along its periphery.

Conversely, urban regions (particularly those that are most likely to be selected for freeway routes) are characterized by high concentrations of people who consider

the space surrounding their homes as a living space to which they belong and in which they feel the comforts of a home. The space they are physically close to is the space to which they are psychologically attached.

A freeway traversing such a space is not traversing a social wasteland. It will be the purpose of this paper to suggest that the space and its social structure through which an urban freeway is to be constructed needs to be understood in great detail by the road designer both to avoid the harmful effects and to gain potential advantages that the freeway may have for the community.

All communities have the potential for social degeneration and blight. If the inadvertent placing of a highway helps to realize this potential, then the designer must bear the responsibility of having created more waste than a society can afford. On the other hand, if the highway can aid the community in acquiring some of the conditions of life that it values, then the designer is equally at fault if he does not discover how to produce these consequences. The time has long past when the luxury of a hit or miss approach to social planning can be afforded.

THE CITY AS A SOCIAL SYSTEM

The traditional view of the city includes a picture of the lonely, lost urban dweller, cut off from the norms and expectations of the small but stable village community, forced to lose his personal identity, and sinking in a sea of depression. This view of the nature of city life has persisted for some time, and was most recently elaborated on by Louis Wirth (40). This theorist was aware that not all urban residents were contemplating suicide. Some of them were establishing with their fellow residents very real interpersonal relations that had the character of true community behavior. But Wirth attributed this to a residual of rural living, so that right or wrong, he was again denying the city a capacity for spontaneously generating social support for its residents.

More recently social scientists have been taking a hard look at urban structure, using new and more sophisticated techniques (3, 4, 12, 22, 29). These investigators are now arriving at a rather different view. It is apparent that urban regions produce a wide variety of social structures and populations. Even the lowest income areas can generate integral systems of living that supply their residents with a good deal of personal satisfaction, a sense of neighborhood, identification with physical region, and a great reluctance to give up residence even with the inducement of better housing. These systems of living appear to vary according to the economic status of the families, the degree of family integration, and the degree of "urbanism" of the neighborhood (an index based on measures of the fertility of the families, rates of females employed, and the number of families living in single-family housing units). For example, lower-income urban groups tend to have a great reliance on their family and extended family for their informal relation (4) and they prefer to use the local economic, service, and recreational facilities of the neighborhood (17). Komarovsky found that urban dwellers have rather low (25 percent and lower as status decreases) rates of membership in voluntary associations (27). At the same time, it has been noted by several investigators (3, 5, 10, 12, 15) that, as there is less formal structure in the more urbanized community, there is an increase in the rate of informal "friendship" contact between local residents. Even when the contacts are based on formal role structures such as consumer-storekeeper relations, a significantly high proportion of the urban residents (particularly the lower-income groups) prefer to transform the relationship into a personalized, informal state of affairs (37). Lower status shoppers prefer to shop in smaller community stores where they were known by name and where informal relations with the store personnel could be established. The author does not mention the availability of credit buying in the local food store which must also be an important factor in shaping the preferences of these buyers. It can be concluded that the lower-income neighborhood can be an extended and complex social network involving geographically localized friends and relatives, many informal groups, and strong attachments to the community. Clearly, significant proportions of the urban population are on intimate terms with their immediately surrounding physical and social environment.

Also, positive feelings toward the neighborhood often develop despite inadequate housing facilities. Behind the slum lies not social chaos but a strong, satisfying community. This is an important point because it indicates the degree to which the residents of these neighborhoods are willing to tolerate difficulties in order to maintain the primary social relations of the community. Apparently this is a phenomenon present in many groups living in a satisfying social system despite generally inadequate housing. An interesting example of this can be found in the classic study of Festinger, Schachter, and Back (16) of a housing project built by Massachusetts Institute of Technology for married veteran students. The development consisted of U-shaped courts of from 8 to 13 single or semi-detached houses in each. The experimenters were interested in relating the physical features of the courts (the distance between houses and the direction in which a house faced) with the kind and rate of social interactions observed. For various reasons, the residents of these courts were generally very favorably impressed with life in the project. Very few expressed any desire to leave, more than one-half were vigorous in their statements that they would not consider leaving the project at all. Friendship rates were quite high, as were the rates of informal contact. This general satisfaction existed in spite of, and seemed to compensate for, many physical inadequacies of the houses. For example, at the time of the study, many of the houses had trouble with the roof so that moderate winds could raise them and allow rain to pour down the walls. The adequate and satisfying social life was sufficient to override these inconveniences. The authors report that the typical reaction was "Oh yes, there are many things wrong with these houses, but we love it here and wouldn't want to move."

Not all physically devilitated areas have such viable social structures within them, of course, but it ought not to be necessary to argue that the knowledge of the social system through which a freeway is to go is an important datum for those who plan and decide. This is all the more true when one considers that the attachment to the physical environs is probably greater among the lower-income groups than other strata, and that these groups live in areas most likely to be earmarked for freeway construction. That is, low-income areas appear to be the preferred places to locate urban freeways. The point of the present discussion is to warn highway planners to distinguish between slum-blighted areas, and low-cost areas. Seeley (36) has suggested a critical psychosocial distinction between them: the slum is an area in which there are pathological consequences for the residents wrought by the physical and social character of the neighborhood; i. e., the true blighted area. The low-cost area may be almost indistinguishable from the slum in terms of its physical facade, but it is a place whose physical inconveniences the residents will accept in order to gain the benefits of either low rent or the social satisfactions resulting from a sense of belongingness. This is a vital distinction, and one which the highway designer must recognize if he is to avoid making serious planning errors.

PSYCHOLOGICAL IMPACT OF PHYSICAL DISRUPTION

There have been few studies of low-income areas disrupted by large-scale physical change. No studies have yet been done in which the source of the physical disruption is the construction of a freeway. But one important study of the effects of an urban renewal program is brilliantly suggestive of the issues that must be resolved.

This series of papers describes the residents of the West End Section of Boston and their reactions to the destruction of the neighborhoods, mistakenly identified as a slum, and thus cleared. Fried (19), Fried and Gleicher (20), and Gans (21) describe the intense attachment of the residents to their neighborhood. This is the first study to establish the focus of positive loyalty to physical places (specific stores, houses, streets, etc.) as much as to the social environment of relatives and friends. The authors use the term "localism" to describe this kind of attachment to a space. It refers to a space that has the qualities of home but at the same time is public space in the sense that it is used by all residents for their various purposes. It may be thought of as an extension of home, with all the values of home. In the eyes of those to whom it is home, it is thus a space to live in rather than to pass through. It is typically composed

of streets, hallways, roofs, alleys, stoops, and the fronts of stores.

Such a public space is the medium for the interaction of a great variety of people and functions. In this situation complex and intricate social systems develop. The physical aspect of the space is the framework on which the social systems are built. Although the authors limit this phenomenon to lower-income areas of high density, there is no doubt that other highly used spaces will generate social systems and the development of a strong sense of belongingness on the part of the resident of the space.

Disruption of the physical space has the potential of striking at the very foundations of the resident's sense of psychological well-being. When the residents of the West End were forced out, many of them exhibited what Fried (19) has likened to the clinical syndrome of grief. A depression similar to the experiences one has at the loss of a loved one seems to have persisted in some cases over a period of years. It should not be difficult to imagine that residents who continue to live in an area that has received such a crushing psychological blow will develop negative feelings about the eviscerated area. And it is the feelings that the residents have for their neighborhood which are the most important determinant of the social and economic value of the area. Social disorganization almost inevitably results in physical and economic disorganization, which ordinarily can be expected to spread to adjacent areas.

Hartman (24), in describing further the West Enders, reports an interesting method of estimating resident's reactions to generally shabby and in some instances dilapidated building conditions: an index of the physical condition of the tenants' apartments was constructed and compared to an index of the physical condition of the building. Surprisingly, almost one-third of the apartments were in considerably better condition than the buildings. Evidence that the residents devoted a good deal of care and attention to their apartments, despite the shabbiness of the general environment, should alert even the casual observer to question whether the usual objective criteria of substandard living can be appropriately applied in this case.

PHYSICAL DISRUPTION AND SOCIAL FUNCTIONING

There is a more immediate problem than that of the pervasive impact an urban freeway may have on a viable community: the effects on the surrounding area. The impact studies have little or nothing to say of this problem outside of describing the change in economic and population characteristics of the area. The few studies in which residents were asked their opinions of the freeway are largely irrelevant to this problem because it is apparent that physical spaces occupied by the freeways in these instances were not significant psychological spaces to the residents (26, 39).

One study by the Blair Associates (6) documents a point made by Wilfred Owen (32, p. 51): "The highway . . . can disrupt a neighborhood by thrusting itself between houses and recreational land, or between houses and schools." Blair Associates report that the highway removed four playgrounds, raised costs for police and fire protection because of the extra distances they had to travel, reduced the number of houses in the community by one-third, and increased the time it took the children to travel to school.

The implication of these points is that the highway is seen as a gap or a gash through the community and serves to separate people from each other and from the important facilities of the neighborhood. On the other hand, the gap itself has special characteristics, some of which have recently been described by two observers of the social and visual characteristics of urban space. First, Kevin Lynch, in an extremely insightful description of the visual qualities of the city (30) defines a sharp perceptual change in the layout of a city as an edge. This is an area that separates two regions, marking a sharp change in the characteristics of the regions on either side of the edge. There may or may not be the means to penetrate the edge from one side to the other. If such means exist, the edge becomes a seam, "a line of exchange along which two areas are sewn together." If such means do not exist, the edge is perceived as a barrier that serves to halt rather than enhance social functioning. A busy street, railroad tracks, an expressway, are all examples of barriers, whereas a park, accessible from both sides, can serve as a seam. Lynch's point is that the edge is perceptible as a barrier

or a seam and will therefore serve to control behavior. Barriers will in effect repel and seams may attract.

In a similar analysis, Jane Jacobs, describes what she calls a border vacuum (25, ch. 14). Mrs. Jacobs places the emphasis on the functional rather than the visual properties of a region, and argues that when the functions that a region supports are curtailed, its utility is reduced. This in turn leads to still less use and consequently to the creation of a vacuum. A vacuum is used only by those who prefer it; i. e., those who wish to remain unseen or uncontrolled, such as criminals.

Mrs. Jacobs applies this concept to city streets that have had functions removed (e. g., streets along the edge of high-rise apartments and projects that are used only as paths), parks that offer only nonfunctional grass or asphalt walks, and stores with limited functioning (e. g., banks which close early in the afternoon). These are interesting speculations because they suggest a dimension of community space that might be causally related to the social integration of the community, and therefore related to the degree of personal satisfaction and community commitment of the residents of the area.

This analysis can be applied to the construction of large shopping centers where single-function impulse-buying shops are placed between two large multifunctional "magnets." This is necessary because few people venture very far from the highly active magnets, and this number decreases as the distance from the magnet increases. Single-purpose stores at the end of a line of stores in a shopping center apparently have a tendency to fail, whereas identical stores in the midst of the flow of buyers between centers of activity apparently thrive.

This might also be applied to a typical urban area cut by a limited-access freeway; for example, an intersection of streets in such an area before construction. Retail shops are located for a number of blocks along both sides of one street which runs perpendicular to the residential streets. Such an intersection is likely to be an active and populated subregion of the neighborhood throughout the better part of both the day and night. This is the magnet of the neighborhood, the social and economic center which is so popular that the traffic flow may not serve as a barrier between the four sides of the intersection. When this microcosm is replaced with a limited-access freeway, the consequence is not merely the reduction of population, business activity, and housing. The magnets that drew people and money to the region are gone. Multifunctions have been replaced by single-function streets. Activity suddenly halts a few hundred feet from the freeway and remains dormant until one reaches a few hundred feet beyond the other side of the freeway. Even a street that turns into a bridge across the freeway is a socially empty and useless object because its only purpose is to move cars away from the area. There is no reason to go to the intersection except to travel through it, or, because it is devoid of activity, to hide. Such an area becomes, in Lynch's terms, an edge, or in Jacobs' terms, a vacuum. In any terminology, it has become a negative place, quite capable of rapid degeneration.

CONCLUSIONS AND PROPOSALS

There are three major sources of negative consequences resulting from locating a freeway in the midst of an urban area: (a) the freeway may disrupt the physical framework on which the community is built; (b) the freeway may create a border vacuum capable of rapid degeneration; and (c) the freeway may serve to separate the residents from each other and from the important institutions and facilities of the neighborhood. These consequences are in respect to the residents who remain in the immediately surrounding environment and do not include the consequence of relocation of those who live and work in the path of the facility. These are both long- and short-term consequences and may not be easily identifiable by the residents themselves. However, they may be sources of serious unrest and discontent, long and costly public hearings and delay.

It would be appropriate to make some proposals at this point in order to achieve a level of constructive criticism. The psychosocial structures through which the freeways are to go need to be seriously considered in planning the facility, and such consideration will lead to improved, acceptable designs. The following are therefore proposed:

1. If some of the freeways that have been built in urban areas are examined the variety of communities through which they have been placed may be noted and the range of consequences that have been produced may be imagined. It is not necessary to be a sophisticated observer of the social scene to estimate where and what kinds of disruptions of social functions have taken place. It is possible to increase one's sensitivity to the social requirements of communities by simply looking.

2. Some social science research should be included in present plans. Sociological and social psychological methods for measuring social structure are sophisticated enough at present to allow for an adequate before-and-after experimental design (1, 18, 23, 29). Both experimental and statistical techniques are available so that the contribution of a freeway to social change can be reasonably distinguished from most other factors contributing to the change. In other words, the concept of an impact study needs to be expanded. Parallel studies are needed in the social psychological disciplines, similar to those in the economic and demographic disciplines. Until the psychosocial consequences of actions are known, the environment cannot be fully controlled.

3. Before a freeway is built, its locale should be studied with respect to some of the following: (a) the social boundaries of the communities involved; (b) the major social needs of the residents; (c) the important social functions carried out in the neighborhood; and (d) the critical spaces within which these functions and needs operate. Above all, these should be done in cooperation with the residents.

With these data, it will be possible to minimize the disruptions at least because meaningful criteria of route location will be established. Equally important, however, is that it becomes possible, with these data, to identify the necessary disruptions in advance, and to plan for their reduction before they are created. For example, these data can suggest where and how the community must be shielded from the freeway. They can also suggest in advance which functions of the community are most in need of maintenance. Thus, if a highly used space is to be cut by the freeway, then it is apparent that the facilities for these uses should be recreated as part of the freeway structure, with easy accessibility for all residents. The roadbed might be sunken, in this case, and the functions (retail buying, recreational activities, restaurants and bars, etc.) placed on top of the freeway. This could also act as a bridge between the two sides of the road. In this manner, those critical magnets could continue to hold the neighborhood together. Without this support, such a community could easily begin to die.

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Discussion

SIDNEY GOLDSTEIN, Bureau of Public Roads—I want to correct an erroneous impression I think Dr. Cline has about the kind of research that has been done by various States, institutions, universities, and the Bureau of Public Roads.

It is true that most economic impact studies today deal with such things as land values and land use. However, any number have associated with them psychologists and people in other social sciences. The Penn-Jersey State Study has associated with it a very heavy sociology group dealing with such things as power structure, community complexity, and the purposes of different people in the community.

The Inner Belt Study in Boston was quite concerned with such things as the removal of churches, playgrounds, etc., and made comparisons in terms of such things.

The impact of traffic on urban areas—this by the University of Illinois at Champaign—was also concerned with individual streets and the relationship to noise, etc., to the people in the area. I could go on and on. Professor Goldstein of Brown University has made findings on these matters in some relocation studies. The origin and destination studies deal with all sorts of information available to transportation planners, with relationship to choice of transportation to different types of social activities.

MARVIN G. CLINE, Closure—I am on the whole familiar with the literature and studies you have mentioned and do not believe the methods or data of these studies are relevant to the problems and ideas of social structures that I am raising here.