

LOCATION OF THE CARLESS

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This paper identifies the "carless" and shows where they are and what transportation alternatives exist for them. More than 65 percent of the U.S. population are carless. Data from Buffalo, New York, serve to indicate the relations among carlessness, median income, race, age, and accessibility of public transport. For the study area, the public transport system, which has a development consistent with the traditional pattern of urban growth, no longer adequately serves the needs of those who rely on it most. Examination of the extent of carlessness in the suburbs shows that the problem of mobility among suburban households may be more severe than that in the inner city.

•THE TRANSPORTATION planning process traditionally has been oriented to establishing travel demand on the basis of vehicular trips. Travel is usually considered as taking place by car, public transportation, taxi, and other modes. Because of the overwhelming number of passenger trips in the United States by car, problems relating to lack of having access to a car have been minimized. (Trips by private car in 1967 represented 79 percent of total trips, and 82 percent of work trips were by car as driver or rider.) This paper illustrates that the problem of access to a car is actually a significant one for a major portion of the U.S. population.

Those without access to a car do not represent a homogeneous set of the population. In recent years various subgroups of the population, for example the poor (1) or the elderly (2), have been singled out as being among the transportation disadvantaged. The term disadvantaged is used because real penalties are assessed in time, cost, or simply ability to pursue an activity desired when a car is not available.

Figures 1 and 2 show how the carless are defined, how car availability affects their decisions to pursue activities, and how these decisions are finally reflected in the choice of mode for the specific journey.

The first step in identification of the carless is to determine car availability either through household ownership or other sources of availability outside the household. The latter may be important, for example, to a teenager who, while not having a car available in his household, relies on friends for rides to locations where the majority of his or her nonschool activities take place. Figure 1 shows that the carless are a diverse group that includes the young (less than license age), the elderly, the handicapped, those with no insurance (where required), and those who specifically choose not to drive.

A preliminary estimate of the extent of these problems can be determined from household and personal data. Eighty percent of U.S. households own 1 or more cars. The 20 percent who do not represent more than 40 million people. In the households that own cars, 35 percent of the people are 18 or younger and 14 percent are 59 or older. Sixty percent of the households have only 1 car. In 1970, 50.6 million workers indicated that they traveled to work as a driver (3). Thus, even if the second and third cars are used exclusively for work trips, a high proportion of first cars are used for the journey to work leaving many households carless while the family car is parked at the workplace parking lot. Estimates of persons without immediate access to a car in 1970 are as follows:

Figure 1. Definition of carless.

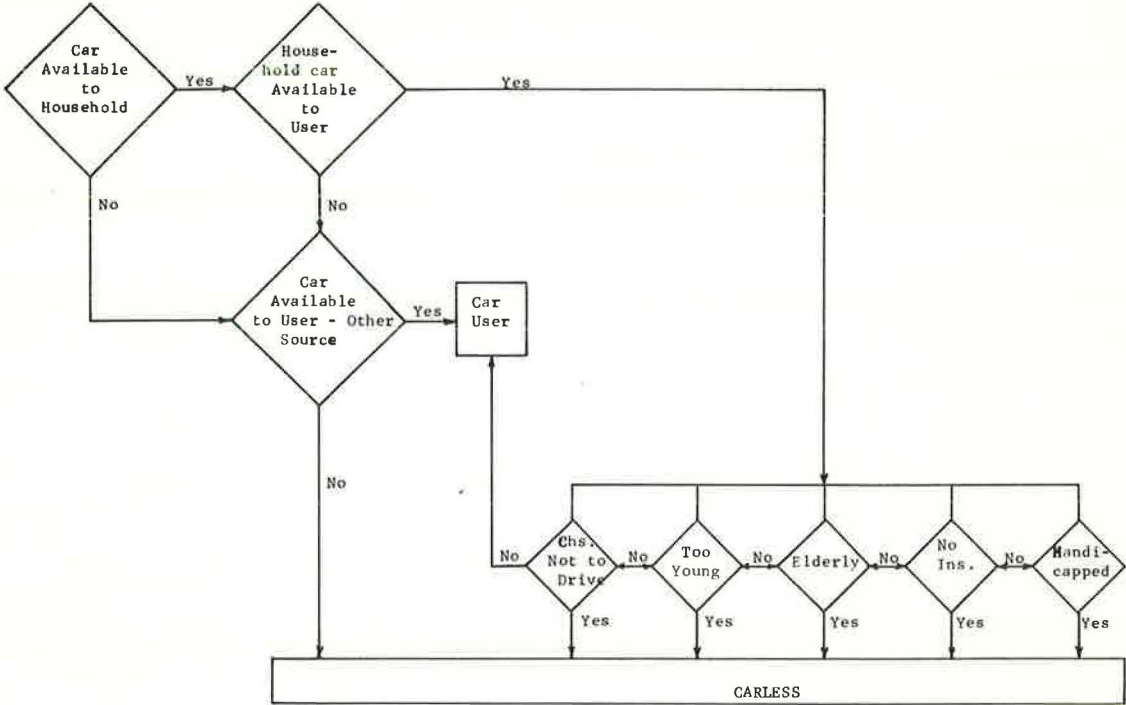
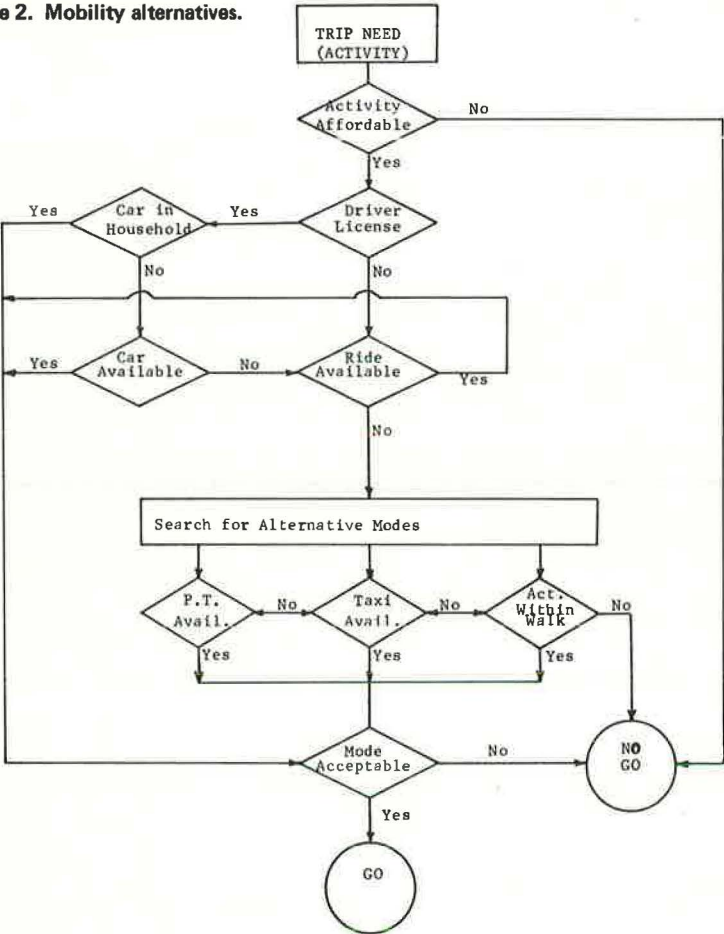


Figure 2. Mobility alternatives.



<u>Category</u>	<u>Number</u>
Persons in households with no car	41,280,000
Persons in households with 1 car, which is used for journey to work	40,000,000
Persons under 18 in households with car available	42,940,000
Persons over 59 and not licensed to drive in households with car available	<u>8,580,000</u>
Total	132,800,000

More than 65 percent of the people in the United States (population of 203 million in 1970) have no immediate access to a car. This number can be enlarged by including the physically handicapped and those with cars who choose not to drive (restricted license, lost insurance). This leads to the following observations.

1. A significant number of people have no car either at all or during a large part of the day. Since car ownership is related to income, these are probably the poor, and especially the urban poor.

2. A sizable number of people in car-owning households may not drive; this includes the elderly and those under 18. The group between 5 and 18 are particularly cited, for they are in an age group where a major proportion of their activities may not be household centered. In a household with 1 car that is used primarily for the work trip and remains at the place of work, the remaining members of the household must respond essentially as members of no-car households during work hours.

The large investment in the highway program since 1956, without concurrent investment in alternative transportation programs during the same period, has created polarity between those with and those without access to a car. That is further widened by

1. The shift of predominantly middle-income families from central cities of metropolitan areas to suburban rings;

2. The well-documented decline in public transportation coupled with increasing fares to the rider;

3. The inability of public transportation to service the needs of the dispersed suburban population;

4. Shifts of places of employment and markets from inner areas to the suburbs;

5. Declining blue-collar and low-income jobs in the central cities coupled with increasing jobs in the suburbs; and

6. Inadequate supply of low-income housing in suburbs to facilitate the journey to work to potential new places of employment.

LOCATION

Although age statistics are fairly consistent, car ownership statistics are not. As size of urban area increases, the percentage of 0-car households increases. In U.S. cities having a population greater than 3 million, 47 percent of the households have no car; in cities having a population of 250,000 or less, 20 percent of the household have no car; and in suburban areas 12 percent have no car. A general inference is that, as density (or size) of an urban area increases, there is less need for a car. Although there is an element of truth in this (expectation of well-developed public transportation systems), it is also true that larger urban areas have high proportions of low-income families. Although the need for a car per se does not necessarily exist, the need for reliable transportation to satisfy a wide variety of travel needs does.

To gain a clearer perspective on the location of the carless and to tie location to need, a study was made in Buffalo, New York, and its inner-ring suburbs. The population of the study area is 1,085,000, of which 463,000 live within the city proper. Median income is \$8,800 in the city and \$11,600 in the suburban areas. Thirty-four percent of the households in the city and 7 percent of those in the suburban area own no car. Multicar ownership, a factor important in establishing access when 1 car is used but

travel is still decreased within the household, is only 7 percent in the city and 38 percent in the suburban areas.

Physical location of the groups mentioned above is by itself meaningless, but gains meaning when set in a framework of desired activities and available transportation. The major forms of public transportation in Buffalo are buses (fare 45 cents within the city), taxis, and a demand-activated bus service for the elderly within the Model Neighborhood area. The latter is a free transportation service available to persons 59 and over and, on occasion, to special organizational groups whose members reside within a defined area of the city. The population in this area is predominantly nonwhite and below median income.

Figure 3 shows bus availability by frequency and number of lines within census tracts. The information is displayed in this way to make data from census evaluations comparable. The figure was developed from frequency plots of bus routes on a street map for the specified time periods: day, peak; day, off-peak; night; and Sunday. The frequency of service changes, of course, with the service period. It also changes substantially as urban density changes. The most significant off-peak demand change occurs in the southern part of the city. However, for most census tracts, off-peak frequency is as high or nearly as high as peak frequency. The night frequencies show substantial decay from the day frequencies, except in the dense inner areas. The western portion of the city shows the most substantial decline and is somewhat cut off from the inner areas of the city by public transit, even though the distances are not great. The most substantial changes occur on Sunday, when large areas of the city, with the exception of the inner area, have very infrequent service.

The weighted averages refer to all bus routes through a given tract. These figures do not show accessibility to bus lines within the tract (i.e., walking distances to line), but these would be reflected in further weights on availability of bus service.

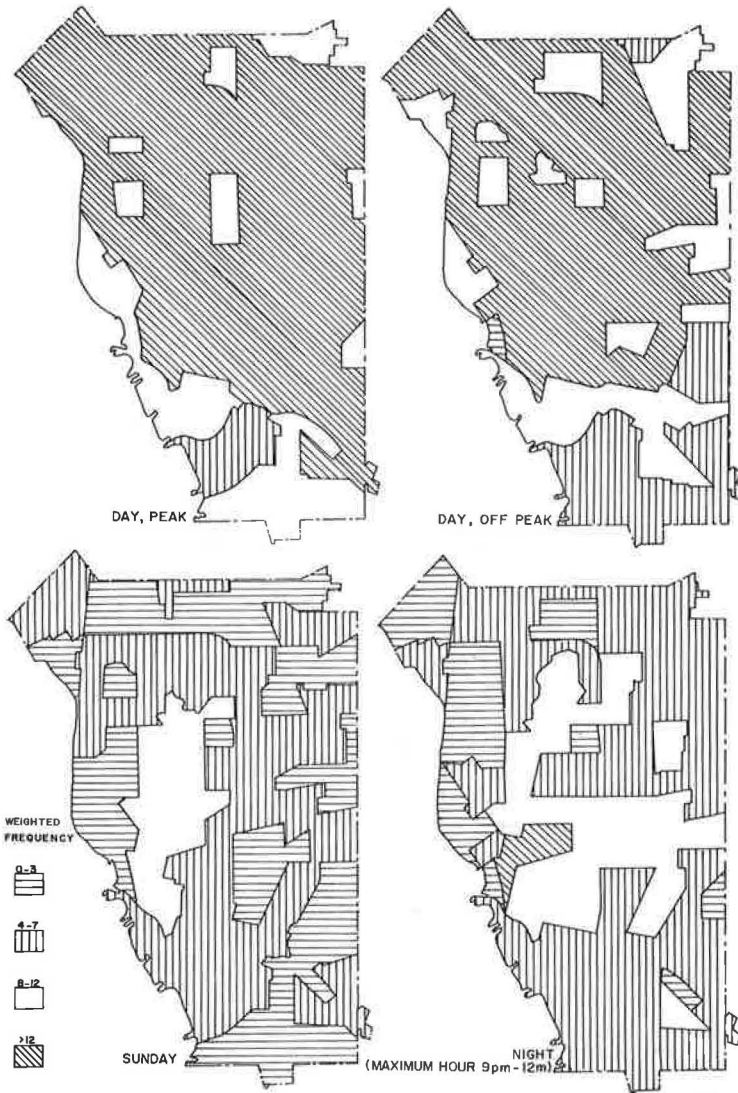
Figure 4 shows the percentage of households that have no cars. The concentric rings of decreasing percentage that extend from the city center are consistent with the traditional patterns of urban growth. The core, once thriving, is now attempting a renaissance. Yet the innermost core is the area of high transient residency and commercial buildings and also serves as a large component of the regional market. Median income is lowest in the core; unlike many other cities of similar size, there are no pockets of rich in this area.

Leading from the center of the CBD, a major arterial road divides the city. On the east side of this road, immediately surrounding the core, the population is almost exclusively nonwhite and has much lower than median income. On the lower west side of the artery the area is becoming a mix of transient and Spanish-speaking population. These areas also have the greatest population densities within the city. The high densities are not achieved through use of apartments, but through closely spaced multiple-family houses. It is not uncommon to find houses behind houses on lots originally developed for single-family dwellings.

The intense concentration of no-car ownership (greater than 50 percent of households) is readily seen in this area, which is small but represents a significant number of the population (18 percent). The number of households without cars in this area alone represents more than 10 percent of the total number of households in the city. Lower car ownership is more predominant among the nonwhite population than among the white population having similar income brackets. (No-car ownership in the nonwhite population is slightly higher than 50 percent of households.) The concentration in one area would normally cause one to expect a similar concentration of services and employment within the same area. But, as documented elsewhere (4), employment is decreasing in the city center, especially blue-collar employment, and the most basic of services, grocery shops, are closing, limiting the choices to markets more inaccessible and generally more expensive. (A recent news article noted the closing of a major chain supermarket in this zone. It specifically cited increasing difficulty for the elderly and poor, the largest carless groups, to find other food stores in an accessible location.)

The areas of lowest no-car ownership are those at the most northern and southern areas of the city. The most southern portion corresponds to an area of the city where

Figure 3. Bus frequency.



the bus service is least frequent. The northern area is predominantly a white middle-class area, a proportion of which also has a high percentage of households owning more than 1 car. This area also has good bus service on radial routes into the CBD, but circumferential routes are almost nonexistent. The characteristics of this area are more similar to the suburban ring surrounding the area than to the inner city, where less than 20 percent of the households do not own cars.

Figure 5 shows the location of employment in the city and the suburbs. Because actual work location is shown, the influence of unemployment in any zone is not noted. The predominant place of work (more than 50 percent) of all workers in the area is the city. A significantly higher percentage of workers on the west side (predominantly white population) work in the city; of this proportion, a higher percentage work within the CBD, where a greater number of white-collar jobs are available. A high number of black males work in suburban locations (one major employer is located south of the city, a second north of the city), and the principal mode of travel to these locations is by car (4). Figure 5 shows that the city boundary acts as a dividing line for work locations.

Figure 6 shows the number of workers who do not drive to work (i.e., they travel as passengers, walk, go by transit, or take a taxi, but they do not work at home). Figure 6 also shows the impact of carlessness on the nonwhite population. This population in the east central portion of the city represents a higher percentage of those who work outside the city and a higher proportion of those who do not drive. Figure 3 shows that bus frequencies are generally good at all times in this area. What is not shown in these figures is that the bus lines are traditionally CBD-oriented and do not provide good access to the suburban jobs and markets. (However, a corridor rail rapid route and redesign of the bus system are currently under way to provide greater access to the whole metropolitan area for the inner-city residents.) For those who live in the suburbs, the most common mode of travel to work is as car drivers.

When the family car is used for work, the 1-car household is carless for essentially 8 to 10 hours a day. Members of the family must use other modes of transportation for any non-home-based activities during this period. Figure 7 shows an estimate of the percentage of 1-car households that have the car at home during the day. The estimate is based on the percentage of households within a tract with 1 and more cars and the number of workers who cite their principal work-trip mode as driver. The lowest percentages are in the suburbs, which are also the areas with poorest bus frequencies. The inner-city areas, where a high percentage of cars are left at home, are also the areas of lowest car ownership. This makes it possible to put a value on car availability. In the inner-city areas, especially in the poorest areas, car ownership does not always signify car use. The cost of operation, insurance, or the car's unreliability might prohibit its use as the normal mode for the journey to work. The northwest area and the southern areas of the city, already noted for relative lack of bus service compared to other areas of the city, also have fewer multicar households. In these areas particularly, the availability of services within walking distance is critical, for transit service is infrequent.

Figures 8 and 9 show the distribution of the young and the elderly throughout the city. A high concentration of the elderly occurs immediately along the major artery near the city center; another concentration is in older neighborhoods, from which their children have moved to the suburbs. More than half of the elderly (most frequently women) are not licensed to drive. The availability of bus service and nearby markets is essential to this group. However, bus regulations against shopping carts make bus travel for marketing difficult. This is heightened by a special bus fare for the elderly of 35 cents, which, although lower than the national average, represents a barrier to active travel. Free service for the elderly is available only to a small group, who take great advantage of the service. The elderly most severely hurt are those who live in the suburbs where bus service during nonpeak hours is virtually nonexistent. A comparison of city and suburban distribution shows the strong pull of the city, and it can be surmised that both familiarity with the area and availability of services must be among the reasons for the lack of migration to the suburbs. However, markets and services (group medical practice, for example) are increasingly locating in the suburbs

Figure 4. Percentage of households with no car.

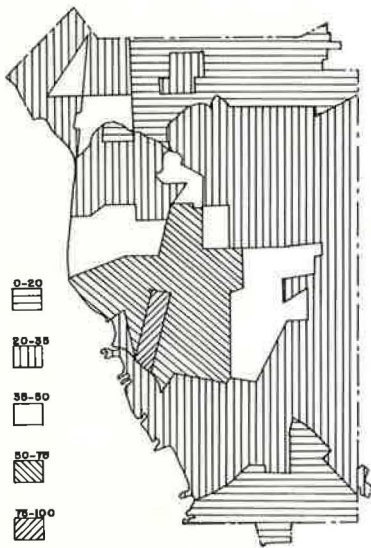


Figure 5. Percentage of employment locations.

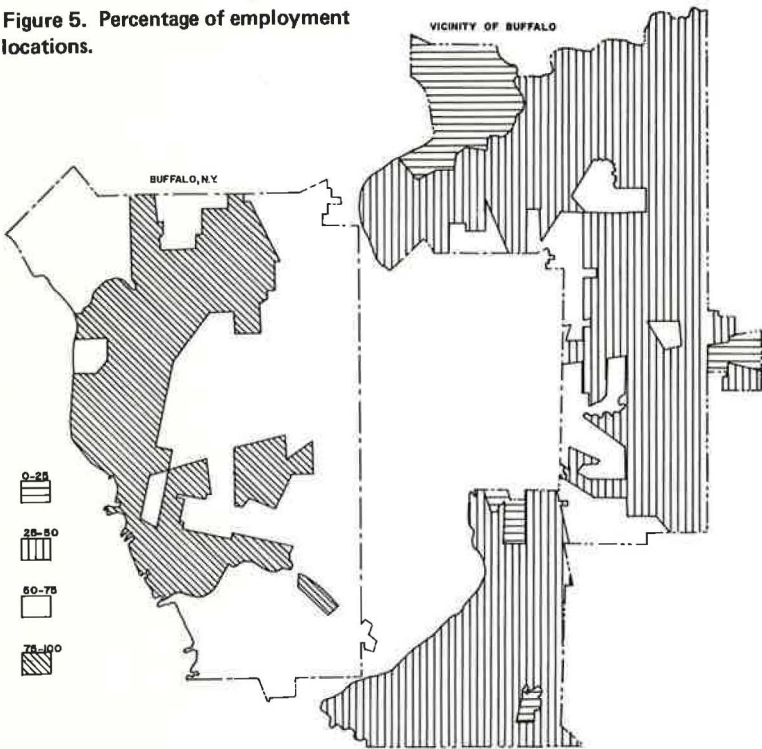


Figure 6. Workers who travel to work not as automobile driver.

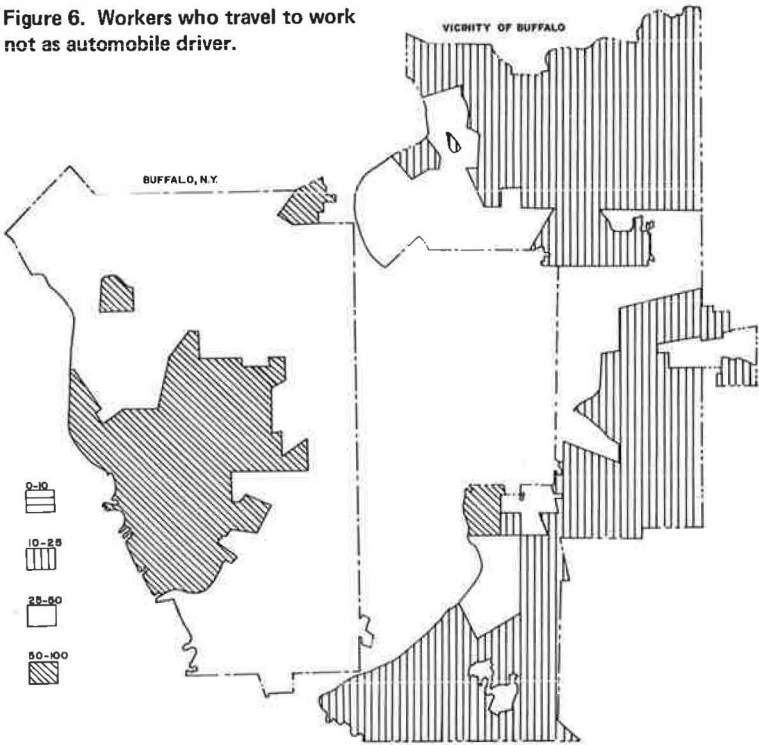


Figure 7. Percentage of 1-car households that have the car at home during the day.

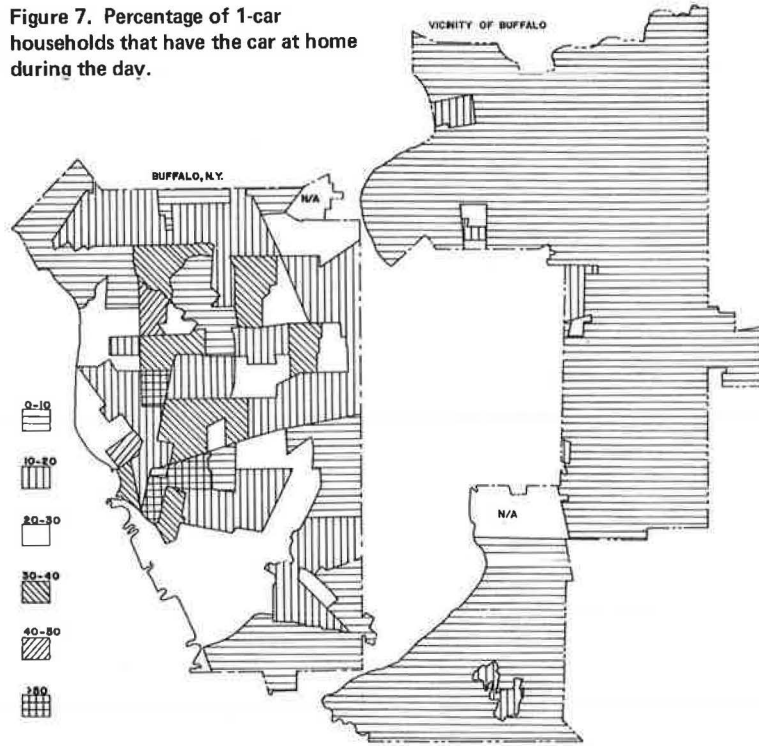


Figure 8. Population aged 59 and older.

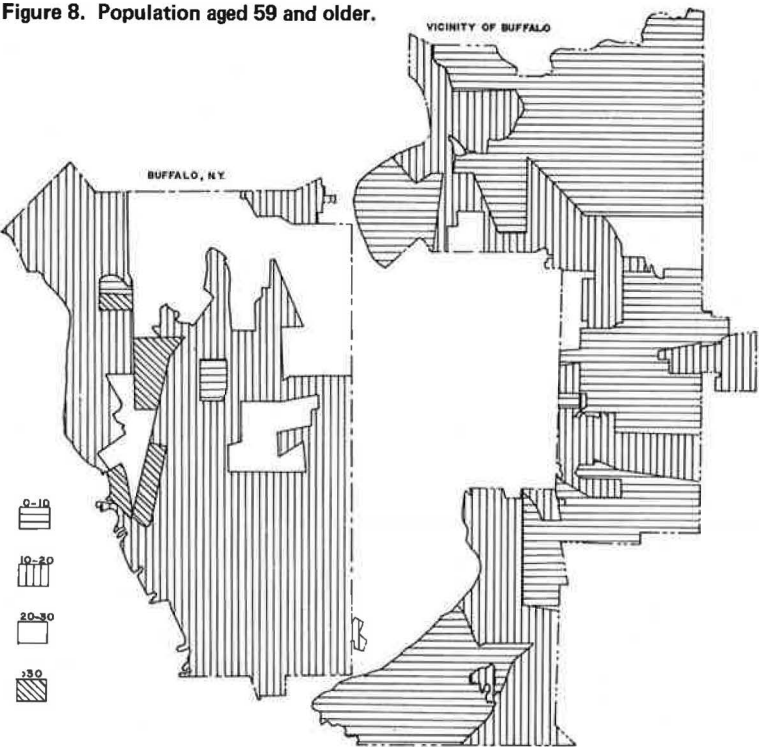
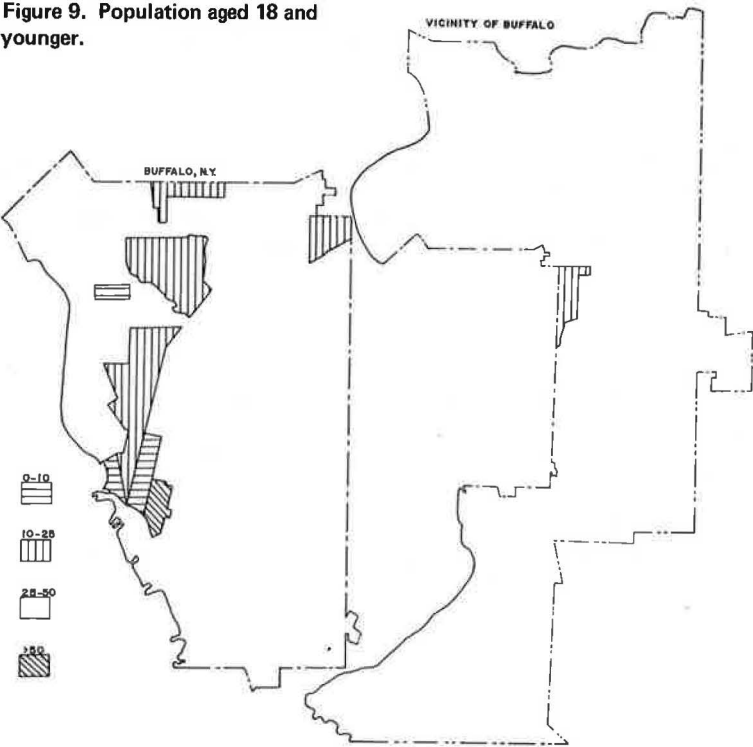


Figure 9. Population aged 18 and younger.



and will be more difficult to reach for those who have no car.

The overwhelming presence of youth is shown in Figure 7. Those under 18 (the legal age for full driving privileges in New York) are not found in force along the west side of the most accessible (by public transit) area of the city. In many cases, the travel needs of youth are met by bicycling and hitchhiking. Hitchhiking, of course, relies on cars, and biking, in cities where bikes are not formally recognized, is in direct conflict with the car. Travel needs can also be met by use of public transportation or by the scheduled ride (or car pool). Reduced fare for students (or free fare) is available only for the school trip. Those too young to work or the older teen workers, who generally work for minimum wages, must pay full fare (45 cents plus 5 cents for each transfer). The younger group (5 years to early teens) usually must rely on a relative for a ride. Figure 7 shows that the family car is often not available during the day for these rides. This often means that the young person must pursue his or her activities within a relatively small area. In areas with poor transit service, such as the suburban rings, it also means that much of the life of the city, frequently available in the more densely populated areas, is not available except on a formally scheduled basis. Thus, the seeming freedom associated with car ownership is nonexistent for this group and underlines the difficulties associated with being carless.

CONCLUSIONS

The common practice in recent years has been to single out specific groups as being the travel disadvantaged. The most common denominator for this group is the carless—those without access to a car at the time of need. In recent years, car ownership per household has increased only slightly, and the increase has taken place in the lower income ranges. But the dynamics of urban areas increase the polarity between those with and without access to cars. Zones of high densities within the cores of urban areas can no longer support markets and employment for the residents of the areas. Public transportation service is poor and is costly to the user (in time as well as money). Monitoring of the trip-making over time must be made among the carless to determine whether travel increases or decreases and whether travel becomes more difficult. In planning for the car, we have, as noted at the outset of this paper, planned for the minority.

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