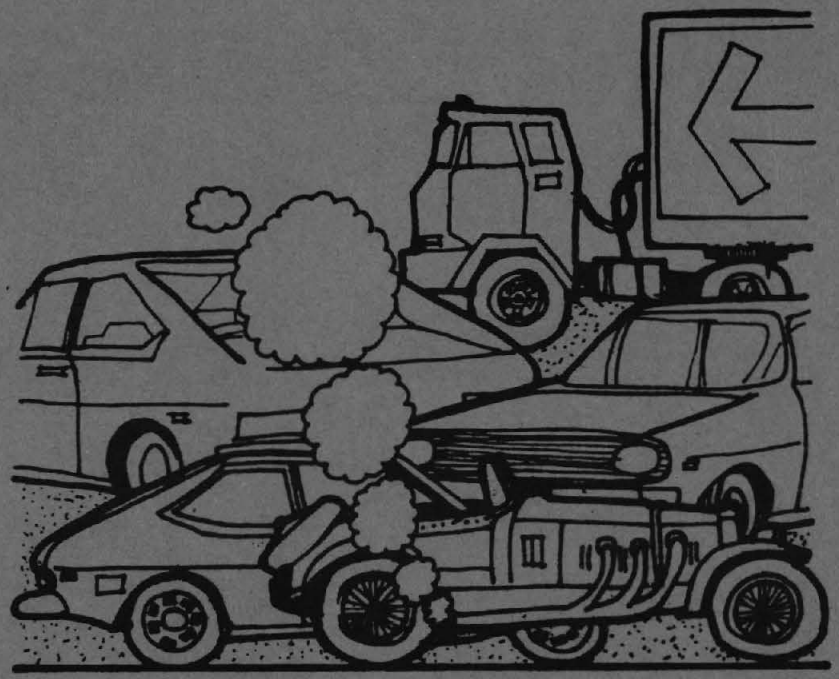
A Transportation Improvement Package for the Relief of Traffic-Related Problems



U.S. Department of Transportation
Urban Mass Transportation Administration
...e of Service and Methods Demonstrations
...ng Policy Division
...ington, D.C. 20590

FOREWORD

This brochure describes a set of transportation improvement packages that are being considered for demonstrations by The Urban Mass Transportation Administration's (UMTA) Office of Service and Methods Demonstrations (SMD). This brochure is designed to:

1. Provide information about the availability of these demonstration programs.

2. Explain the proposed transportation improvement strategies.

3. Discuss the benefits and drawbacks of each program.

4. Show through illustrative scenarios how several transportation improvement packages might be implemented.

The Service and Methods Demonstration Program was created to evaluate and document innovative transportation concepts with wide applicability and promise for improving existing transportation systems and mobility. The Pricing Program within SMD is aimed at encouraging and helping communities to employ economic means to affect transportation behavior. These economic strategies include demonstrations of transit fare reductions or abolitions, fare prepayment mechanisms, parking-rate changes, and road-user charges.

A fundamental characteristic of the transportation improvement package described in this brochure is its integration of positive and negative incentives

to affect the principal cause of traffic-related problems--low-occupancy vehicles used for work trips in core areas during peak travel periods. The package contains two essential components: significant public transportation improvements and pricing measures such as parking surcharges and roadway use charges.

The Office of Service and Methods Demonstrations is seeking several cities in which to demonstrate such a transportation improvement package. Demonstration funds are available to conduct a preliminary analysis of the concept, to design specific packages tailored to the needs of particular cities, to assess the potential impacts of the demonstrations; to disseminate information to the public, to design the demonstrations, and to implement the demonstrations for a period of one to two years. In addition, UMTA is interested in knowing of cities that are implementing similar programs on their own initiatives. UMTA would like to help evaluate the impacts of these self-initiated transportation improvement programs, and cities may qualify for funds for this purpose. For additional information, contact:

U.S. Department of Transportation
Urban Mass Transportation Administration
Office of Service and Methods Demonstrations
Pricing Policy Division
Washington, D. C. 20590

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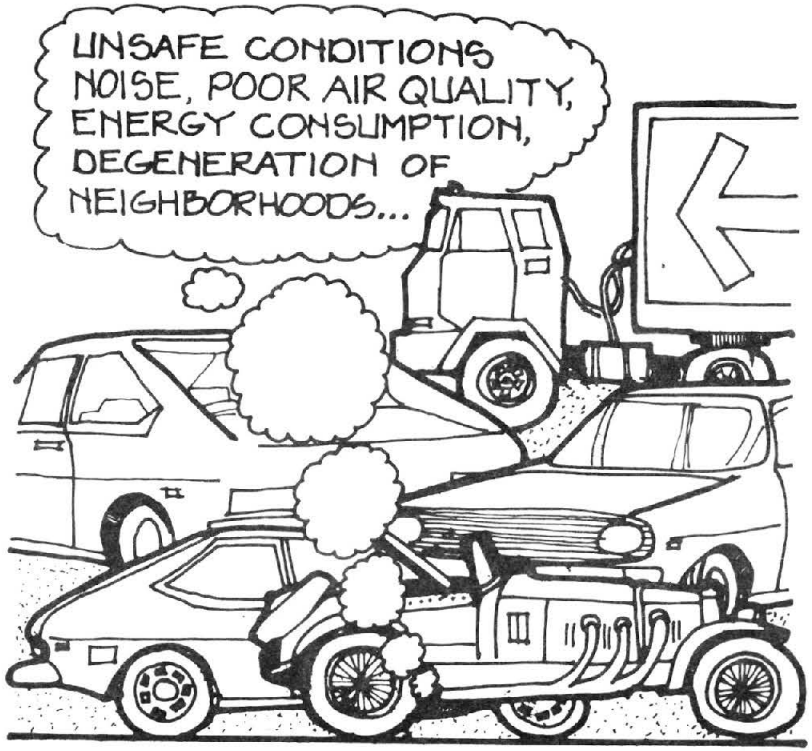
INTRODUCTION

During the past two decades, there has been a tremendous influx of low-occupancy vehicles into the core areas of U.S. cities, particularly during peak travel periods. The roadway congestion that has resulted has negatively affected traffic flows, noise levels, air quality, energy consumption, safety, and neighborhood cohesiveness. The consequences of traffic congestion have contributed to the decay of what were once vital and attractive urban centers. Moreover, transit service has deteriorated; because of congestion, it is slower and less reliable.

Responses to these problems have been varied. The most common response has been to expand capacity by building more roads. This approach has had limited success, since available land in urban areas is scarce and roadway expansion is extremely costly. In addition, expansion is accompanied by a host of undesirable effects. Most improtant is the fact that the new roads soon reach capacity, and the problems become worse than before.

Another response has been to improve and expand public transportation and to offer incentives, such as reduced or free fares, to increase ridership. However, this approach has met with limited success, since transit vehicles must share congested roads with other traffic. Furthermore, transit improvements are very expensive and impose a heavy financial burden on already strained federal and local budgets.

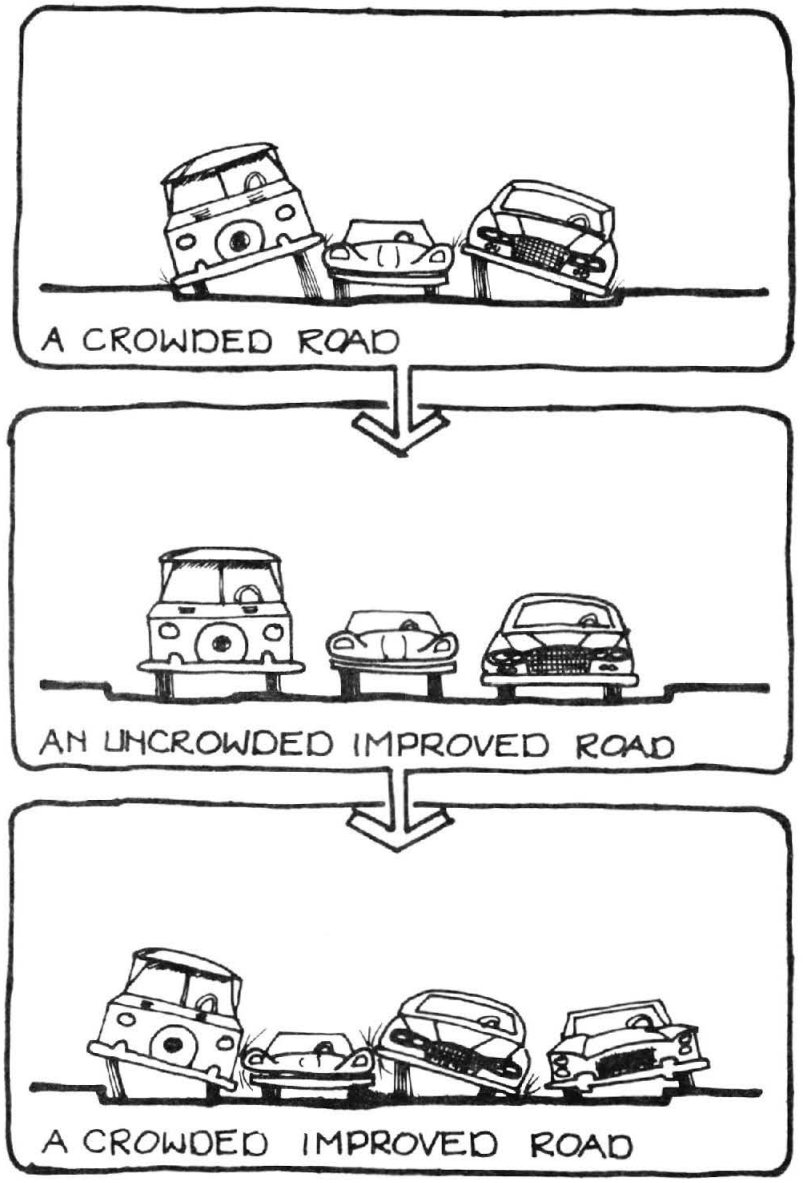
The transportation improvement package described in this brochure can effectively reduce traffic-related



problems without adding to cities' financial burdens. It contains economic disincentives that discourage those who contribute most to traffic problems--users of low-occupancy vehicles--from traveling through or to core areas during peak travel periods. At the same time, the program offers transportation alternatives to those directly affected by the financial disincentives.

To people dependent on transit and to those unable or unwilling to bear the increased cost of peak-period travel (and, as a result, shift to public transportation), the package offers expanded and improved transit service and other public transportation alternatives. To public transit operators, it offers better traffic movement and increased productivity. To local governments, it offers additional revenues to support transit expansion or other programs. To customers of retail establishments, it offers additional and potentially less expensive parking spaces. To the community, it offers reductions in noise, air pollution, and neighborhood intrusion. And, to those who decide to pay the surcharges and continue to drive, it offers much-improved traffic conditions and faster travel.

In summary, this package is a logical strategy for increasing person-trips while reducing vehicular traffic. It is an equitable approach, since those who are the source of traffic problems pay for their solution and at the same time benefit from the program.



A COMMON RESPONSE TO TRAFFIC CONGESTION

THE TRANSPORTATION IMPROVEMENT PACKAGE

A major goal of any scheme to relieve rush-hour traffic problems should be to discourage low-occupancy automobile use and to encourage commuters to use public transportation or to carpool. If, for example, the average number of persons per car during rush hour increased from 1.5 to 2.0, automobile traffic would be reduced by 25 percent.

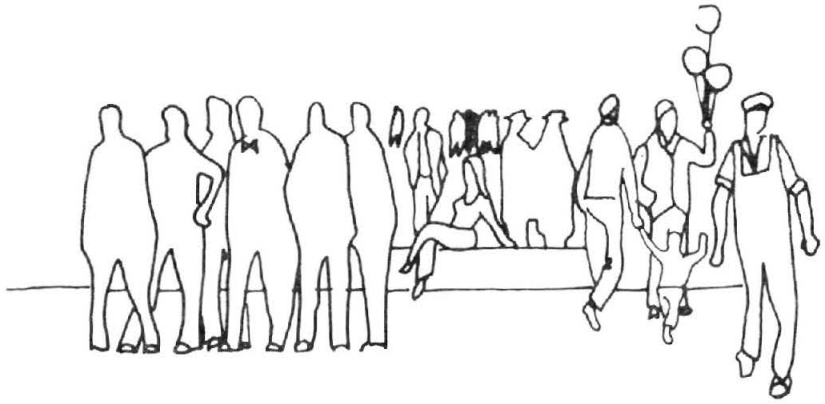
Although several techniques are already available for encouraging travel by high-occupancy vehicles, the transportation improvement package described here may be more effective because it consists of several compatible techniques that simultaneously reduce traffic and generate revenues to finance needed transit improvements.

The two most important components of this transportation improvement are:

1. Significant public transportation improvements to encourage transit ridership and increase mobility within the area.

2. Pricing programs to reduce low-occupancy vehicle use, improve traffic flow, and provide needed revenues.

The overall objective of the program is to improve traffic flow by discouraging unnecessary traffic. Individuals are encouraged to use public transit, to carpool, or to change their travel times or routes to avoid heavy traffic. Those who continue to drive into the city during rush hour despite the availability of alternative transportation may have to pay more to do so. But they, too, will benefit, since the roads they use will be less congested as a



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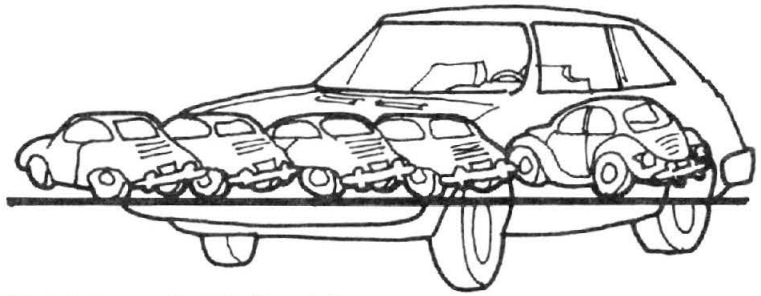
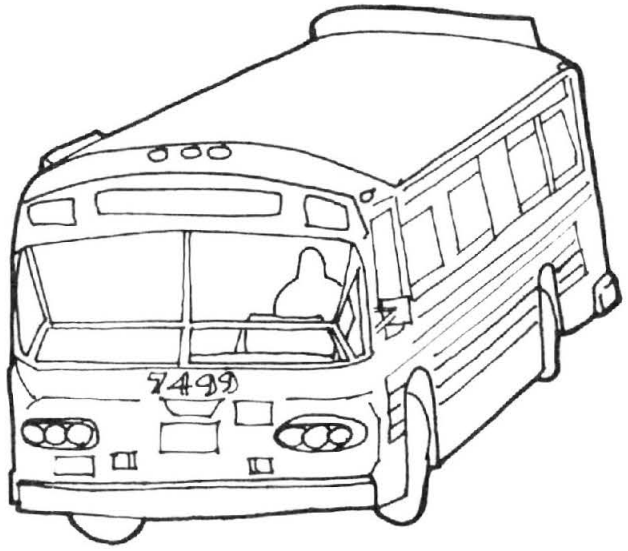


FORTY CARS OR...



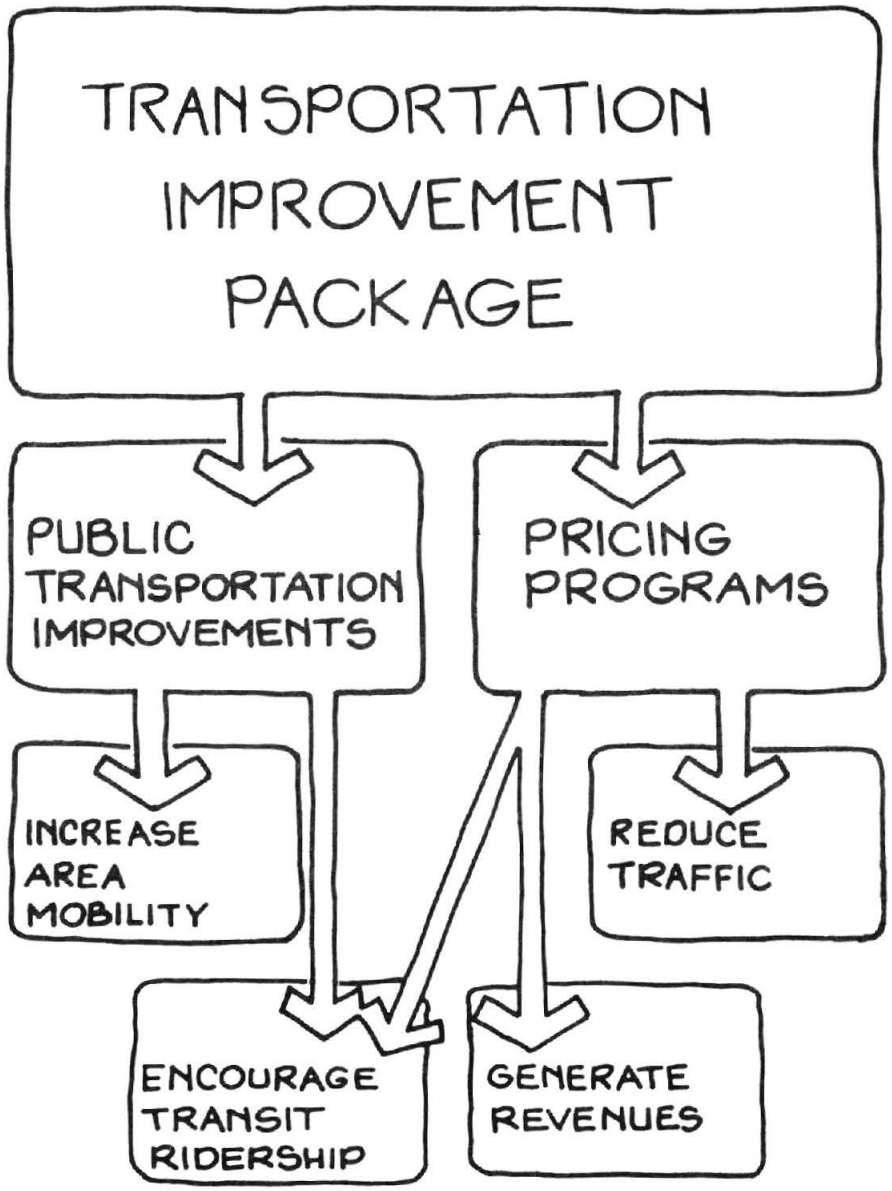
ONE BUS.

result of the program.

Pricing strategies are an effective way to induce commuters to travel by bus or carpool. In addition, pricing is generally a more effective way to improve traffic flow than priority techniques or other traffic control measures because it is more flexible. During heavy traffic periods when it is desirable to limit the number of vehicles using city streets, a charge or fee can be applied and adjusted to reduce traffic to precisely the level desired.

In addition to improving traffic flow, pricing generates revenues that can be used for public transportation improvements or other local programs. Only a small fraction of the revenues are needed to cover the cost of implementing and enforcing a pricing program.

The major attractions of pricing strategies are that they can be designed to focus specifically on the exact location and time period of traffic problems and that they require only those contributing to the problem to pay for its solution.



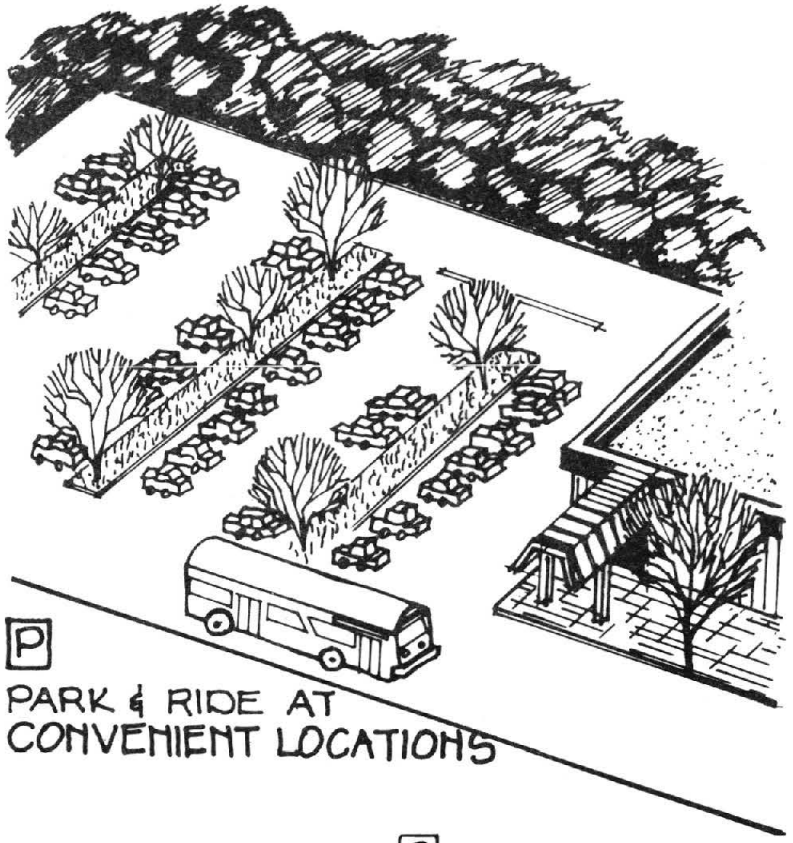
Transportation Improvements

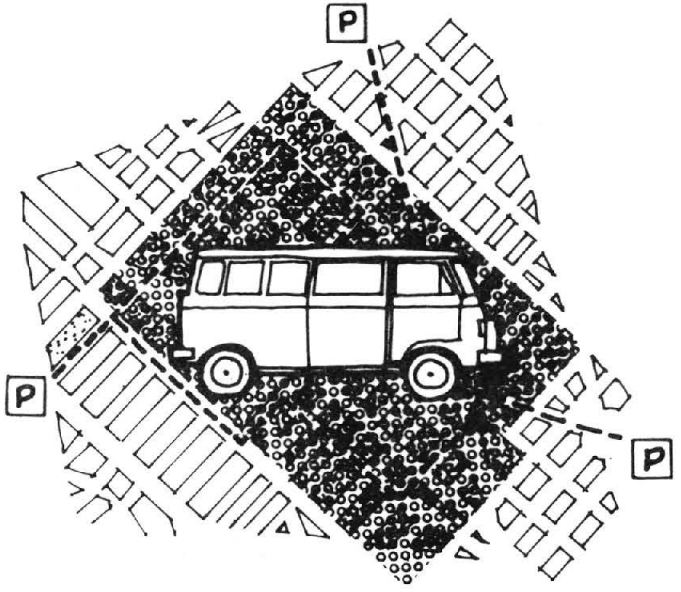
It is essential that cities implement comprehensive public transportation improvements in conjunction with any pricing strategies they may adopt. Attractive alternatives to driving alone should be provided for those who are unwilling or unable to pay the increased charges. Automobile users have varied trip origins, destinations, and service needs; therefore, a wide range of services must be offered if the priced area's accessibility is to be maintained or enhanced. The transportation improvements being considered for implementation in the demonstration package include the following:

Expanded Local and Express Bus Service. Route coverage and service frequency will be increased significantly to satisfy the needs of both commuters and off-peak shoppers.

Fringe Parking and Shuttle Service. Strategically located fringe parking lots with shuttle service will be provided for the convenience of single-occupant automobile drivers living in outlying areas who choose to use mass transportation.

Paratransit Programs. Arrangements will be made to establish an effective paratransit program when conventional bus service alone is inadequate to meet increased demand for alternative transportation. Aid will be provided for the promotion and administration of carpooling and vanpooling and for the implementation of demand-responsive services such as jitney and shared-ride taxi services.





CENTER-CITY MINI-BUS SHUTTLE

Fare Incentive Programs. As an added benefit to those who choose to use mass transit, all new transportation services (increased bus service, fringe parking, and paratransit) could be provided at a low cost or free. For example, carpools might be offered free or very inexpensive parking.

Physical Improvements. Cities interested in implementing the demonstration package as part of a major redevelopment program might consider funding physical improvements such as lane reduction, sidewalk expansion, or construction of other pedestrian facilities.

Timing of transportation improvements is critical. To most effectively discourage use of low-occupancy vehicles, major public transportation improvements should be implemented three to six months ahead of any pricing program. During this preview period, the new services and improvements should sufficiently demonstrate to the public that fair and reasonable alternatives to driving alone exist.

Fewer automobiles on the road will allow public transportation to operate faster, more frequently, and more reliably, and will reduce the environmental deterioration that accompanies traffic congestion. Additional capacity on public transportation would increase the number of trips made to downtown areas, strengthening downtown economies. Thus, the overall result of transportation improvements would be to make urban centers more enjoyable places to work, shop, and live.

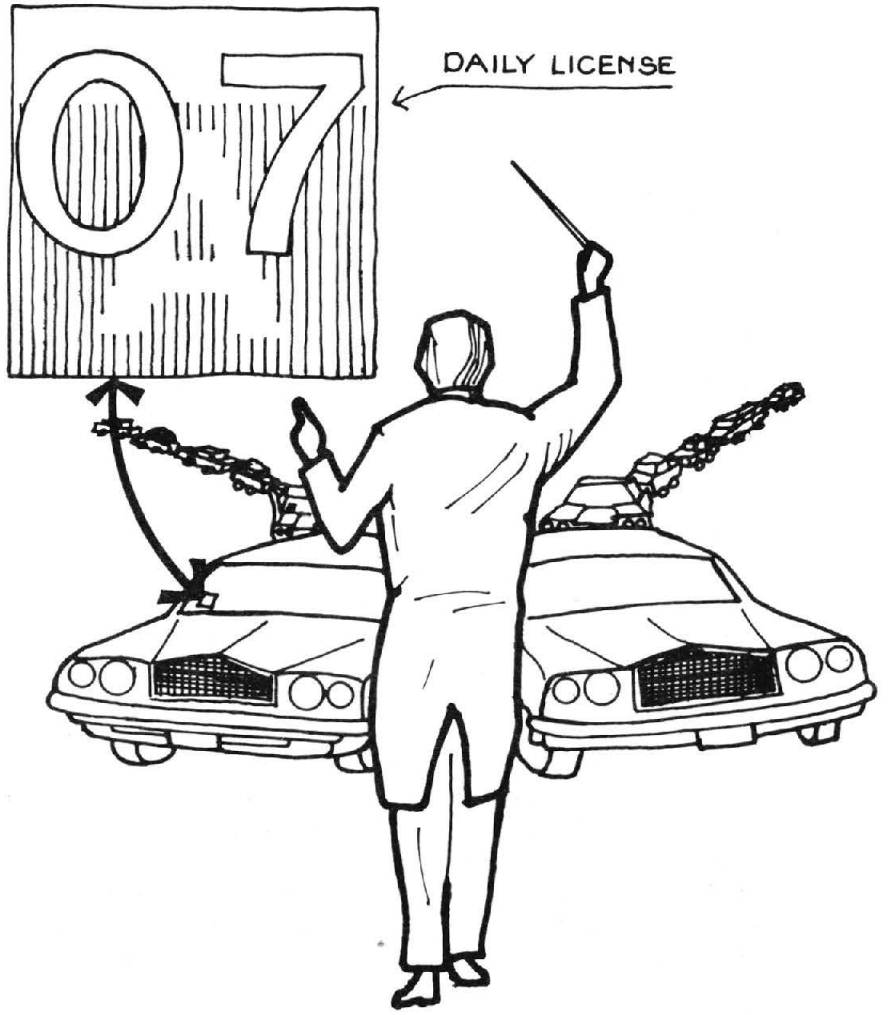
PHYSICAL IMPROVEMENTS: EXPANDED SIDEWALKS, NO ON STREET PARKING, AUTO-RESTRICTED AREAS

Pricing Programs

To induce drivers to use public transportation and to generate revenues for improved public transportation, the transportation improvement package described here calls for the implementation of pricing programs. The programs being considered include pricing congested arterials or bridge crossings, spot pricing major recreational centers or arenas, areawide pricing, and parking charges. Areawide pricing and parking charges are the most comprehensive of these approaches and are therefore described in detail below. Other pricing strategies are discussed more briefly.

Roadway Pricing. Unlike parking surcharges, roadway pricing focuses directly on the source of traffic problems. Certain categories of vehicles using designated roads during designated periods would be required to display special roadway use licenses. This system allows charges to be applied without necessitating traffic slowdowns and delays, is inexpensive to implement, and enables flexible administration.

The licenses, in the form of windshield stickers, are purchased in advance on a monthly, weekly, or daily basis. Each license has a distinctive color, bears a number of letter code to designate the month, week, or day of validity, and displays the owner's license plate number to facilitate enforcement and prevent misuse. Thus, commuters could purchase the licenses every month, and tourists and visitors who must drive downtown during rush hour could purchase the licenses on a daily or weekly basis. The stickers might be handled through conventional retail outlets (e.g., drug stores, service stations and supermarkets), much like state lottery tickets, as well as at post offices and banks.



SOME MEASURES MUST BE TAKEN TO CREATE A HARMONY BETWEEN THE AUTOMOBILE AND THE CITY.

The cost of the licenses will vary from city to city, depending on the extent of the area's traffic problem and the desired level of transportation improvements. Localities will set the charge in accordance with their individual objectives and the results of technical studies.

The hours of application will also depend on the extent of the area's traffic problem. In most cities, congestion is not severe enough to warrant all-day application of roadway use charges. Therefore, to avoid inconveniencing shoppers, visitors, and others with personal business within the priced zone, charges might initially be assessed only during the morning rush hour. Later, the hours could be extended to include the evening peak period, or portions of it, depending on the severity of traffic-related problems.

Various types of vehicles, such as high-occupancy vehicles, emergency vehicles, and police vehicles, can be exempted from paying the charge. In addition, depending on its traffic-reduction goals and the types of traffic that contribute most to congestion in the area, a locality may wish to exempt certain types of traffic from the charge, and this can be accomplished simply by modifying enforcement procedures. Focusing enforcement only on vehicles parked within the priced zone would exempt through trips from the charge, and focusing enforcement only on vehicles entering the zone would exempt trips wholly within the zone or leaving the zone. Residents of the zone could be given special permits if local statutes allow.

Parking Charges. Parking controls have existed in major U.S. cities for many years, and most motorists have accepted them as a necessary part of urban living. Because the mechanisms to control and

administer parking fees already exist, communities may choose to implement a parking-pricing program to help reduce the number of automobiles used to commute downtown.

In essence, parking charges are designed to discourage commuters from driving into congested areas by increasing the cost of parking during peak travel periods. After rush hour, the parking charges can be reduced for shoppers and visitors. The aim is to reduce the number of long-term parkers (usually commuters) and thereby provide more spaces for short-term parkers (primarily shoppers, who are vital to the economic wellbeing of downtown areas).

Cities may find that increasing the price to park during peak periods is more beneficial than applying blanket restrictions or reducing the supply of parking places, since the revenues generated by the parking charges can be used to finance alternative transportation services and to subsidize inexpensive parking for shoppers during off-peak periods.

Programs that simply reduce parking charges for carpools actually reduce parking revenues. In addition, they might attract into carpools more bus riders than low-occupancy automobile users, and thus worsen traffic conditions.

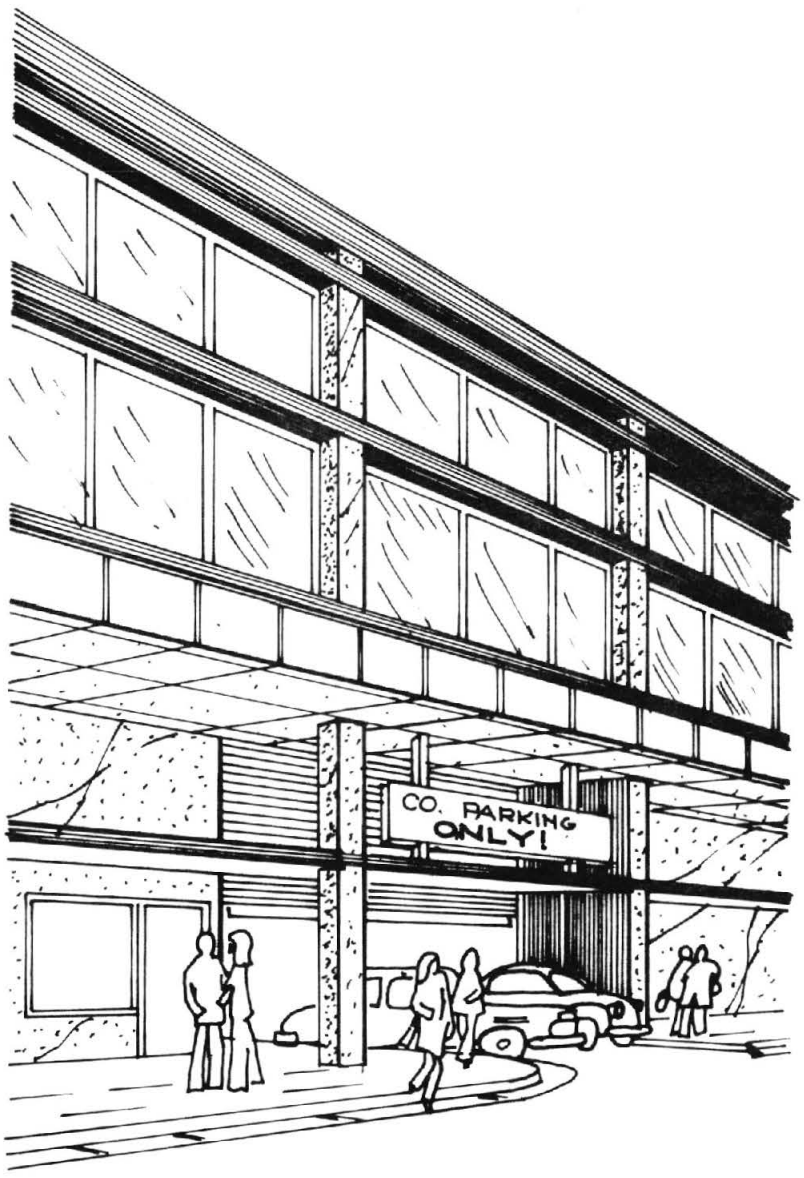
Some specific parking-pricing strategies that can be used to alleviate urban traffic congestion are described below.

Parking License. Vehicles parking during the morning peak within designated zones would purchase and display a weekly or daily permit. The cost of the permit might vary according to time of day, parking location, and perhaps the number of persons using the car.

Morning Peak Surcharge. All parking facilities would be assessed a flat annual surcharge based on the proportion of their customers that park there during peak hours.

Revenue Tax or Parking Space Tax. A revenue tax would be levied at a flat rate against all revenues from parking operations. A parking space tax would charge operators an annual fee for every space provided regardless of the time, purpose, or type of user. The rate might vary according to the facility's location within the city.

Abolition of Parking Subsidies. Employers providing their employees free or low-cost parking could abolish these subsidies and charge full market rates for parking. Employers could replace the subsidies with dollar benefits or distribute free or subsidized transit passes.



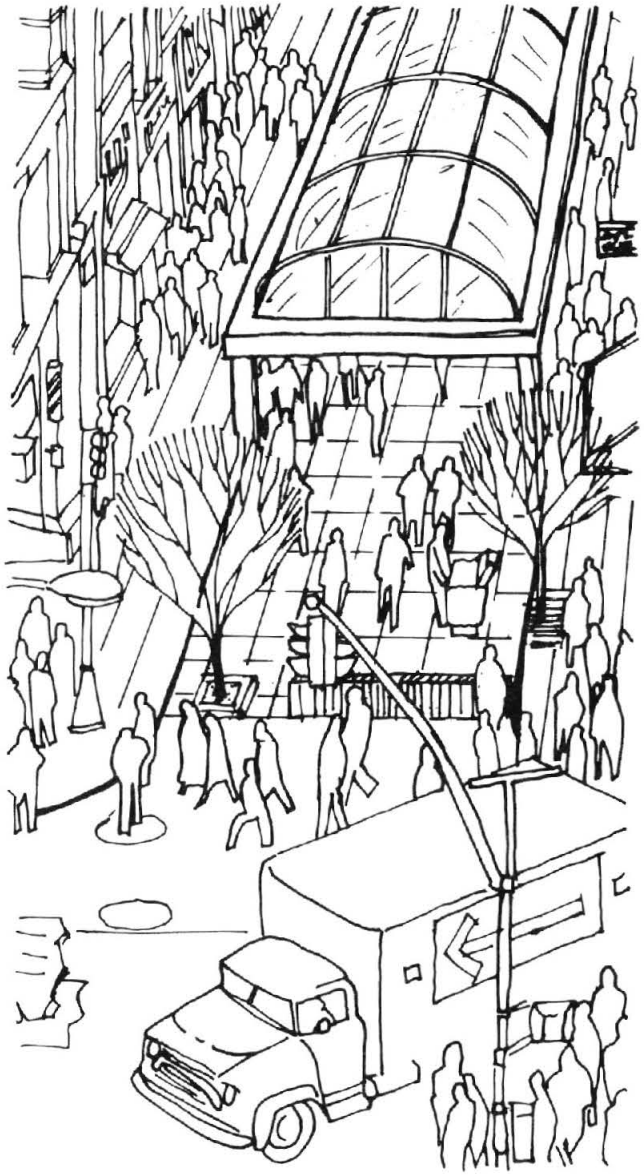
CONSEQUENCES OF IMPLEMENTING A TRANSPORTATION IMPROVEMENT PACKAGE

The principal purpose of the transportation improvement package described in this brochure is to increase the efficiency of existing highway and street systems and to reduce traffic-related problems. However, all motorists cannot be expected to begin using public transportation for all their journeys. Some people must use their automobiles during the day for business or for delivering and picking up goods. Others live in remote areas of the region poorly served by public transportation. But commuters who use their cars solely to transport themselves to and from work despite the existence of feasible alternative transportation contribute unnecessarily to congestion. The transportation improvement package attempts to make public transportation more attractive to these commuters.

With the implementation of the transportation improvement package, many people will join carpools and ride on uncongested streets. Commuters who carpool will save a considerable amount of money, since they will avoid the roadway surcharge, as well as share operating expenses.

Some motorists will benefit from the package by using conveniently located fringe park-and-ride lots. With frequent and reliable downtown shuttle service, many people will find this option convenient and inexpensive. Other commuters will arrange to be dropped off at the fringe parking lots and then ride the shuttle to work.

Motorists who choose to continue driving downtown alone during rush hour will be faced with higher parking fees and/or roadway charges. However, they,



too, will benefit from the package because the streets they travel will no longer be congested and driving conditions will be improved.

The principal argument against parking and roadway charges is that they would be grossly unfair to low-income groups. Indeed, equity is an important issue. But it should be noted that low-income groups own fewer automobiles than high-income groups and use them less, especially during rush hours. More important, low-income groups are the most intensive users of public transportation, and an integral component of the transportation improvement package is improved public transportation service. Another key goal of the package is to generate revenues to finance public transportation improvements. Thus, low-income groups will benefit from the package by the availability of cheaper, more accessible, and faster public transportation.

Downtown businesses are usually apprehensive that innovations in urban traffic management will adversely affect sales revenues. But traffic management experiments in American cities and in cities around the world suggest that negative impacts on businesses resulting from auto-free zones, special bus lanes, downtown parking surcharges, and elimination of on-street parking are unlikely to occur if adequate public transportation is provided.

Since parking and roadway fees usually would be charged only during the morning peak, before most downtown stores open, they are unlikely to negatively affect retail sales. Moreover, the number of short-term parking spaces available for shoppers and visitors should increase because fewer commuters will be driving to work. The program would also enable the city to reduce off-peak parking rates, a measure that would enhance, rather than detract from, the attractiveness of the downtown as a retail center.

Any scheme that reduces traffic congestion will also improve environmental quality by lessening noise and air pollution. Furthermore, pedestrians and bicyclists will be able to travel more safely on less congested roadways.

The success of the transportation improvement package rests on the ability of the public transportation system to maintain mobility, on the effectiveness of the pricing techniques to limit unnecessary rush hour traffic, and on how the revenues generated are used.

SCENARIOS

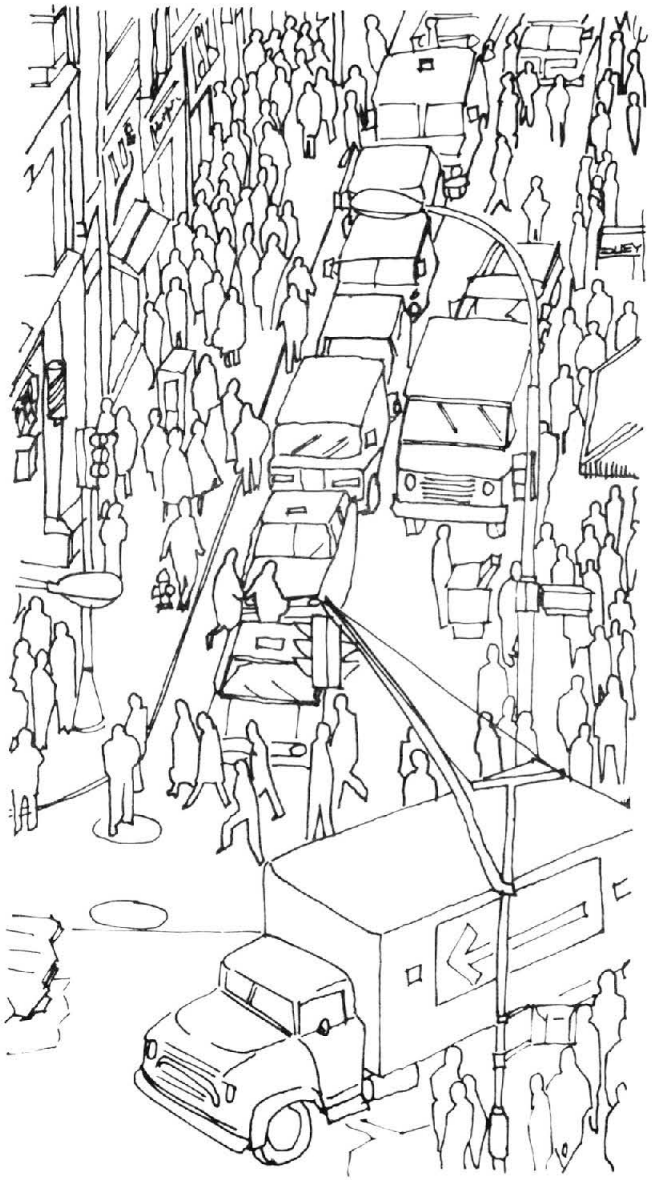
Transportation Improvements with Roadway Pricing

The first scenario involves a West Coast city with a population of 100,000. In its downtown are located several municipal government buildings, offices, and educational and cultural amenities. The activities of the center city are dominated by a strong retail climate.

The Problem. The city's traffic problems typified those of many average-sized cities situated on major traffic corridors. During rush hour, the downtown streets became choked with commuter traffic, over 20 percent of which was through traffic. The heavy congestion caused excessive travel delays, conflicts between pedestrians and vehicles, safety problems, pollution, and the desertion of in-town residential neighborhoods. In addition, the city lacked funds to finance mass transit improvements that could reduce traffic congestion, but recognized that only those responsible for the traffic problems should pay for the improvements.

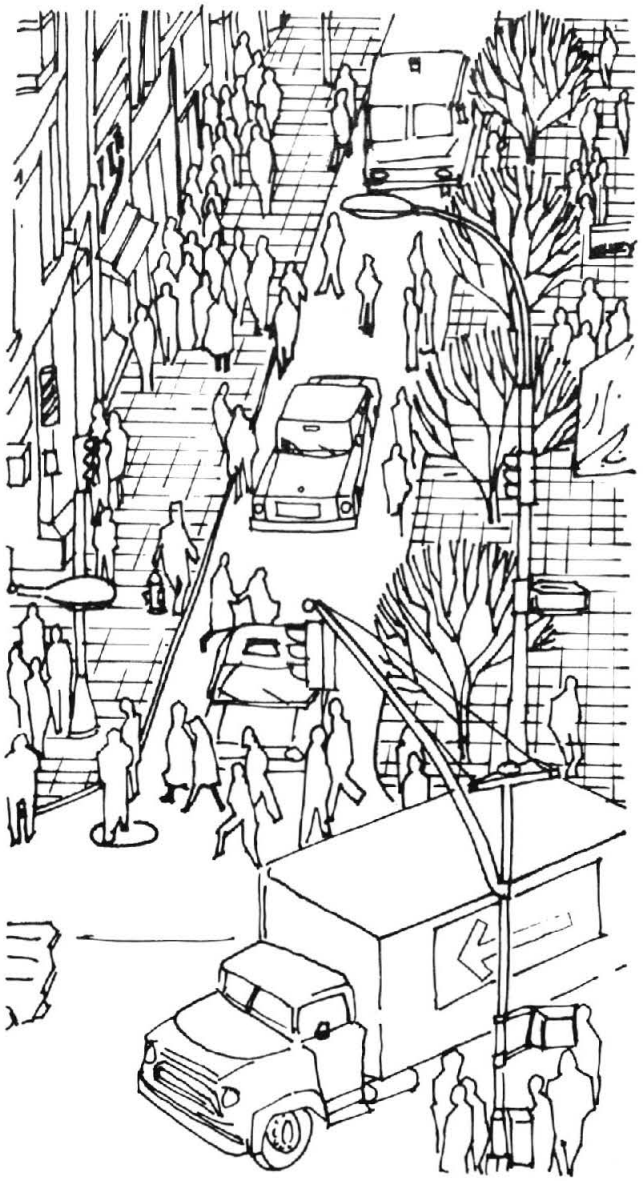
The Solution. The city council adopted a package of transportation improvements which included an area licensing program. Fixed-route express service and conventional bus service were increased. Conveniently located fringe park-and-ride lots were built and free shuttle bus service from the lots to the downtown was provided. Within the center city, a free minibus service, operating at ten-minute intervals, was established. Downtown streets were redesigned to facilitate their use by pedestrians, and other pedestrian amenities are planned.

To decrease auto use, all vehicles with less than three occupants entering the downtown between



7:00 a.m. and 10:00 a.m., Monday through Friday, must display a sticker on their windshields. Stickers are purchased in advance on a daily, weekly, or monthly basis. Carpools, vanpools, and buses are exempted from the fee. Long-term parking rates are high to discourage commuters from driving to the downtown, but rates are reduced after the peak period to encourage shoppers and visitors to patronize downtown retail establishments.

The implementation of the transportation improvement package significantly reduced peak auto traffic and increased transit ridership. Through traffic, which contributed nothing to the area's economic base, was diverted from downtown roadways. Streets in residential areas are less congested. The substantial revenues generated by the area licensing program were deposited in the city's transportation fund, and these revenues allowed midday parking charges to be reduced. Increased transit service and the availability of low-cost midday parking have attracted more shoppers to the downtown area.



Parking Strategies

The second scenario involves an East Coast city with a population of 200,000. The city once had a healthy downtown business community, but center-city retail business began declining in recent years as a result of competition from suburban shopping centers and roadway congestion. Despite the loss in retail business, the city still has a well-defined downtown, or city center, containing a state university campus, many specialty stores, entertainment facilities, city and county government offices, an office employment subcenter, and recreational amenities, including a park.

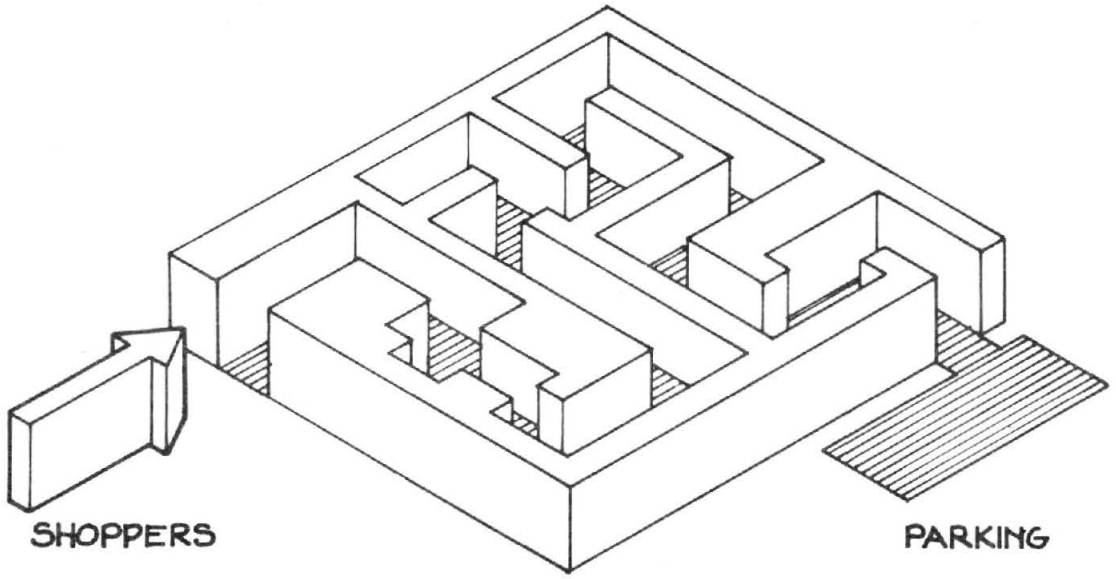
The Problem. Downtown traffic had steadily increased, and many streets had reached, or nearly reached, capacity. Uncontrolled on-street parking aggrevated traffic conditions and drastically curtailed the availability of parking for midday shoppers. Congestion adversely affected near-by neighborhoods and slowed bus service.

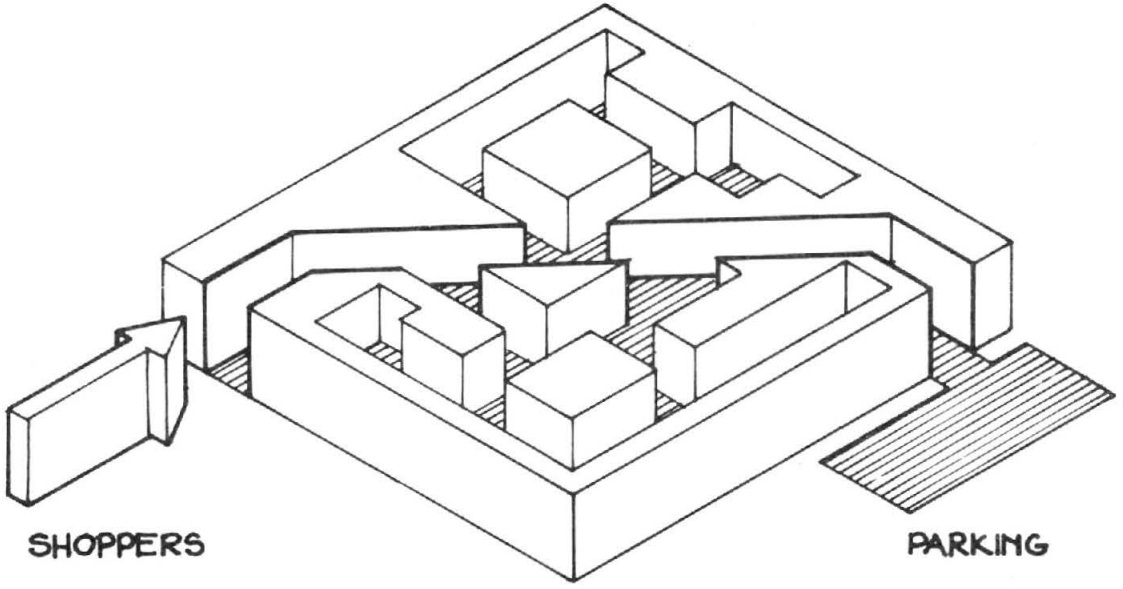
City officials realized that to strengthen the downtown economy it was first necessary to improve downtown accessibility. More people must be encouraged to come downtown, but in fewer vehicles. Better use of public transportation was the only solution. At the same time, the city wished to require only those responsible for the problem (i.e., peak-period commuters using downtown streets and parking there) to pay for its solution. Since over 70 percent of morning-peak traffic parked downtown and only a small percentage of the traffic had destinations outside the downtown, city officials felt that a strong parking surcharge program should be a major component of their transportation improvement package.

The Solution. Public transit service was increased. Designated lanes on streets were reserved for buses and carpools. Off-peak fares were reduced, shoppers' fares were discounted, and monthly commuter passes were sold. Major urban design improvements were made, including a pedestrian mall along First Street.

The Downtown Parking Coordination Company was created to regulate the price and supply of all central-city parking facilities. An automatic parking-information system was installed to help drivers locate parking spaces. Long-term parking rates were increased and a rush-hour surcharge was introduced to discourage commuter parking and encourage short-term parking during off-peak periods. Carpools were charged off-peak rates during rush hour to encourage group riding. Thirty percent of all on-street parking was eliminated.

Both morning traffic and total downtown traffic has decreased; transit ridership has increased significantly during off-peak periods; and more shopping trips by automobile are being made during off-peak periods. Furtherfore, the surcharge has produced large net revenues that can be used to fund additional transportation programs.

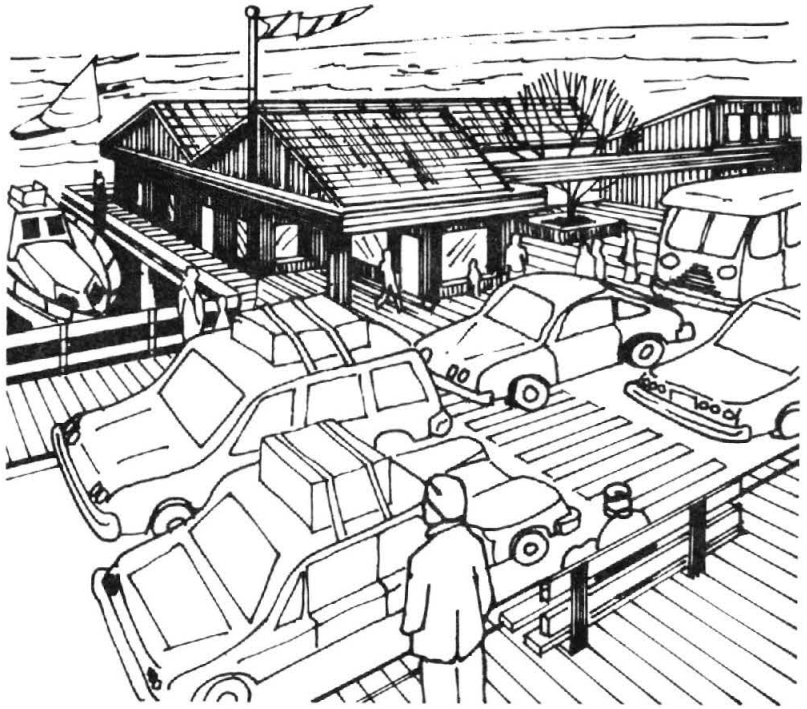




LET'S FACILITATE CITY PARKING FOR SHOPPERS!

Application in a Resort Town

This scenario involves a mountain community located near a beautiful lake whose economy is based primarily on tourism. The community's permanent population is only 8,000, but during the months of June, July and August, tourists swell the population by as much as 300 percent. During the summer, transportation was a major problem in this small community. Streets became choked with traffic as visitors passed through the city to restaurants, hotels, and lakeside beaches.



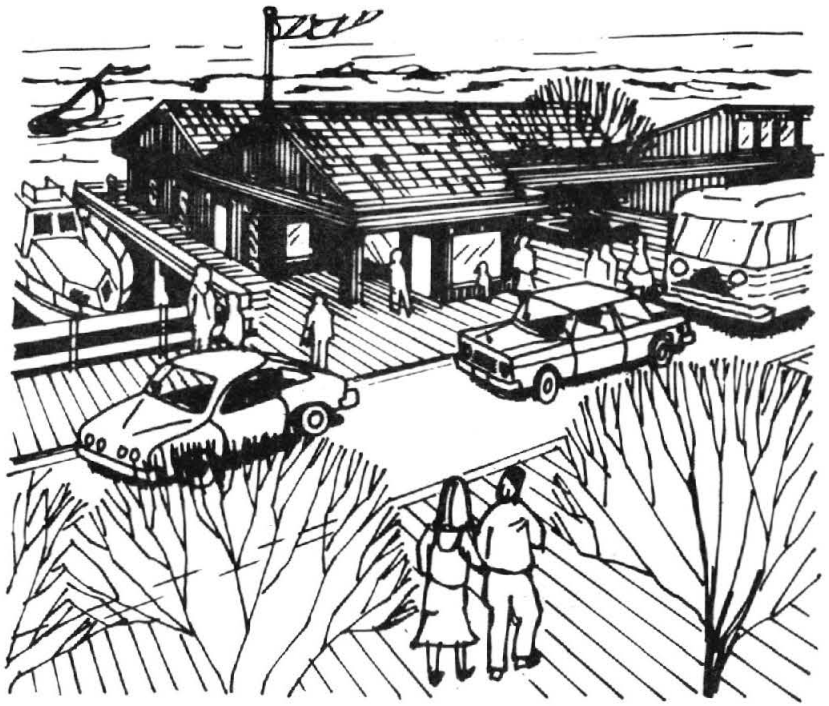
The Problem. The city's street network could not support the heavy summer traffic. The city government realized that strict traffic-control measures had to be taken. Permanent residents wanted a guarantee that employment and service centers would remain accessible. Tourists wanted easy access to the various local attractions. To maintain the community's attractiveness, it was vital that its quiet character be preserved and that pleasant areas to shop, walk, and bicycle be provided. A six-month study recommended the transportation improvement package described below.

The Solution. Free park-and-ride lots for day visitors were built at convenient locations around the congested area. Free bus service connecting all hotels to major city locations, often on exclusive bus lanes, was provided. A new network of bicycle paths and a by-pass route to connect freeway traffic directly to the beaches were constructed.

A special parking-licensing program is in operation during the summer months. Under the plan, motorists who wish to use city parking facilities must purchase and display on their windshields a daily pass.

Residents are charged half the price that nonresidents pay. The fee encourages visitors to leave their automobiles in hotel garages and to use the fare-free buses that operate within the city and between the city and the lake. The sale of daily parking passes generates revenues to finance the additional transit service.

As a result of the transportation improvement package, the number of person-trips to the area increased, while the number of auto trips decreased; economic activity increased; and excess revenues were generated to support other improvements.



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