



The European Picture **Better Towns with Less Traffic**

Frances T. Banarjee

Towns *are* better with less traffic as long as adequate provision is made for the mobility of workers and residents and for the distribution of goods. Where traffic congestion and its costs are severe and frequent, measures to reduce the use of private cars and goods vehicles and to improve alternative forms of transportation should be introduced. Actions to limit traffic should be accompanied by measures to improve alternative methods of transport. The efficiency and quality of buses and light rail systems should be improved. Pedestrian schemes should be introduced wherever possible to improve the environment and safety for pedestrians. The use of bicycles should be encouraged wherever practical. Automobile management or restraint programs should be designed as integrated packages and should be planned and progressively implemented with full public consultation.

These were some of the conclusions reached at an international conference held by the Organisation for Economic Co-operation and Development in April 1975.

Ms. Banarjee is a senior transportation planner for the Southern California Association of Governments, Los Angeles.

A team of transportation officials, managers, and planners selected by the U.S. Department of Transportation and the Transportation Research Board attended the conference, then visited selected European cities to discuss automobile management measures with local public officials, and have now prepared a report on their findings.

Case Study Cities

Seven case studies were presented at the OECD conference containing extensive information on the design, implementation, and evaluation of traffic restraint measures in Uppsala, Sweden; Bologna, Italy; Singapore; Nagoya, Japan; Munich; Besancon, France; and Nottingham, England. In no instance were traffic restraint measures part of an ongoing transportation planning process. In each city, the introduction of traffic restraints marked a clear reflection of public policy that the use of the automobile in urban areas needed to be controlled.

The conditions by which automobile restraint measures were developed is an important aspect that is often overlooked in analyses of specific improvements. Yet these conditions should be at least reviewed since they often determine political feasibility for what are generally

considered unpopular measures. Those familiar with the U.S. experience know that most automobile restraints in the United States were designed as part of the transportation control strategies promulgated by the Environmental Protection Agency to abate air pollution. Thus, restraints were intended primarily to bring about cleaner air. In many instances cities were not able to develop adequate automobile restraints because the costs associated with such a program were too great in relation to achievement of the single goal: improving air quality. In most of the OECD case study cities, more comprehensive planning objectives were established; and benefits derived from implementing automobile restraints were measured in numerous terms, thus making the restraint strategies more politically acceptable and therefore more feasible to implement.

Uppsala

The purpose of the Uppsala program was to restore the factor of the human scale as the primary planning factor, thereby preserving the old city pattern and environment while attaining acceptable levels of accessibility. Automobile restraints were an essential strategy of the overall development program. The complete traffic reorganization scheme was implemented and evaluated in successive phases and has been in operation for more than 2 years. In spite of some obvious difficulties for some branches of economic activity, e.g., retail trade, as well as for some automobile users, the overwhelming public opinion and all political parties are strongly in favor of the reorganization scheme, which can now be looked upon (except for minor corrections) as a permanent feature.

Bologna

Bologna adopted a redevelopment program intended to further government policy of decentralization and restore regional equilibrium. However, the narrow streets of Bologna were unprepared to accept the rising flood of automobiles arising from the functions generally taken on by modern urban centers. Consequently, functions have been redistributed: Establishments compatible with the environment were assigned to the historic center, and a new line of development set up simultaneously to the north. Supplementing this redevelopment plan is the traffic control scheme. Certain partial concepts, such as prohibiting traffic from various areas, were extended to provide the basis for a more extensive traffic scheme, the main aim being to encourage public transport, make people more selective about using private cars, and preserve the urban environment to the greatest extent possible. The initial measures taken in 1968 (initiation of pedestrian areas) generated disagreement and opposition by local merchants; however, opposition did not last because in the meantime experience showed that automobile restraint measures brought significant economic advantages.

Singapore

Studies undertaken to guide land use and transportation planning in Singapore indicated that radical changes were necessary in transportation policies and attitudes relating to car ownership and usage. Consequently, an automobile control program was developed. The proposed strategy regarding automobile controls is to first establish a workable system of restraints and to gradually gain public acceptance with an initial scheme of restraints that is not too severe. Once established and accepted, subsequent tightening of restraints, if accomplished by upgrading public transport, will be readily accepted. Most programs are being currently implemented, but at this time have not been evaluated.

Nagoya

In the 1960s, when the public was attracted by the wide range of driving benefits, any policy calling for automobile restraint received little support. Transportation planning focused on the expansion of traffic capacity in urban areas, extended street mileage, and traffic signalization designed to accommodate greater traffic flow. However, this traffic strategy motivated by automobile demand had to clash in the 1970s with the mounting deterioration of the quality of urban living and the resulting public complaints on air pollution, noise, accidents, and other environmental troubles. Current transportation planning reflects this shift in policy and incorporates extensive traffic restraints as an essential element of the city's plan.

Munich

Ten years ago, widespread public criticism arose over controversial political decisions in favor of private transportation. This change in the public attitude has meant that existing restrictions on private traffic could more easily command public support. In spite of a new and complicated system of one-way streets, a pattern of traffic restrictions has been implemented with no negative results since car drivers adapted themselves in a short time to the new restraints. This strategy was implemented by the municipal traffic control authorities without difficulty.

Besancon

City growth led to the creation of peripheral residential districts and contributed to the increase in urban traffic, since the old city core has remained the business and shopping center where the inhabitants of the expanded city often came for shopping and other purposes. The center, which is reached by bridge, has parking spaces available. The pavements are very narrow, and major roadway improvements could not be carried out. At peak hours traffic conditions were particularly difficult. These conditions made travel by car slow, caused constant strife between pedestrians and motorists, and

threatened to ultimately choke the heart of the city, where the quality of life was seriously impaired by traffic dangers, noise, smells, and other pollution sources. The public adapted to implementation of traffic restraint measures, which were also supported openly by merchants. In fact, the phased scheduling of the program has been shortened at the request of local merchants, who want additional streets completely closed to the automobile.

Nottingham

The current transportation policy is designed to strike a balance among the environment, the pedestrian, public transport, the commercial vehicle, and the private car so that maximum freedom of movement is obtained. Priorities were established; safety, the environment, pedestrians, public transport development, and commercial needs were ranked above the use of the private automobile. Subsequently, an extensive set of traffic restraint and parking control measures were adopted as part of the city's transportation plan.

How Restraint Measures Were Used

Given the range of conditions that brought about adoption and implementation of traffic restraint measures, it is predictable that actual measures would vary from type of measure to intensity of its use. Measures range from the strategic location of parking facilities to the banning of automobiles in selected downtown areas. Also, the scale of the project varies from concentration on residential street intersections to major areawide projects, such as the 65-acre pedestrian area implemented in Bologna.

Automobile restraint measures implemented as part of the case studies are given in Table 1. The automobile restraint programs generally use 3 basic techniques: restriction of traffic in selected downtown business, shopping, and residential areas; parking control measures; and provision of priority treatment for buses. Programs in business areas were supplemented by provi-

sion of pedestrian-only areas and design of a goods movement delivery process. Other strategies seemed to reflect the more local needs of individual cities.

One observation becomes clear in reviewing the programs. Where land use controls are extensive, as in Sweden, efforts are placed on traffic strategies and on upgrading transit services. Zoning and similar plan enforcements are carried out by departments other than transportation engineering. However, where land use is not a dominant element of the planning program, traffic restraints seem to be supplemented with parking controls and other land-use-related strategies. There is an implication for automobile restraint planning in the United States. Most individuals see a strong need for incorporation of parking controls in order to develop effective automobile restraints. The European experience has shown that there is another alternative: strengthening of the local land use planning process.

The presentation of material in the OECD conference proceedings contains many statements regarding implementation of automobile restraint measures. The following few points, however, are emphasized throughout many of the case studies and should be considered in the design of automobile restraints in the United States.

1. The psychological resistance of automobile drivers to leaving their cars at home and using public transport to go to work appears to be much lower than cited in publications.
2. Implementation of programs is easier if merchants in the affected area are included from the outset in the design of automobile restraint measures.
3. The design of any automobile-free system must be planned in conjunction with the urban goods delivery process. In the design of the goods delivery process, attention should be given to possible restraint on the use of trucks.
4. Successful implementation of automobile restraints is dependent on significant improvements in transit levels of service. In all case studies the travel time of buses was improved dramatically, and in some instances reduced fares or non-fare programs were provided.

Table 1. Automobile-restraint measures implemented in OECD case study cities.

Measure	Nottingham	Besancon	Munich	Nagoya	Singapore	Bologna	Uppsala
Pedestrian area		●	●	●		●	●
Parking controls	●	●	●	●		●	●
Park-and-ride lots		●		●		●	
Bus service improvement	●				●	●	
Bus priority lane	●	●	●	●		●	●
Residential street restrictions	●	●	●	●		●	
Ban on through traffic				●	●		
Provision of ring road		●		●			
Signalization	●			●		●	
Land use controls				●	●		
Automobile ownership restraints					●		
Staggered work hours				●	●		
Goods movement plans		●	●	●			●
Bikeways				●			●

A supplemental TRB program offered U.S. planners the opportunity to further discuss case studies with local officials and planners. This program consisted of 3 teams who visited England, Sweden, and Germany. Each team conducted extensive interviews of local planners and reported to TRB on the transferability of the automobile restraint programs.

The range of observations regarding the OECD case studies proved valuable because it provides comprehensive information on developing a program to control the use of the automobile in urban areas. It is expected that during the next few years enough contributions to planning for the automobile will be accumulated to expand the information presented here in summary form.

Transportation Planning Process Implications

Incorporating automobile restraints into the U.S. transportation planning process has numerous implications. The objectives of the planning process must be carefully assessed, selected time frames emphasized, and additional institutional linkages created. The question "Why are we doing this?" must be repeated constantly because underlying motivations will determine the entire program design.

From information presented in the case studies, it became clear that many nations were advanced in the design and implementation of automobile restraint programs. Furthermore, many nations undertook extensive research on supporting measures such as land use controls and transit development and considered a range of impacts in evaluating implemented measures.

During the site visit to Sweden much of the dialog between the U.S. team and local planners focused on subject areas where exchange of information would be valuable. These subject areas are described briefly below.

1. The effect of transit fares on automobile ownership is being studied. Stockholm metropolitan area has a monthly transit pass that can be used for bus, rail rapid, or commuter rail service. This type of coordinated fare structure could likely be used in U.S. urban areas, where many technological systems compete for patronage.
2. Planners are considering construction of a circumferential transit guideway around the Stockholm urban area. Although this option has generally been considered impractical for U.S. areas because of low patronage forecasts, monitoring of the Swedish experience may indicate that transit is in fact a viable alternative.
3. Sweden is currently implementing a government policy of growth decentralization, and transportation is one public service to effect this policy. U.S. planners should monitor progress on this program to assess how land use controls and provision of transportation services were combined to implement the national growth policy. In addition, the feedback implications of

planned decentralization on the transportation sector should be assessed.

4. Swedish researchers have initiated an extensive program on energy issues. The effect of institutional arrangements on the use of energy is being studied, as is the impact of energy consumption on land use planning. A more narrow focus is applied to goods movement where the energy requirements related to goods movement modes and facilities are being assessed. All of these projects would provide valuable information to U.S. planners.

Transferability of Specific Projects

All of the U.S. participants in the OECD conference felt that many of the measures could be transferred to the U.S. urban areas. As mentioned before, the need for local selectivity of measures was stressed, and some participants expressed reservations about selected measures. One delegate expressed the opinion that he felt that the United States was not ready for banning the automobile in downtown areas. Another delegate pointed out that in low-density areas, where less than 10 percent daily person work trips are oriented to the downtown, energy conservation would not be significant even with modal splits of 40 percent or higher.

In general, however, the attitude toward transferability of projects was supportive, and the following projects were singled out for serious consideration as measures that could be implemented within a short time frame:

1. Provision of priority treatment for buses through techniques such as priority lanes, priority signal systems, short reserved bus lanes to enable transit vehicles to jump queues, and automobile-free bus transfer intersections;
2. More extensive and innovative use of metering schemes to distribute traffic queues more efficiently;
3. Traffic bypass and cell schemes to reduce through traffic; and
4. Comprehensive parking policies to efficiently manage existing spaces and control provision of additional parking.

Additional programs such as automobile-free areas and pricing mechanisms to reduce usage of the automobile should be evaluated further before a broad recommendation for transferability can be made.

Conclusion

The OECD conference and test sites were valuable insofar as they provided a catalyst for the formation of a new TRB Task Force on Transportation Systems Resource Management to serve as a common, continual information clearinghouse. The task force will conduct workshops and issue periodic updates on the state of the art in planning for the automobile in urban areas.