

WHY URBAN EXPRESSWAYS

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Introduction

Mr. Wildred Owen, of the Brookings Institution, in a recent address at the 1953 Annual Meeting of the ARBA in Boston drew an analogy between the *traffic congestion* in our cities, and a "whodunit" 20th century mystery. He said:

"It is a *mystery* because the last few decades in which the *strangling* has occurred, have brought more revolutionary developments in transportation than all previous history. We gave up the horse and the cabel car for the blessings of internal combustion, and what has happened? Despite our new found ability to solve our transportation problems, we are confronted, paradoxically, with a problem in transportation more baffling than we have ever faced before."

"The *strangling* of the city takes place under circumstances generally familiar to 'whodunit' fans. The *violence* occurs in broad daylight, at the peak of the rush hour. As to *what took place*, there are nearly as many versions as there are witnesses. And although at first it may seem perfectly obvious *who is guilty*, after the experts get through testifying it is anything but obvious."

"Contrary to the run of the mill mystery story, the *case of the strangled city* introduces a victim who is neither young nor beautiful. As a matter of fact she is old, and in many respects ugly. But no one could say that the American City does not have high standing in the community. Without strong cities we would certainly be a weak nation."

The importance of the city and its urban surroundings lies in the fact that most of us live and work there. Our cities produce three-fourths of the nation's income, and over one-half of all the traffic on the nation's highways.

Traffic Congestion

The need for increased capacity and modernization of our urban highway system is recognized equally by the average urban area dweller and the highway engineer. They are familiar with both the continued increase in motor vehicles, and the results in travel delays, the growing number of accidents, and the economic loss due to this traffic congestion.

The principal cause of this congestion is our failure to keep traffic facilities up with the phenomenal growth in highway transportation. The Brookings Institute recently pointed out that highway transportation is now the greatest single combination of economic activity in man's history. Investment by the public in highway transportation this year will total approximately 40 billion dollars, of which 90% *roughly is for movement*, and only 10% *for road bed*. The rolling stock for this system consists of 52 million passenger cars, trucks and buses. Nineteen million vehicles have been added since World War II, with the result that we have more vehicles on our roads and streets than the most optimistic forecasters of only a few years ago said we would have by 1960. Travel over our 3 million miles of rural roads, and some 300 thousand miles of city streets reached in 1951 the almost inconceivable figure of one-half trillion miles, and approximately half of that terrific mileage moves over our city streets. On an average day in this country some 42 million people ride to and from work in automobiles, or for shopping, in connection with their jobs, or in farming activities. In addition some 17 million people use their cars for social and recreational

travel. This traffic concentrates on a relatively small mileage of highways and streets—86% of rural travel occurring on less than a fourth of our rural road mileage.

One of the principal obstacles to development of safe, high-speed metropolitan area roads has been unrestricted commercial development along the roadsides, and the unlimited access to these highways. An expressway type of highway, whereby access is limited and controlled is the obvious answer to this trouble.

Federal highway acts of a generation ago, as well as many State Highway enactments prohibited the expenditure of federal and state funds for the improvement of highways within cities.

This early preference in favor of rural roads was not unreasonable because of the sad condition of the county roads. But now the situation is reversed, and the greatest obstacles to the free flow of traffic are the congested roads, streets and intersections in the urban districts.

A central district to maintain or retain a dominant position in a region of expanding population must seek; (1) to preserve and improve its character and function as a metropolitan mart and exchange, where anything and everything can be found in shops, in business, and in financial and professional services, and (2) must seek comfortable and convenient transportation to make the central part of the city easily and quickly accessible to outlying parts of the metropolitan region, as well as to inhabitants of the parent community.

This traffic congestion today in metropolitan areas has reached such proportion as to create a near paralysis in retail business sectors of our large cities. This congested traffic is not an asset to a central shopping district, or to other traffic terminals, such as public and office buildings or industrial plants. The clogging of thoroughfares and the resulting inconvenience and delays attached thereto, have driven away trade that might have normally patronized the area.

The combination of traffic congestion and lack of adequate and close by parking facilities has started a trend of decentralization from downtown business districts into neighborhood shopping centers, and the movement of many small industries to the suburbs, where ample parking can be had. As a result of this decentralization, central business district realty values are slumping, with the resultant drop in taxes at the very time that the costs of municipal services are soaring. Another effect of the traffic congestion in our downtown streets is its contribution to the terrible toll of traffic accidents.

The full freeway type of design—a divided lane highway with separated roadways at all intersections, and with no access from private property—is proving to be the best solution yet devised for the growing problem of handling heavy concentrations of motor vehicles with maximum speed and safety.

Accelerating and decelerating lanes and ramps provide for the transfer of expressway traffic from and to city streets without interference with the through traffic.

Major routes in metropolitan centers are hopelessly inadequate for today's heavy concentration of travel. Closely related to this lack of city roadway or street capacity, is the growing shortage of off-street parking facilities. Only a few cities have undertaken large scale and vigorous progress to meet this problem. Parking is peculiarly a local responsibility, but it is of major consequence to the usefulness and economy of our urban highway transportation system.

After the above generalities, let's get back to our subject. Will a properly designed system of expressways plus adequate terminal parking bring permanent relief to this urban traffic congestion? It is our belief that they will. Why? Because they are designed for that very purpose.

Expressways are divided arterial highways, with not less than four lanes, with access controlled, and with grade separations at intersections. Access is controlled by providing entrance and exit ramps, from and to, surface streets at strategic

points. The daily capacity of 4 lane freeways varies from 36,000 to 48,000 VPD, depending on the percentage of commercial vehicles.

Within the limits of their designed capacity, expressways relieve congestion permanently because they eliminate the *specific* and *known* causes of congestion, for example:

- (a) We know that every time you stop traffic you congest traffic. Stop enough vehicles often enough and you have bad traffic congestion. *It is not necessary to stop on expressways.*
- (b) Street crossings at grade stop traffic, and they stop a lot of traffic. The expressways are deliberately designed so as *not to have crossings at grade.*
- (c) Parked vehicles on ordinary streets are a factor in congestion. Their presence represents a hazard to the moving traffic which affects the smooth operation of that moving traffic. Their presence there also takes up space in the streets which should be available for moving traffic. *There are no parked vehicles on expressways which are designed to eliminate parked vehicles.*
- (d) Pedestrians on the normal street congest traffic. When they cross the streets they represent a hazard both to themselves and to the moving vehicles, for one never really knows when or where pedestrians are going to cross the streets. *Pedestrians are not present on expressways.* They are deliberately eliminated therefrom.
- (e) The left turning of vehicles across lanes where the lanes should be occupied by vehicles moving in the other direction. This left turning of vehicles is a maneuver that causes traffic congestion. *On expressways there are no such left turns across adverse traffic lanes. Expressways are designed to avoid such conditions.*
- (f) The stopping of vehicles before abutting property, and the emergency of vehicles from the curb after stopping at abutting property is a cause of congestion. *The expressway is designed to eliminate access to abutting property.* It thus *obviates* the necessity for stopping and another cause of traffic congestion is eliminated.
- (g) The entrance of traffic into a normal street or highway is a cause of congestion. On an expressway these entrances or exits *are carefully controlled and designed* so as to permit the entering, or leaving, vehicle to accomplish its purpose with a minimum of obstruction to the expressway traffic.

By the elimination of all these causes of traffic congestion, one four-lane expressway will carry with convenience as much traffic as *five ordinary streets 40-feet wide* on which there is no parking permitted, or will carry as much traffic as *eight streets 44-feet wide* on which parking is permitted.

Traffic *moves* on an expressway because *expressways are designed* for that purpose. *Traffic is there because it wants to move*, and the expressway affords it facilities to do what it wants to do in an orderly stream, freed from all hindrances and obstructions, therefore, an expressway remains a permanent solution of congestion troubles within its designed capacity for its full length.

Second only to the problems of traffic congestion and closely related to it, is that problem of obtaining adequate terminals, or off-street parking facilities, for the traffic after it leaves the expressway, at the points provided therefor, which are nearest to the traffic's destination. This parking problem is so serious, and of

such a nature, that action of some sort in its solution is required to allow full value to be taken in the use of expressways in relieving traffic movements.

To properly discuss this serious parking problem would require more time than is available here. I will only point out that this parking problem is a dual one, namely, *one*, to take care of the short-time parker such as shoppers, visitors to offices, etc., on one hand, and *two*, the all-day parker on the other. The distinction between short and long-time parking naturally has a bearing on the respective locations of the necessary facilities to handle them, and also in the cost thereof. Proper services for short-time parkers, generally needs to be close to their destination. All-day parkers can be expected to utilize facilities, which, while not quite as convenient, might be made available at lesser costs.

The parking problem must be faced if the central business district is to survive, and if excessive and illogical decentralization is to be combated. The parking plan should be a corollary for an overall business district plan, for after all, *business and buying* are done by pedestrians.

We in Kentucky have just begun to get into the matter of the construction of freeways and there is one other pertinent factor or subject which is tied in with the construction of expressways which I would like to touch on. This is the matter of right-of-way cost and the effect on abutting and contiguous land values when expressways are constructed.

The California Highway, Right-of-Way Department, is now carrying on a research project of that kind. On their first limited access parkway, the Arroyo Seco, which was opened to traffic January 1, 1941, most of the alignment passes through park lands of the City of Los Angeles, South Pasadena and Pasadena, however, a limited section is abutted by private lands. We are informed that the market value of these parcels of land are in general from three to twelve times more today than was their market value in January, 1941.

Having decided that urban expressways plus adequate parking will do the job, how about the *big obstacle* — *Finance*.

Financing

The average motorist drives his car a little less than 10,000 miles per year and although he is of the opinion, and makes himself very clear on this issue, that he is taxed to the hilt for roads, in reality he only spends about *one-tenth of his motor transportation dollar for a road* over which his car is to operate.

In general, the motorist will spend *more* for providing insurance and liability coverage on his car than he puts into highway construction and maintenance costs. There is much evidence that many persons think that if they go to the expense of buying and operating a car that it should be up to someone *else* to supply him with a modern high type pavement on which to operate.

It has been demonstrated through the operation of modern toll roads that he *is willing* to pay many more times the rate that he pays in motor user taxation, but in another form, for the privilege of travelling over a modern luxury type express highway.

A review of the principles of public credit as applied to highways indicate that bond issue financing can be used advantageously to accelerate the road improvement program, particularly in the construction of expressways, large structures, and other primary improvements.

The interest cost of a bond issue is justified by the advantages derived from the *use of funds for construction now* rather than at a future time as they would accumulate for normal user revenues. These advantages are derived in the form of added savings accruing to highway users because of the earlier completion of the improvements, and in the eliminations of the cost of stop-gap improvements that would be necessary under a long-term current revenue program.

Credit, which is the power to borrow money, permits the current use of *future*

assets. It plays an important part in every day life. Business uses credit to finance capital improvements. Individuals borrow to purchase homes and for other major outlays and to meet emergencies. Installment credit is used to finance the purchase of automobiles, household appliances, television sets, etc. For government, no less than for individuals, credit is a useful tool—witness our own State's public building program.

The circumstances under which it is prudent for a government to incur debt do not differ greatly from those under which it is proper for an individual or a corporation to borrow money. To a government wishing to borrow money, the advantages of money in hand, rather than in prospect are seldom in the form of anticipated profits, although they often have to do with the operations of public enterprises. The advantages exist, none the less, and they are the only reason why a government should float a loan and pay interest on it. Sometimes the advantages anticipate *great and lasting benefits* to the community. Highway bond issues for important projects belong in this category.

Urban expressway systems, to make them economically sound, should provide service to the principal sources of tax revenue for the city, namely the Central Business District and the various industrial areas. These commercial and industrial areas not only furnish the major tax receipts, but also generate the bulk of passenger and truck traffic in the city. Providing adequate highways for these areas also provides convenient access to the same areas for customers of retail stores, workers in the office buildings and for employees of the manufacturing plants.

It takes a lot of doing to convert a sound concept of an expressway system into an actuality. Civic groups and officials, merchants, industrialists, professional men, *and* displaced, or affected owners of property taken for right-of-way, all are sensitive to changes. In addition to important problems that affect them seriously, they have conflicting and sometimes selfish individual or group interests. As self-appointed authorities on freeway location and traffic, some have their own ideas which may be greatly different from yours.

Many municipalities and states are turning to some form of revenue bonds, which will finance these expensive projects by their users and allow their advantages to be realized promptly by the traffic utilizing them. The direct costs and the corresponding savings in vehicle operating costs on the proposed expressways may be computed with a reasonable degree of reliability. There are also a number of intangible benefits that should be taken into consideration, upon which it is difficult to place a definite money value, such as:

1. Shorter time of travel between residential area and places of business.
2. Removal of blighting effect caused by the ever-increasing traffic congestion in downtown areas, which, if not halted will tend to uproot established business, causing a radical depreciation in downtown property values and the taxes therefrom.
3. Enhancement of residential property values in midtown and fringe areas by shortening the time and distance to downtown.
4. Improvement of the efficiency of mass transportation facilities with their use of expressways, resulting in real time savings because of the absence of grade intersections, and as a result in the greater use of mass transportation to the relief of surface street traffic.
5. Relief of traffic congestion on city streets by both the withdrawal of vehicles from these streets that have the same general direction as the proposed expressways, and also the elimination of a number of the grade intersections and turning movements affecting thousands of trips per day.

6. Providing light and air space in congested districts.
7. Reduction of traffic accident causes, by eliminating such accidents as pedestrian, intersection, head-on collisions, side-swipe, parked car accidents, etc.
8. Restoration of the local streets to their proper use will enhance the value of all property in the city.

Conclusions and Summary

At a recent meeting of the Highway Finance Committee of the American Association of State Highway Officials it was concluded that credit financing for some elements of highway construction was becoming imperative, and that when made for needed improvements they were an investment if the public saved money thereby.

We have become a great motoring public. In most of our cities motorists have clearly demonstrated that they have little, if any, desire to shop or otherwise transact their business unless they can transport themselves to and from the site of such transactions in their own motor cars.

The suburban stores, with reasonably large parking spaces continue to attract more and more customers, and the centers of business activities are moving from down-town to the outskirts of our cities. The breakdown of our tax values in these central business districts has already begun.

In the face of a rising demand for every type of service and the abnormal rise in population in our metropolitan areas, the loss of any source of revenue is a tragedy for the American City today. The two apparent causes behind our declining tax values in the central business districts are:

1. The lack of ready access to the central area, caused by cross movements of traffic blocking the intersections which delays traffic painfully and irritatingly and

2. The lack of adequate parking space within a reasonable distance of the shopping and business districts. The charge for this parking space does not seem to matter as both parking meter space and off-street parking is always in demand, and the congestion in the middle of the day is often caused by motorists circling around to try and find available space.

The construction of adequate facilities will become mandatory as time goes on. Conservative estimates of one to two cents per minute for passenger cars time and five cents per minute for every delay encountered by trucks in the delivery of merchandise from the shopping centers are awakening a demand that something be done about the situation.

Quoting again from Wilfred Owen:

"The motorist is aware of the urban trap. In the city the speed and flexibility and comfort of his automobile are *empty words in a magazine ad*. At the peak hours of the day the average vehicle must stop $1\frac{1}{4}$ times per minute, and about 50 per cent of the total traffic time is spent motionless. Average speed of the auto is 9 miles per hour. Then when the motorist wants to park he finds that stopping is just as difficult as moving.

"*City governments* have seen the handwriting for a long time. The escapees from gasoline fumes and congestion find refuge in the suburbs, beyond the taxing jurisdiction of the municipality. The areas of blight they leave behind are too poor to support themselves, let alone raise the capital requirements necessary to keep open the avenues of escape.

"Down-town property owners and merchants bemoan the trek to the suburbs as the inaccessibility of the urban center becomes more of an obstacle to doing business; and in many areas declining property values chart the movement toward

the periphery, where more room is available, to repeat the errors committed in the down-town area."

Unending traffic jams and driver discomfort are gradually awakening motorists to the need for the limited access highway to the central business district and the provision for adequate off-street parking. With this awakening will come the realization that he, the motorist, *has already paid* a substantial part of the bill in lost time, but that he has none of the improvements. Meantime, if he is a property owner, he may be faced with higher taxes on his home and other property to make up the deficit caused by depreciating values in the congested central business district.