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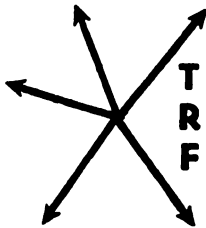
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TRANSPORTATION RESEARCH FORUM

EACH URBAN AREA finds its own brand of transit funding solutions, and in many cases this means taking short-term pragmatic actions until a major break-through can be made. This paper is a discussion of current practices and results in developing urban public transportation programs from the perspective of meeting the financing issues. The planning process is a continually changing one; it presently is focused on attempts to deal at the local level with the uncertain opportunities for Federal financial support, new interest in transit by many of the states, and shifting local priorities in the budgeting of public expenditures. It also is effected by the new energy shortages, and other current events including much greater public involvement in searching for alternative solutions.

THE UNCERTAINTY OF FEDERAL FUNDS

It has become unnecessary to guess about the prospects for private enterprise funds to support transit programs, but it is crystal clear for most medium and large cities that we do not know how much and what kind of public funds are going to be available from federal sources, and a number of state programs are equally unclear. The problem is made more difficult by inflation, partly because construction costs and transit labor costs are rising faster than average prices and partly because federal appropriations are based on yesterday's dollar, not today's, tomorrow's or next year's dollar.

Federal funds are the key to most local actions, although a few exceptions exist either because of greatly increased support of a few state governments or from purely local initiative. Federal financial aid has grown rapidly in the past decade, but Federal aid for many kinds of transit projects is an uncertain thing: at this writing, there are ample capital funds for bus system improvements of moderate scale, but subsidy funds for excess operating costs and fare reductions are not available at all; capital funds for major programs are becoming short and severe restrictions may be imposed upon cities which want to begin new rapid transit programs.

Capital funds are now in short supply partly because the administration is withholding transportation funds wherever it can as one device in attempts to restrain inflation. At the same time, the demand for funds is growing rapidly in many cities after years of only talking about transit improvements. It probably will exceed \$2 billion annually in the near future, but the administration is not seeking this much money. The

growth in demand will be stimulated by disillusionment with highway programs and concerns for air pollution and energy shortages, and it will be exaggerated, in a sense, by the practice of assuming continuing inflation of 10 percent or so per year. The Administration's proposal for pooling many highway and transit capital funds and permitting use of funds for operating subsidies (The Urban Transportation Assistance Program bill) is one step toward more balanced programs but the transit industry sees the proposal as an inadequate level of funding, even without specific reference to the problems caused by construction cost inflation. Further, the difficulty of devising a formula at the national level which is equitable for all of the diverse cities — and transit needs are more diverse than most national programs for cities — seems insurmountable. UMTA's plans at this writing for allocating the new funds among the urban areas are not satisfactory to many people, especially in the larger urban areas, and amendments to the proposal are likely. The UMTA concept of leaving much of the allocation responsibility to state governments is useful, but the problems that this will give states like California are not insignificant. How would California allocate between, say, Riverside County and San Francisco?

Nevertheless, State governments have begun to show more interest in financial aid programs for their cities, but the pattern of response is irregular; each state is an individual case. Generally the older and more urbanized states of the Northeast have been providing aid for sometime. Maryland, Massachusetts and Michigan are examples of those now providing strong leadership and support and, interestingly, these three states were recognized leaders in state highway programs in the 1930's. In the younger urbanized areas of the South and West, there has been little need, but that is changing. Florida and California are examples of those who have taken a very aggressive transit support position and have stressed the use of selected highway funds for transit. Many rural states with large urban areas, such as Texas, are not yet willing to provide state financial aid.

Not all states which have aid programs feel certain as to what they should be doing in the near future, or how they should do it. Missouri has a temporary two-year aid program, Michigan is undertaking a year-long study to appraise transit needs and define financial options, and California feels there are many unanswered questions as to how best to meet the long-term needs

Technical Analysis and Political Actions

by Robert A. Keith*

of the large cities and whether there really will be reasonable benefits accruing from their aid programs for the less urbanized counties and medium-size cities. One new problem facing the states is shrinking gasoline tax receipts earmarked for the highway program because of the energy shortage. While some states are accepting a reduction in urban highway activities, most are not and highway financial needs may be competing with transit needs in a way not previously anticipated.

In summary, State legislation provides a firm basis for developing programs in some areas, a partial and uncertain basis in others, and very little basis in many.

Lastly in this process of estimating the financial sources which might be available are the local urban areas themselves. Most often planning for program development begins with no existing local financial sources. The task is, on the one hand, to conduct technical analysis of needs and the physical or policy alternatives to meeting them and, on the other hand, to consider short- and long-term financing possibilities in a political-public-technical process. The results of these efforts usually lead to a local election, and there is no easy way to estimate the way the public will vote. The case of Ann Arbor's recent willingness to impose a local property tax to develop by itself a new community-oriented transit system, centered upon the nation's most extensive dial-a-bus system yet proposed, is one of the surprises. Denver's successful election to support a loosely-defined regional transit system proposal is another surprise.

There is a fair amount of evidence from local opinion surveys and other measuring devices which suggests a strong latent willingness to provide better transit in many newer communities and the suburban areas of older cities. It may come from a subtle feeling that air pollution and energy problems need to be addressed through a better balance in highway and transit services, regardless of cost, even if most individuals would not expect to use an improved transit system. A combination of circumstances has caused transit to be ineffective in many communities, and it will take a combination of circumstances to turn it around. We may be on the edge of a major change in urban travel habits,

but it will come slowly and will be costly. Whether or not the costs can be made as palatable and/or disguised as well as highway costs remains to be seen.

CURRENT PLANNING PROCEDURES

The transit planning process is shifting and adjusting to changing conditions and from new demands of the public. It is still concerned with the long-range picture, but is much more short-range oriented. It deals more with priorities and cost-effectiveness among many projects, but at the same time it responds pragmatically to opportunities, often temporary ones, which are emerging from shifting federal and state policies. It attempts to rationalize the share of resources which ought to go to large-scale regional facilities and that which ought to go to local community-oriented, social services. It is often directed toward finding a foothold for establishing a new program rather than solving the whole problem.

Many reasons have led to this posture. One of the more important is the difficulty of obtaining local approval for a major new funding program; this in turn is often related to the uncertainties of state aid and more recently of federal aid. Another important reason is the increased involvement of the public with the technician; this has led to new questions about differing objectives of different segments of the community, the portion of the peak hour problem which a city ought to try to solve, and the like.

There is more time spent now on developing information for citizen steering committees and public policy committees on the pro's and con's of alternative levels of transit improvements and levels of financing and, in turn, on alternative sources of funding. Most important, we attempt to develop preliminary data on these needs and financing matters at the earliest possible time and pass them on to the citizen and policy committees. In this way we carry on a productive dialogue about the real issues in the early months of the study rather than near the end of the work, and attempt to receive maximum input from the creative talent that exists in the community.

Changes in Studying Needs

The needs studies now give more attention to searching for opportunities for low capital cost improvements and

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non-capital intensive projects, partly because funds are going to be in short supply and partly because there are useful improvements to be achieved from better management of existing facilities — for example, better traffic control and preferential treatment for buses. It can be difficult to maintain the interest of citizens in serving on committees when lower cost, less exotic alternatives are emphasized, but it is clearly necessary to learn to live with some restraints. In addition to high and low capital cost projects, the scale of the transportation problem is large cities, if not the energy problem, is going to require the application of transit incentives that are policy and administratively oriented, including carpooling, priority use of certain street lanes by buses, and the like. These concern peak-hour solutions, which are important, but the needs work also must include definition of the possibilities for neighborhood mobility improvements, especially but not solely for transit dependent residents. There is growing interest in exploring jitneys, dial-a-bus and other variations from conventional bus service, and questions of better sidewalks, bicycle paths, taxi subsidies and the like must also be addressed if local desires are to be considered along with regional needs.

It is necessary to estimate just how effective — in terms of traffic relief, general mobility and meeting regional goals — a low capital cost approach could be in the short run and the long run as compared with a high capital cost approach. Is the low cost approach acceptable initially as a means of deferring the financing of the high cost elements? The low cost approach probably depends upon changes in institutional policies and priorities; therefore, is it politically and technically practicable to advocate it? Of course, it is extremely difficult to estimate the degree to which institutional changes might make low cost approaches more feasible — for example, if buses could have all the priority of freeway and streets that transit people might ask for, enormous short run transit benefits might result, but the overall effect on transportation service might not be advantageous. These points need to be understood by committee members early in the study period.

Discussing Finance Alternatives

At the same time, the committees discuss funding possibilities. This begins with a great deal of education on current federal and state programs and a presentation on what other cities have done. This process, running in parallel with committee discussions based on the preliminary transit "needs" information

mentioned above, leads to initial searches for a local financing approach. We attempt to have the public committee members take the initiative on the local financing search, but it can only begin when the members come to the realization that they should anticipate the probability of arriving at solutions which may be unique or substantially different from what others have done. They must be prepared to act with confidence that there is no set formula which others have used.

At this point we become more of a sounding board for them to refine their ideas and to be certain that serious errors are avoided. A fairly standard list of factors must be recognized in developing a financing plan, such as the following:

- Potential yield
- Constitutionality
- Potential public acceptance
- Potential political acceptance
- Geographic limits
- Equitability
- Availability
- Collection cost
- Effect on transit use

The End Product

The end result of the joint needs — and — financing study, when fully reflecting all quantitative and qualitative factors of importance to the region, is a plan which is the preferred local approach to transit. A difficult point to make with those who have not participated in this kind of two-way dialogue is that the process does not necessarily produce so much the "best" plan in the usual quantitative sense as it may produce the most acceptable and most implementable plan among several technically and operationally effective alternatives. Most important, it is tailored to fit what the local government and local citizens feel they want to make of their city at this point in the life of the city.

Federal Allocation Difficulties

Because different cities are at different stages of their development, their objectives are different. It can mean similar levels of cost for different sized cities, i.e., the same amount of transportation would be provided but would be used by different amounts of riders.

For example, on the one hand, Pittsburgh and Baltimore are older, more dense cities which are now trying to provide the rapid transit service which they probably would have developed years ago if there had not been such preoccupation with highway construction and a near absence of sympathy for public transportation. On the other hand, Miami and Houston are younger cities

which are concerned with developing rapid transit now so that future urban development will be more integrated with transit services. They want to avoid the problems of mobility now facing the Pittsburghs and Baltimores. It is quite likely that the aggressive, younger cities will often seem to want a program which is more costly on a per capita or per mile of travel basis than older cities.

The differences among cities compound the problem for a national government seeking a simple, generalized formula for allocating its limited resources fairly among all cities. Assigning the allocation responsibility for a certain portion of federal funds to the state does alleviate to a degree this aspect of the problem because cities within a state are more similar than all the U.S. cities, but it does not go very far. This predicament has led us to thinking of a federal allocation approach for transit which resembles the approach to the federal interstate highway program.

Specifically, the plans of all cities would be reviewed in an independent way and an adjusted plan produced which would become the Federal Aid Transit Plan. It would often be at odds with the local plan which has been jointly arrived at to obtain local consensus and to better assure its implementation. The local plan would not be viewed as wrong in any way but simply something which is different from what reasonable national standards can afford to support. The Federal Aid Plan would probably omit, for example, those features which sometimes are added to give the people in each sector the feeling that they were receiving the same kind of improvement as everyone else — i.e., if some corridors need rail rapid transit, every corridor will receive rail rapid transit. Costs for elements beyond that plan would be met at the local-state level. The Federal Aid Transit Plan would be much more of a technically-pure solution, based upon criteria and objectives which would need to be defined but which would not be so narrow as to lead to decisions based on a narrow cost-benefit analysis.

This allocation approach would not please everyone, but to date there have been no other proposals which have been acceptable and perhaps this concept will suggest a better procedure than currently is in effect. It would let cities know where they stand with the federal program and provide a basis for programming which does not now exist.

RESULTS FROM CURRENT STUDIES

Three large city transit planning projects in which we have been involved this past year are referenced briefly to

demonstrate certain new ideas. Los Angeles is adding new emphasis on bus improvements while continuing to seek approval for a start on rapid transit, Cleveland is advocating the need for more neighborhood-sensitive local services while seeking rapid transit improvements, and an in-depth analysis of first year BART and East Bay bus service experience gives new insight to traveler desires.

New Los Angeles Approach

Proposals for a major Los Angeles transit development program which are still being refined at this writing feature an entirely new emphasis on regional express and local neighborhood bus service expansion, with the provision of fixed guideway facilities strongly recommended but the extent of construction being restrained to the level of federal capital assistance which can be obtained from time to time.

The bus expansion proposals have resulted from several factors: political and public demands for major service improvements now, as opposed to waiting into the 1980's for rapid transit; insistence that a share of the scarce transit resources be committed to local neighborhood and community responsive services; pressure for helping now with the air quality improvement program; and increasing interest by highway and traffic officials to give preferential treatment to buses on freeways and streets. The proposals which have been prepared do, for example, call for extensive development of bus priority on freeways and streets, and new services in communities on local streets.

A local sales tax of one percent, one-half for capital costs and one-half for operating cost support, (just as in Atlanta), is permitted under a state enabling law, subject to local approval, and is proposed as the most equitable and stable source with a reasonably predictable yield. There are direct state aids available now — for example, the S.B. 325 funds which have been used to offset the bus operating losses for the past two years — and more state aid is possible through the proposed constitutional amendment — SCA 15 — to be voted on in June 1974. Together the sales tax and two state aids would mean about \$300 million per year in the 1980's.

The capital expenditures for private right-of-way transit are proposed to be programmed to match the availability of federal funds because the local/state funds, if voted, would be sufficient to match any likely level of federal capital aid. A series of operational feasible "building blocks" of rapid transit lines have been identified to guide the programming.

In this inflationary period, the sales tax is a desirable device because its yield moves upward with inflation and tends to offset rising program costs. However, if transit labor costs continue to rise faster than the rate of inflation (faster than the consumer price index), and if there continues to be pressure for and value from reduced fares, then additional local/state funds will probably be required in the 1980's to meet the rising amounts of operational subsidies. No specific plans have been developed for this future event due to the many uncertainties. Unmet subsidy costs might be allocated back to individual communities, perhaps in part, (1) in relation to requests for special service or benefits, as is now being experimented with; (2) through special assessments related to proximity to transit stations; or (3) other general tax methods. Then again federal funds could become sufficient to overcome these unmet operating costs, although there is no current basis for such an assumption. Further, the proposed Los Angeles bus service improvements will be substantially superior to today's service in terms of quantity and quality, and in the conventional market place would command a higher price. Energy costs might rise to a point where higher automobile usage costs would permit fares to be set higher and more equal to the costs of providing service.

Nevertheless, the conservative assumptions we have applied indicate that a five-to-ten-fold increase in operational subsidies is possible in less than a decade with perhaps only a two-to-three-fold increase in transit usage. This is the unhappy result which will occur in most any city given the assumption of rising costs and level fares.

Our analysis of alternative long-range solutions compares all-bus systems with rapid transit and demonstrates that the most capital-intensive, fixed guideway service that can be financed and built the lower will be the annual operating subsidy; over the life of a major capital-intensive system, the operating savings over a non-capital intensive system would exceed the investment costs, but if capital cannot be made available, it is an academic virtue.

Cleveland's Neighborhood Needs

Work in the past year in Cleveland was conducted in close collaboration with the public, and it reflected much of the same interest in local community mobility improvements as in Los Angeles. The Cleveland work was more concentrated upon the desire of transit dependent residents.

Through interviews, and subsequent analysis, it was found that among transit dependents the latent demand for

travel was at least equal to, and in some cases exceeded, the travel now being made, assuming reasonable changes in service and fares. The service changes needed were not more of the same, but rather new services tailored to the needs of each individual community.

The idea ultimately emerged of allocating a portion of the region's transit resources to individual areas, where a full time transit employee would work with the community in determining how to use those resources on a day-to-day basis. There could be special fixed-route shuttle service to medical centers and other travel generators at selected hours of the day or week, jitney type service in a corridor in some cases, demand-responsive service in other cases, etc.

Preliminary cost estimates indicated that an annual per capita cost of \$2 to \$3 would provide for the service which could effectively meet the latent demand and that allocation of this amount of money from the total transit budget was as important to many people as making rapid transit system improvements. It is a financing cost which needs to be considered if a total program is to be satisfactorily implemented.

Next Steps in San Francisco Bay Area

In contrast to Los Angeles' efforts to implement a major new program, the San Francisco area is in the following phase of seeking more effective service from the new BART investment and the pre-existing bus and commuter railroad services. For the past year, we have been working in the East Bay area analyzing the initial coordination results of AC Transit's buses and BART trains and helping those operating agencies and the Metropolitan Transportation Commission identify improvement opportunities.

One conclusion is that modest increases in transit operating support funds will produce modest increases in transit use, but that really large increases in transit use — of a level which could alter urban living patterns, contributing significantly to air quality improvements and the like — could only come about from a great deal of new transit money. This would call for a major change in the approach to local/state financial aid. We did not develop the latter point in any detail because the prime purpose of the analysis was to seek short-term improvements, not to make an analysis of new financial approaches. Nevertheless, it seems clear to us that it is a correct conclusion, one which is supported by the attitudes and desires of the public expressed in an in-depth marketing survey and the estimates we made of the cost and effective-

ness of various improvement possibilities.

One point not to be overlooked in considering major financial programs, however, is that the market, which used comprehensive behavioral and psychological study techniques, disclosed a community-wide attitude that the concept of the BART system has been very favorably received by users and non-users of BART service, and there was a strong opinion by the general public that good transit service is a necessary community institution. This positive attitude on BART is of more than usual interest because the survey was conducted after BART's train control problems were publicized. An additional point of passing interest is that BART users feel that transit saves them money on commuting trips while non-users feel that it could not save them money. In the main this is further evidence that most people do not understand the complete story on automobile mobility costs. However, one must be careful on this point because it is true that for certain people transit would not be cheaper.

Through a series of direct and indirect questions it was clear that reduced fares and more frequent bus service to stations were about the most important improvements which users and non-users of transit related to. However, reduced fares would be certain to increase operating losses and the cost-effectiveness studies on substantially improved frequencies for AC Transit buses showed it would be very expensive and one of the least effective ways of achieving modest to moderate ridership increases.

A closer look at the survey data showed contrasting views on fares under certain conditions and provided more specific ideas on service improvements than were desired. In many ways, the desires of the public were again shown (other studies have demonstrated this, too) to be in the direction of duplicating much of what the automobile has led people to expect: a great deal of trip-making flexibility and relatively reliable performance — leave when you want, arrive when you want, change plans in mid-trip. A very strong interest in dial-a-bus or similar demand responsive services was recorded, for example. These desired features would cost more than the conventional bus services but the survey showed that many respondents would be willing to pay more for a service which was more useful to them — one which was tailored more to their specific needs. This need to tailor services to different people's needs to achieve rider gains is similar to the Cleveland findings, but it can be expensive if a major effort is attempted.

What we cannot predict very well, unfortunately, is whether or not there is a way to produce a favorable "structural" change in travel behavior and choice of transit through lower costs and much better service. That is, if the fare were cheap enough, frequencies great enough, service flexible enough and a host of other incentives for transit and disincentives against the automobile were to be employed concurrently and for a long period of time; would there be a greater impact than we now estimate — would the cost-benefit picture look more favorable if a financing program were bold enough? Whether instead of attempting to increase transit modal choice from, say, 10 percent to 12 percent more or less by conventional finance approaches we should find ourselves contemplating an increase to, say, 25 percent by more extreme finance approaches.

The AC/BART studies did concentrate on short-range program improvements which could be implemented. The process was essentially one of searching for a wide-range of ideas, screening these down to the more likely candidates, and establishing priorities among them consistent with the relatively limited resource through cost analysis and rider-community impact estimates. One high priority item, for example, was improvement of bus travel speed in two ways: (1) along streets by means of low-cost traffic engineering, priorities for buses and the like, and (2) improvement of conditions at certain stations to give buses priority over automobiles bringing passengers to the BART trains. These simple bus travel improvements can provide meaningful service improvements, lower the operating costs and require little investment.

CONCLUSION

It will be of more than passing interest to look back in the 1980's and see if transit has been able to meet the opportunities which seem to be here now. It will depend in part upon the developments for urban automobile mobility, including how we react to the present frustrations of energy and air quality, and in part upon government financing programs for transit. If the automobile has reached a plateau in large cities, transit can be a partial mobility substitute, although both in terms of finances and technical performance it is not going to be a complete substitute. How much of a substitute it becomes depends upon the new levels of financing achieved.

Political and citizen support for increased transit funds will need to be an act of faith, or at least a feeling that the near total automobile reliance of the

past needs to be changed and that better transit is one of the few alternatives available.

Hopefully, transit programs will be increased before automobile mobility is limited or the results could be unpleasant, economically and socially. Then transit professionals will hopefully be

able to work with citizen and political leaders and steer these new funds in the right direction, applying the lessons now being learned such as attention to local mobility as well as regional mobility and the application of low cost and system management ideas as well as high cost improvements.