

LEGISLATIVE PERSPECTIVES ON THE STATE TRANSPORTATION PLANNING PROCESS AND TRANSIT PLANNING IN CALIFORNIA

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The state of California has created a multimodal Department of Transportation and has embarked on a major statewide transportation planning effort. Although the legislation gives much of the responsibility for planning to regional agencies in the major metropolitan areas, both the California Department of Transportation and the California legislature have important roles in the first iteration of a plan to be developed by 1976. This paper points out several concerns that the legislature may pursue in reviewing and guiding the planning process. These concerns deal with the issues of goal setting, decision making, and conflict resolution rather than with the technical details of planning. Four concerns about multimodal planning are examined in this paper: (a) planning for operations versus planning for facilities; (b) corridor versus local travel needs; (c) planning bases in technical expertise and analytical technique versus public openness and broad participation; and (d) programming versus master planning. Because transit planning has been largely absent from past state-level transportation concerns, several conceptual transit planning issues are raised in this paper as well. Examples from the recent Los Angeles planning experience illustrate legislative interest in staged decision-making and multimode transit solutions.

•IN 1972 the California legislature passed a bill that created the California Department of Transportation (CALTRANS) with multimodal responsibilities. The bill (Assembly Bill 69) gave significant powers to a State Transportation Board appointed by the governor and mandated a statewide transportation planning process that would revise regional transportation plans by early 1975 and create a state plan by January 1, 1976. The legislature became responsible for reviewing and setting goals for the planning process and instructed CALTRANS to recommend legislative changes that would improve transportation planning, financing, construction, and operations.

The author has been responsible for advising California legislators on issues relating to multimodal transportation planning, particularly transit planning, during much of the time since CALTRANS was created. This paper stems from presentations made to legislative committees during the past 2 years of planning and debate.

CALIFORNIA'S STATEWIDE TRANSPORTATION PLANNING PROCESS

In transportation planning at the state, regional, and local levels, the legislature's role in approving or modifying statewide transportation goals, objectives, and policies involves several issues. The planning process, initiated through the legislation that created CALTRANS, could substantially reorient the state's approach to transportation matters or leave it relatively untouched despite the change of a few organizational titles and the elaboration of a few financial allocation procedures.

Much of the goal formulation work of planners in the past has been so general that

it was virtually meaningless. If the purpose of transportation goal formulation is to find the lowest common denominator of agreement and thereby avoid controversy, it is not likely to be of much value. Transportation planning ought to be characterized by lively controversy among contesting perspectives, agencies, and modes. To guide the process of developing local, regional, and statewide programs for construction and operation of urban, rural, and interregional transport facilities, requires that the controversy be constructively channeled into the decision-making process. Thus, what is possible, and of significance, is a formulation of state and regional transportation goals and policies in a manner that influences the framework of contention and debate between competing interests so that it is publicly open, technically productive, flexibly responsive to changing problems and values, and decisive when decision is called for.

Failure of the present process of planning, designing, and constructing highways in California to meet these criteria in recent years has resulted in court suits, legislative deletions, public acrimony, and frequently stalemate without transportation improvement. Those who believe that major transit systems that are planned and implemented in the same way will escape controversy are mistaken. Recent occurrences in Minneapolis-St. Paul, Atlanta, and even the San Francisco Bay area are evidence that the honeymoon for major fixed-rail transit systems is already over as far as broad-scale local consensus is concerned. Simply making CALTRANS responsible for a new mode or modes of travel and providing the money to implement, plan, design, and construct such modes through the same agencies and procedures used by the highway mode will not solve the underlying conflicts troubling the transportation field in California and particularly its urban regions (1).

To overcome the increasingly divisive problems of project implementation and quality of service requires new procedures, new institutional relationships, and new perceptions of the purposes of transportation facilities. These might well become the focus of legislative interest when statewide goals, policies, and objectives are set that give direction to a revitalized transportation planning process in California. They may also attract attention from the incoming state administration as means to further alter the mission and approach of CALTRANS in dealing with broader environmental and social issues.

Rather than a static, long-term plan such as that set out by the 1959 freeway and expressway system legislation it would be better to set a framework of intergovernmental procedures, financial relationships, and service objectives and let specific facility plans evolve flexibly, mainly at the local and regional levels.

Much effort by CALTRANS has already gone into such an approach that emphasizes a decision-making process rather than a fixed plan, incremental choices rather than long-term commitments, and regional rather than state or local goals (2). Soon the legislature must determine whether this approach is desired and in keeping with the intent of AB 69 and other recent legislation in the areas of transit finance, highway deletions, and issues of regionalism. This approach has already raised conflicts with individuals and institutions accustomed to operating without either a strong regional influence or a multimodal perspective. It has also pointed up weaknesses in the capabilities of regional agencies to plan well or to allocate resources effectively under evolving directives of both state and federal agencies. These are serious concerns and need to be dealt with decisively by the legislative and executive branches of California government within the next year if a new planning process is to effectively overcome past weaknesses.

The following issues are not intended as specific recommendations but are raised for legislative consideration. They have emerged from the author's work with transportation planning issues in several California regions and reading and observation of such issues in Boston, Toronto, and London.

Operations Versus Facilities

The central issue is whether to continue to construct new facilities every time a transportation problem is perceived or to make a major shift toward a management or

operating focus and effectively use existing facilities. Certainly it would be an extreme position to hold that no new, capital-intensive facilities are needed in the long run for shaping and serving travel demand, but in the short run the issue is almost that stark. More effective operation of highways and transit systems could greatly improve mobility within California and its regions and reduce air pollution and energy consumption as well. Efforts such as priority bus lanes on freeways and city streets, specialized bus transit services that approximate the service characteristics of the automobile, and access and flow density limitations for automobiles on freeways and city streets have been successful elsewhere in the country. Innovative traffic and transit operations have also been implemented in California, but they are fragmented and viewed as experimental in nature. In other parts of the country and abroad they are increasingly being considered as coordinated and routine aspects of comprehensive transportation policies for urban areas.

The question of operations versus facilities, which is a question of emphasis, is important in the state and regional transportation planning process because it suggests that institutional and funding arrangements for the coordination and stimulus of integrated transit and highway operations might be a primary emphasis of legislative policy guidance for the overall process. If this guidance is forthcoming, financial incentives could be written into law that would ensure that regions and local agencies give strong consideration to the effectiveness of operations before launching major new facility projects and that these new facilities enhance the operating capabilities of the overall transportation system.

This does not seem to be the direction that most existing highway and transit agencies would follow if left on their own. It is the direction being strongly pushed by the federal agencies, particularly in the transit field. One agency in which this operating orientation figures prominently in the planning effort is the Metropolitan Transportation Commission in the San Francisco Bay area. The regional plan calls for setting up a transit council composed of all the transit operators in the region and a traffic council composed of a variety of highway, road, and street agencies such as the Division of Highways, Division of Bay Toll Crossings, and county and city road and traffic departments. However, little has been accomplished to bring these groups into existence. Little formal incentive exists to do so under existing planning and financing formulas and institutional relationships. Each agency would rather pursue its own interests in financing and constructing facilities. Without guidance in the California Transportation Plan, words rather than deeds may prevail for a long time in the field of transportation systems operations.

Corridor Versus Local Focus

Legislative guidance for highways specified in the 1959 act for the California freeway and expressway system (3) emphasized a state highway system connecting links and corridors between relatively distant points.

Aspects of AB 69 and its interpretation by the State Transportation Board suggest that the state should be concerned with the interconnections between regions and a statewide perspective of the plan. This is certainly a valuable state role, but not necessarily its predominant one. Perhaps concern for the quality and scope of local transit and street services in the form of minimum standards or variable standards related to population density or other regional or local characteristics should be considered as part of the legislature's responsibility in approving statewide transportation goals, objectives, and policies.

The emphasis of the freeway and expressway system, in places as diverse as Los Angeles and Lake Tahoe, has often been on local movement rather than on interregional travel. The local movement system of Los Angeles has been funded largely by the state and federal governments in the guise of interregional or Interstate facilities. In the past at Lake Tahoe, proposals for major new highway investments to serve local development ambitions and local travel requirements have been aimed at state and federal funds allocated through the freeway and expressway designation of basin

routes, which are specified to be of statewide importance. If state funds are to be used for local purposes, that fact ought to be clear, and the sharing formulas, facility designs, and final transportation services made appropriate to the problems being addressed locally.

Research has pointed out many of the problems created by state emphasis on large-scale corridor projects and an insensitivity to or ignorance of the local conflicts they generated (4). Similar emphasis by the state on transit corridors and large-scale systems may also put that program almost exclusively in the hands and interests of land developers and chambers of commerce, as has happened until very recently with the freeway and expressway system routes. Concern for local levels of transit service to the poor, elderly, young, or handicapped, for example, might be as important to the state legislature as regional, long-distance transit accessibility for white-collar workers in downtowns.

Technique Versus Openness

Transportation planning at the systems or regional level is perceived as a technical process involving high-speed computers, complicated mathematical models, and complex behavioral data collected from extensive surveys of people's travel habits and future desires. This process is viewed as objective and complicated and not to be disturbed by emotional concerns of citizen groups or political intrusion. That view, particularly of the highway planning process, often carefully promoted by the technical experts themselves, is politically and professionally irresponsible.

A policy-making process that shapes future transportation of a region is complex, and much valuable information is added through technical analyses. But it is also a political process involving value conflicts of regional versus local concerns, of environmental versus mobility desires, of the social equity of bearing the costs and receiving the benefits of facility construction or service quality. As such, it ought to be exposed to a wide range of citizen and political concerns. This has been the case with major transportation systems decisions in Boston, Toronto, and London (5, 6, 7, 8, 9). The California legislature was furnished with direct information on all of these cases of citizen and political scrutiny of regional or systems level transportation planning and decision making. Also, several members of the legislature examined details of these planning reviews first hand during a transit and planning study tour of Boston, Toronto, and Montreal.

The goals, objectives, and policies stated by the legislature might well deal with the degree and quality of citizen participation and local political review of technical transportation planning carried out in the California Transportation Plan process.

Programming Versus Master Planning

Past views of regional and state highway planning, as well as a considerable amount of transit facility planning (BART in the San Francisco Bay area, current Southern California Rapid Transit District rail project plans in Los Angeles, and corridor transit concepts for San Diego), have emphasized a master planning of facilities to be constructed as part of a major program over long periods of time (often as long as a decade or two). Setting goals in the form of a master plan effects political commitment, adequate funding, and broad regional or state support by offering a package of some facilities for everyone, if the program is continued relatively inflexibly and long enough. But it has difficulties too, and these should be addressed in relation to the format of state and regional plans called for in AB 69.

Is enough known about the future to plan for 20 or 30 years hence without flexibility in accommodating changes in values, technologies, and environmental or energy constraints? Many transportation planners formerly believed it was possible, but that belief has been challenged by citizens in the courts, by energy and pollution problems couched in crisis terms, and by the failure of land use planning. These planners now

doubt the technical and master planning bases of their long-term rationales (10). More incremental and flexible strategies may be needed in the future and might be provided for in the approach taken to the California Transportation Plan.

Two of the many places evolving toward incremental planning and implementation of highway and transit systems are Boston and Toronto.

Shorter term programming of increments of transit and highway systems, perhaps by 2 to 5-year horizons or other recurrent technique, might be considered in setting the goals, objectives, and policies for the transportation planning process now under review in California.

The issues mentioned will be among the important matters for legislative attention in the coming months as the planning process set out in AB 69 proceeds. They are all difficult and imply more than routine continuation of existing policies and institutional relationships. Thus, they warrant careful analysis, not only by the transportation committees of the legislature but by other committees as well.

INSTITUTIONAL AND FINANCIAL ASPECTS OF TRANSIT PLANNING

A second set of issues relating to planning for major investments in fixed-guideway transit systems in several metropolitan areas of California has been the subject of legislative scrutiny and has been raised in regard to accelerating planning programs for new transit systems in Los Angeles and San Diego and, to a lesser degree, the possible extension of BART or introduction of newer rail modes in the San Francisco Bay area.

The issue of local versus corridor planning has already been discussed in the context of statewide interests. Applied on a regional context, it is equally critical in allocating financial and planning responsibilities among state, regional, and local levels of government. Figure 1, based on work of the Southern California Association of Governments (SCAG), shows the relative proportions of trips made in a large metropolitan area by length of trip (11). It also illustrates the location and extent of local communities and special activity centers within the region.

Inasmuch as most of the trips taken in the region are short and within such centers and local areas, it is remarkable that so much debate and so many resources are being allocated to issues of regional or corridor transit systems rather than local services (12, 13). Regional level rail networks and the federal emphasis on capital grants may be distorting where the needs are and where the resources seem to be directed. Regardless of the reasoning, it poses a critical problem for legislators and local officials interested in placing the priorities where the problems are.

A major problem with transit planning in the Los Angeles and San Francisco areas has been the organizational nature of the transit districts created to plan and execute regional rail systems. Both the Bay Area Rapid Transit District (BARTD) and the Southern California Rapid Transit District (SCRTD) are creations of the state legislature. These districts were authorized more than a decade ago, at a time when building rail rapid transit seemed both easier and more worthwhile than it does today. Each has come under considerable scrutiny in recent years from citizens and legislators for failures of technical and fiscal performance and for lack of popular responsiveness.

BARTD recently got its first elected board of directors from geographically defined districts within its three-county service area, which replaced the hopelessly divisive board of political appointees. The future of SCRTD is uncertain, for numerous bills calling for organizational restructuring are awaiting action in this year's legislative session and extensive rail rapid transit proposals have already been defeated twice in 6 years.

Both districts were created as special-purpose regional, rather than local, transit districts and were designed to plan, construct, and operate rapid transit systems rather than operate buses and make other transit improvements. SCRTD has operated a large bus fleet covering much of Los Angeles County since its creation, but this was not the main intent of its enabling legislation. In the San Francisco Bay area, relatively

Figure 1. Travel in percentage of person trips.

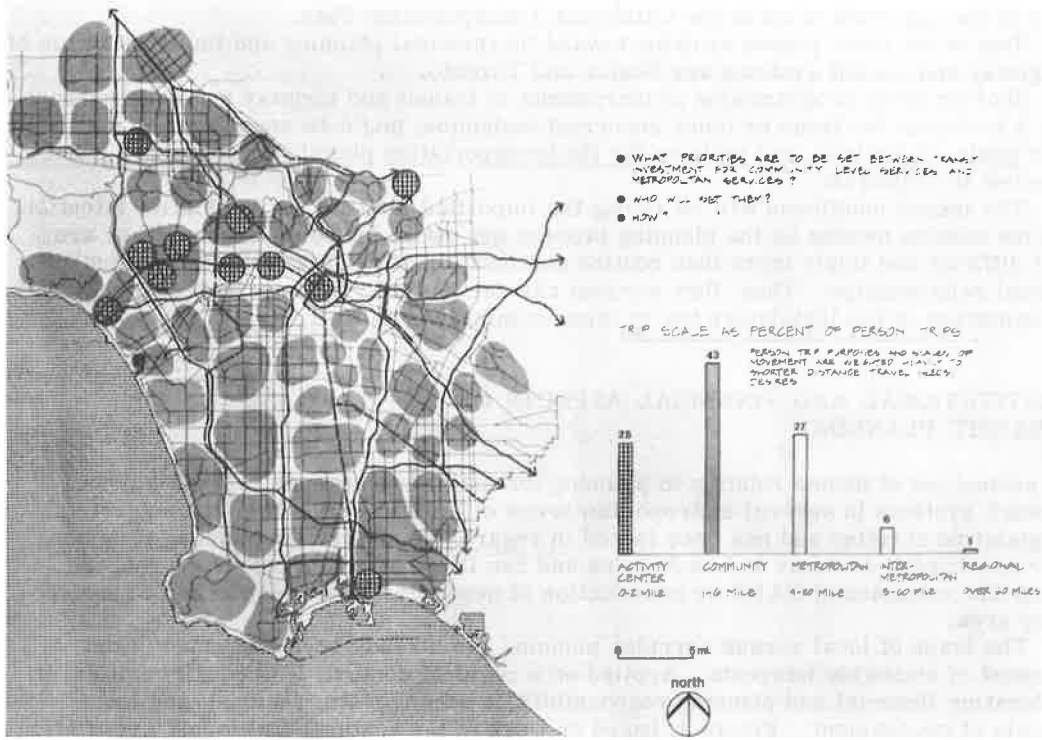
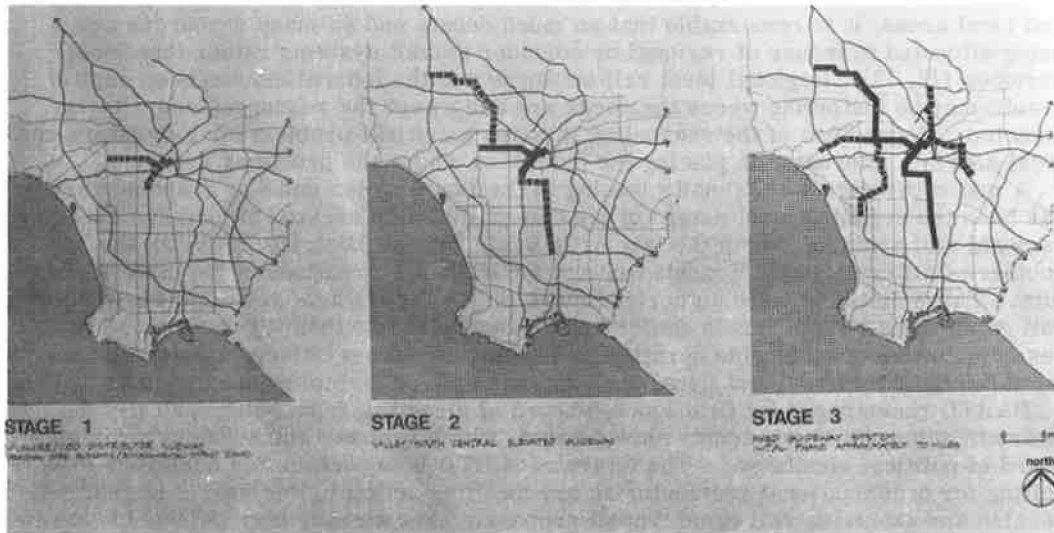


Figure 2. Staging for incremental development.



good local bus systems exist under other general and special-purpose government agencies in the same area covered by BARTD, but coordination of service has been a difficult political problem that is getting better. In the Los Angeles area, the SCRTD bus system dominates the transit scene.

In each region there is a competition for dollars and political resources between regional agencies and local needs. The special nature of BARTD and SCRTD has thus far largely biased the transit decision-making process toward regional systems and service to the detriment of the local travel needs shown in Figure 1. Since SCRTD failed in November 1974 to gain popular approval of a 1-cent increase in sales tax to finance an extensive corridor transit system spanning Los Angeles County, more incremental and more local transit systems may now be considered under a revised institutional charge from the legislature and local political leadership; and this may give more decision-making power to community rather than regional interests.

Another issue already posed in terms of programming versus master planning at the state level is also applicable in regional transit planning. Figure 2 shows the concept of incremental decision making (a form of project programming) as opposed to master planning as one comprehensive solution at a fixed and distant point in time.

This figure shows, in Los Angeles, for example, how one might begin to build a regional fixed-guideway network over time, as local planning concurrences and resources became available. This seems to be how Toronto, Montreal, and a number of European cities have proceeded, by gradually increasing the service and mileage of their transit systems rather than master planning some regional goal as seems prevalent in the San Francisco Bay area, Washington D.C., and other large American cities. In Los Angeles, the transit district has elaborated this master planning perspective to perhaps its most extreme formulation—a proposed 240-mile (390-km) rail network with a price tag well above \$10 billion (14). The proposed plan is shown in Figure 3. Because the financing to Los Angeles from all existing or projected sources seems well below such an amount, it is highly questionable what such master planning would have meant in terms of implementation. It was this plan and its local financing element that local voters rejected by 54 to 46 percent in November 1974.

Given the number of metropolitan areas in California that have wish lists of their own, the amount of money that could be sought by transit districts for master-planned rail systems is staggering and meaningless. Therefore, there is an interest in state and federal government to see that such plans are scaled back to realistic levels and that systems are constructed that perform highly useful, if not totally regional, services.

Figure 4 shows how such an initial stage of rail transit in a regional core can be constructed to interface with complementary express bus and park-and-ride facilities in other corridors. In addition, several concepts of localized taxation for the areas specifically served by initial guideway links are shown as means of overcoming objections to one area benefiting most from regionwide transportation concerns. At least some extra taxes on business activity, employment, or real estate development in the regional core could supplement regionwide sales, income, or property taxes to pay for the first and often most costly miles of a regional guideway system; this allows a more equitable distribution of transit resources and services throughout the majority of the region.

Financial and institutional remedies to technical and economic problems often fall to lawmakers, and thus laws and legislators should not be overlooked in the design of transit systems and their implementation strategies. Many of the distortions, difficulties, and outright absurdities of transit system planning today follow from inadequate flexibility in the size, political makeup, and financial resources of transportation planning and management agencies (16). It is hoped that these issues can be confronted squarely in California as part of the statewide transportation planning process and that this planning can advance to an implementation process responsive to changing transportation needs and opportunities.

Figure 3. Rapid transit plan for Los Angeles County.

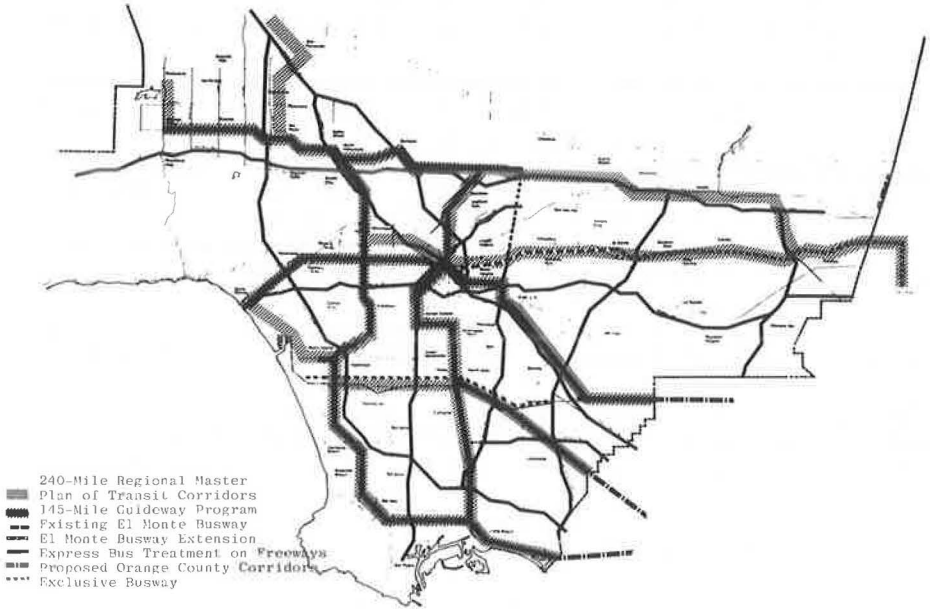
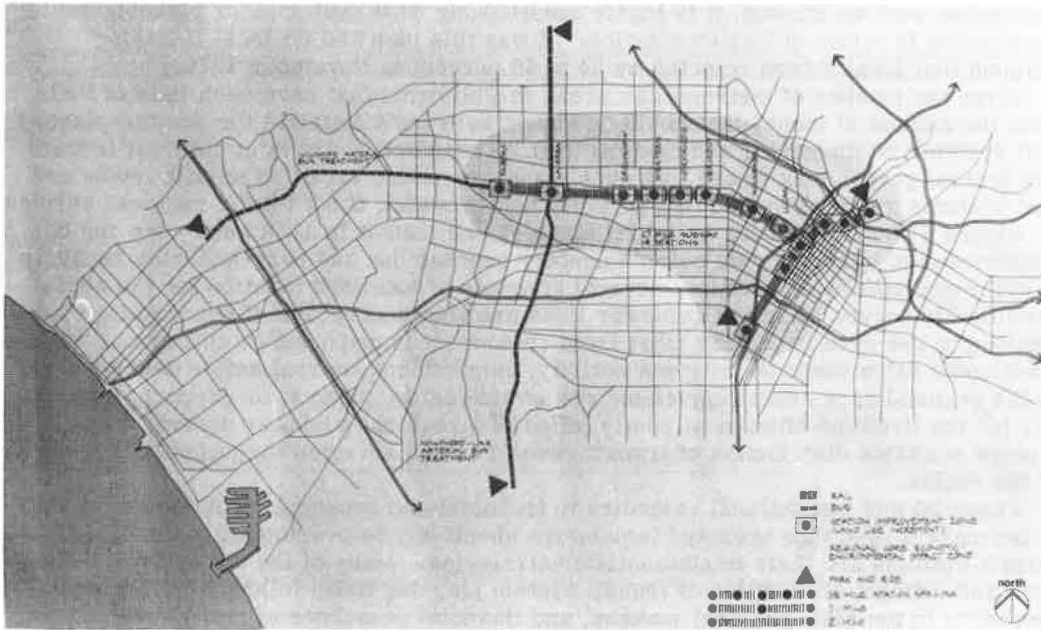


Figure 4. Wilshire-CBD distributor subway.



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CONSUMER ATTITUDES TOWARD PUBLIC TRANSIT

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Transit planning requires a high level of input from the public. Market survey research has been found to be a very useful and simple tool for collecting and analyzing data on key user groups and public opinion segments. Therefore, the objectives of this study were to identify and weight the factors that jointly influence the use of public transportation and, with this information, to formulate guidelines for both marketing and policies of transit operations. In summary, a transit system must, if it is to solve urban transportation problems, be designed to provide service that is attractive and competitive in a consumer-oriented market and socially concerned society. This paper reports preliminary results from a 1972 study conducted in Orange County, California. Changes have been made in the questionnaire, and a more detailed market segmentation study was conducted in 1974.

•**BEHAVIORAL RESPONSE** is one method of validating public attitude. The Orange County Transit District had considerable success between 1972 and 1974 in effecting a large increase in transit use. In part, this success is attributed to the development of transit service that was responsive to consumer desires. Operations began in August 1972, with only five buses. As of July 1974, ridership had increased from 25,000 to more than 520,000 a month, and the bus fleet had been expanded to 103 vehicles. Another 111 buses were added during 1975. Of those, 67 were for expansion of demand-responsive transportation (DRT) service and 44 for improved service on the fixed routes.

Such expansion of transit use in Orange County is encouraging; the most recent survey indicates that 97 percent of all households have at least one private vehicle, and 62 percent have more than one. To maximize potential service and to make transit responsive to the perceived needs of the 1.7 million population of Orange County require that studies of consumer attitudes and preference be conducted.

STUDY OBJECTIVES

The broad objectives of this research were to identify and assess the relative importance of the attributes of the transit system as conceived by the consumer and to determine the extent to which consumers think existing modes of transportation satisfy their needs.

In the first phase of the research, answers to questions on transit attributes and service level were sought. Although the questionnaire used was preliminary, it did supply information in five areas.

1. What attributes do transit users regard as important on a typical trip?
2. What attributes of transit are important for all transit trips in an ideal system?
3. What are the most important trip purposes for which consumers prefer transit?
4. What are the expectations of the public in terms of financial support for public transit?
5. Why do people desire public transit?

The objectives of this study were to weight the factors that influence the use of public transportation and to use techniques of analysis and prediction that would assist the evaluation of future needs and development of transit in Orange County.

STUDY METHODS

Two questionnaires were used in the study; one was a general questionnaire relating to standard fixed-route, fixed-schedule bus service. The second was modified to measure the anticipated reaction to the demand-responsive transportation system. Both questionnaires had similar format, and most questions were duplicated. The conventional bus survey was distributed among a stratified sample of 267 respondents in each of three cities: Santa Ana, Costa Mesa, and Cypress. The DRT questionnaire was used in La Habra where the Orange County Transit District (OCTD) was introducing such a system. The sample size for the DRT survey was also 267.

The questionnaires were revised after the first phase of the research, and a second, countywide survey was conducted in 1974. This paper does not include the results of the 1974 survey. These will be presented in a subsequent paper, in which the results will be segmented to reflect the opinions of groups by sex, socioeconomic status, attitudes to public transit, and places of residence and work.

Nor are detailed cross-tabulated results included. The figures summarize some of the results. Time constraints do not permit in-depth analysis. The purpose here is to outline the methods used and to indicate through figures some of the conclusions that have influenced route planning, marketing, and policy decisions.

RESEARCH DEVELOPMENT

The OCTD study was preceded by research aimed at understanding of transit use and development. Previous research concentrated on trip purpose, trip frequency, and the demographic characteristics of the existing modal split. Much of this research is oriented toward the construction of aggregate behavioral models. The following is only meant to be a brief summary of the status of knowledge about transit consumer behavior. The development of the OCTD research effort was assisted by the methodology and results of six seminal studies (2, 3, 5, 6, 7, 8, 9).

The conclusions drawn from these six studies are presented below.

1. The automobile is universally held as being more satisfactory than public transit, which is rated unfavorable.
2. The major determinants of modal choice include reliability, time, cost, mode of payment, and physical and psychological comfort.
3. A mode shift from automobile to transit would result from better transit accessibility, more frequent scheduling, routing that was responsive to demand, and low cost.
4. Present transit users think that the attractiveness of transit would improve by maintaining schedules, decreasing origin to route and route to destination distances, and reducing trip-time expenditure.
5. Speed and punctuality are less important for nonwork trips than for work trips. Other costs and conveniences are, however, equally important for both purposes.
6. The relative importance of transit attributes varies according to the survey instrument used, the geographic location of the sample, and the existing use made of public transportation.

These conclusions are from studies that investigated the nature of an ideal system as perceived by the respondent and measured the performance of the existing or proposed systems against the ideal. The major problem with using attitude studies is the assumption that the respondent has sufficient information to make a valid judgment between the alternatives offered. In Orange County, 40 percent of the respondents were unaware of the presence of the nearest bus line, and 79 percent replied that

members of their households never used the bus. The interpretation of the results must incorporate these limitations.

ORANGE COUNTY RESULTS

Both Likert and semantic differential scaling procedures were included in the questionnaire used in Orange County. The Likert scale asked respondents whether they agreed with 40 statements about public transit. These responses were used to group respondents into attitude groups. Semantic scaling proved more useful in assessing different attributes of bus transportation because respondents were asked to scale statements from not important to very important. A summary of the responses for level of service, bus design, and convenience is shown in Figure 1.

From the point of view of users, the public transportation system is a part of a decision-making framework and, as such, is measured against other modes of transportation by satisfaction criteria (Figure 1). These criteria are often speed, safety, comfort, and economy, but for the most part overall level of service (arrival on schedule, closeness to bus line, driver attitude, and arrival frequency) is extremely important. This conclusion is consistent with the six aforementioned studies. Figure 1 shows a measure of the intensity of preference.

All four attributes were more important than attributes reflecting price, travel time, and the inconvenience of transfers. These latter attributes were perceived as being about equal in importance to smoothness of ride, availability of a seat, and provision of bus stop benches and shelters. The perceived importance of design attributes that would reduce smog was expected in southern California. The real surprise was the importance that the public places on the attitude of the driver. A friendly and helpful coach operator appears to be far more important than most attributes of the bus itself. And yet, most transit properties devote more attention to bus design features than they do to either employee relations or the training of coach operators in customer relations.

It is extremely costly to add more buses to improve the schedule of service. Each additional bus costs approximately \$60,000 per year to place in service. By comparison, a program of customer relations for coach operators could substantially increase use of existing services. The coach operator is the best salesperson that a transit property possesses. Too often this attribute has been overlooked as a means of attracting and retaining riders who have a choice between automobile and transit.

The overall findings of this section have definite marketing implications that will be considered later in the paper.

POTENTIAL TRANSIT RIDERS

The real challenge for public transit in suburban metropolitan areas is to expand ridership in areas in which almost everyone has access to an automobile. Only 3 percent of the households interviewed did not have access to an automobile, and even this minority had friends and relatives who provide essential transportation. Yet this statistic is deceiving: Of the 1.7 million people residing in Orange County, it is estimated that 500,000 do not drive. They are dependent on others for transportation.

For what trips can public transit be substituted for the automobile? Further, for what trips can public transit offer a viable alternative to those who normally drive? Also, how can the needs of those without access to automobiles be met? Answers to these questions provide direction for transit managers.

To answer these questions we collected data on work, school, shopping, and social trip purposes. This information was cross-tabulated with the respondent's intention to use the bus if the fare was 25 cents, the bus route was within three blocks of the origin of the trip, and the bus arrived at 30-minute intervals. Of the respondents who made a daily work trip, 35 percent stated that they would use the bus for work trips. Similarly, 32 percent would use it for school trips, 30 percent for shopping, 32 percent

for entertainment, 21 percent for visiting, and 37 percent for church on a regular basis (Figure 2). These categories are not mutually exclusive and are percentages of those already making these trips who would use transit at least once a week.

Conversely, 70 percent of all respondents were unwilling to discontinue car use even if the public transit service were as described. After examination of total trips, it was found that, with the bus service stated above, 38 percent of person trips would be made by bus. Inasmuch as this is far greater than the recorded split of 2 percent, it is probable that lack of experience with the public transportation system and the increasing scarcity of gasoline in the fall of 1972 when the interviews were conducted resulted in overstatement by respondents of their potential transit use.

Some respondents perceived bus transportation as a substitute for the automobile for certain trip purposes. Use of bus transportation for shopping was greater than anticipated. Preliminary analysis of responses indicates that heavier than anticipated use by persons 12 to 17 and above 65 years old can be anticipated for shopping trips. This is important for operations because selective marketing could increase patronage during the off-peak hours and on Saturdays.

MARKETING ASPECTS

One of the primary aspects of this study was to gather data that would be useful in developing a marketing strategy. The respondents ranked the importance of public transit attributes on a scale from 1 to 5—not important to very important. These attributes were then grouped into more general categories. Figure 1 shows the results of three categories: level of service, bus design, and convenience.

Under levels of service, the most important attribute was that the bus arrive on schedule. This was followed by driver attitude, closeness to the bus line, and arrival frequency. These ranked more highly than bus design items, which in turn ranked more highly than convenience items.

A smog-reducing characteristic was considered the most important in bus design, which is emphasized by general concern about air quality at the time of the survey. Smoothness of ride, air conditioning, quietness of ride, and seat comfort and bus appearance were considered more important than bus size and storage space. Seat availability was the convenience factor rated the highest, followed by the need for shelters at the stops.

The survey showed that route design and scheduling were important. Respondents required punctuality and closeness of the route to their trip origin. The latter demand fell markedly after a three-block distance from the respondent's home. If the bus ran within one block, more than 50 percent of respondents stated that they would use the bus to some extent. The cost of the ride was less important than distance to the route.

The groups with the highest potential use were those with no cars, those who earn less than \$7,900, and those 12 to 17 and 35 to 65 years old. It was also found that three groups are unlikely to use the bus, regardless of its proximity, and these were those 18 to 24 years old, households with two or more cars, and households with an income greater than \$25,000.

The importance of accessibility to the bus lines caused the OCTD to feature a sectional rather than areawide marketing strategy. The actual placement and selection of advertising were aimed at the individual who resides or works within three blocks of the bus route. Hence, corridors of marketing activity may be defined. The media selected, such as posters, direct mailing, and bench advertising, reflect this local effect.

Previous to the results of the survey, radio and newspaper advertising was emphasized. This established an image for the OCTD but has had limited effect on ridership. An intensive direct mail advertising program was initiated in 1973, and it will be interesting to determine the effect of this program on the decision to use the bus for different trips. This information will be available in a subsequent publication.

A strategy has been developed to involve the coach operators in marketing and public relations. The objective was to improve their knowledge of the total transit

Figure 1. Total sample mean attitude scale for conventional bus transportation.

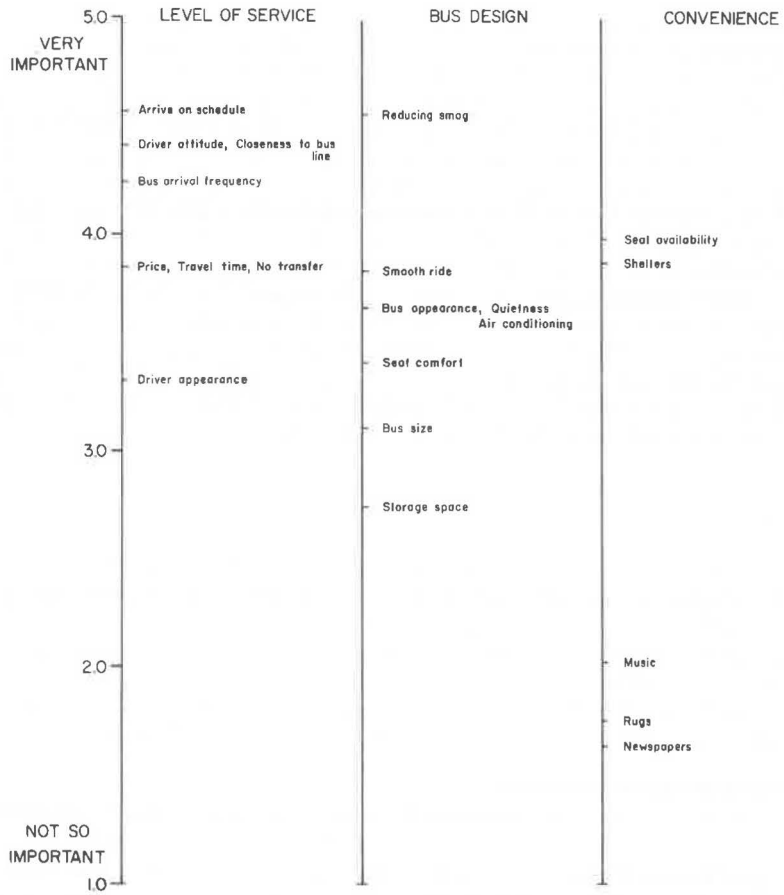
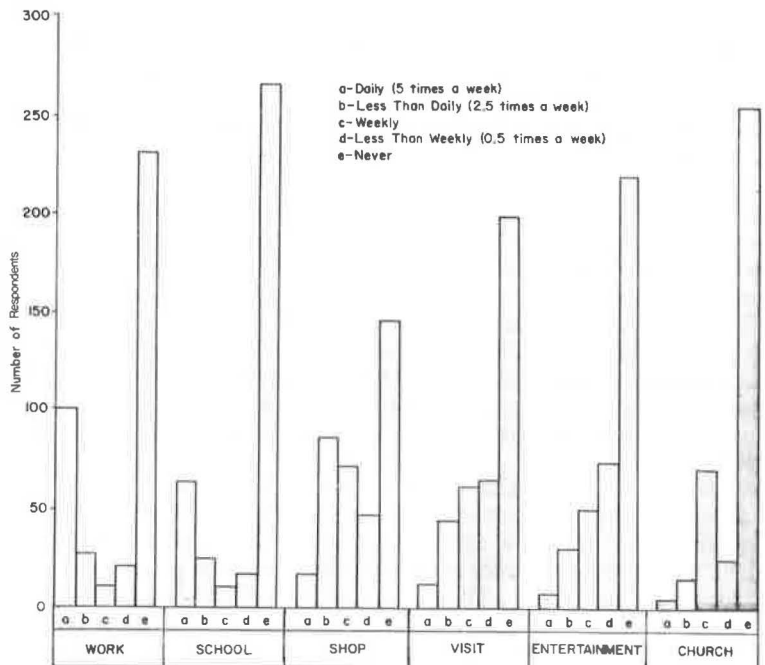


Figure 2. Number of respondents traveling by purpose and frequency—conventional bus transportation.



system and to encourage them to be more helpful to the customer. The emphasis has focused on an advanced training educational program rather than individual awards.

POLICY FINDINGS

Several opinions related to policy issues of the transit district were tested in the study. The aspects considered were financing, formulation of goals, and general public support.

Respondents generally expected the bus company to be a profit-making organization and to earn its revenue from the fare box. Only 19 percent favored financing from gas taxes and only 9 percent from sales tax. Attitude scaling confirms the prevailing unwillingness to use public funds to subsidize transit. Respondents agreed (65 percent for, 29 percent against, and 6 percent no opinion) that public transit should be a public service. However, transit managers will have to educate the public on the economics of the industry if they desire continued public support for operating subsidies.

Only two groups disagreed with the flat fare concept, but these form a significant proportion of the total sample. These were those with incomes of \$15,000 or more and those with a college education. The preferred method of fare payment was a monthly pass or multitrip ticket. Credit cards or exact change arrangements were disliked; the 25-cent fare was most preferred.

Support for public transit was overwhelming; 84 percent responded that the benefits of public transit are well worth the cost, and 90 percent thought that bus transport would make their city a better place in which to live. Coupled with this support was the desire to participate in bus routing and to be involved in the planning process. It should be pointed out that a feeling of impotence is not limited to public transit; it is a feature of governmental planning in general.

An apparent paradox is that the strongest support for transit comes from the demographic groups least likely to use it but most likely to face indirect costs of the system. These were groups with annual incomes exceeding \$25,000 and households with two or more automobiles.

Continuing concern with the smog problem was evident on questions dealing with bus design characteristics. Reducing smog was the highest rated feature. It may be pointed out that, although reducing smog is a number one concern today, this is the type of issue that can change quickly. Reduction of bus noise and fumes might improve the perception of the bus as an alternative mode of travel.

CONCLUSIONS

This transit study was undertaken to evaluate the attributes of the bus within the travel decision process. The aim was to investigate means of improving the competitive position of public transit against the private automobile. The attitude survey was designed to locate potential users and identify those features of route location, scheduling, cost, comfort, and convenience that would encourage these people to use the service provided. It should be stressed that the results are preliminary and that the survey was a pilot study for an expanded attitude study covering the whole of Orange County. Distinct attitude and user groups can be identified from the attitude survey, and the expanded study will give special attention to market segmentation and the characteristics of people in each segment.

Use of cross tabulation and mean scaling produced the following results, which are a step toward preparation of future studies and on which interim management decisions and policy guidelines can be based.

1. Consumers overestimate their proposed use of transit. This may be related to lack of information or experience.
2. Use of transit is directly related to the proximity of the trip origin to a bus route.
3. The attitude of the coach operator is more important to the public than many of the costly amenities of bus design.

4. The public is actively interested in the provision of bus service but must be educated in both its use and its financing. The public is, however, interested in becoming actively involved in the planning processes.

5. Promotion of "take a bus shopping" will appeal to youthful and senior citizens who can travel during off-peak hours.

6. Concern for the quality of life seems to be a major determinant of the popularity of public transit. This is indicated by the concern about smog reduction in making the city a better place to live.

In summary, a transit system must be designed to provide service that is attractive and competitive in a consumer-oriented market and socially concerned society. Surveys of consumer attitudes can assist management in designing competitive service and monitoring its acceptance over time. Future reports will provide information about the attributes of population groups whose attitudes toward public transit differ. The aim will be to segment the population for marketing and policy purposes.

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