

B U R B A N K

Community Transit Needs Study

MILESTONE REPORT 2 Analysis Of Alternatives

Prepared for
City of Burbank

Prepared by
Barton-Aschman Associates

BURBANK
COMMUNITY TRANSIT NEEDS STUDY
MILESTONE REPORT 2
ANALYSIS OF ALTERNATIVES

Prepared For:
CITY OF BURBANK

Prepared By:
BARTON-ASCHMAN ASSOCIATES, INC.

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1.

INTRODUCTION

The City of Burbank is conducting this Community Transit Needs Study in order to accomplish the following:

1. Understand what the current and future needs for transit service are and will be for persons living or working in Burbank.
2. Consider the possible implementation of those facility and service options which could most directly address the identified transit needs of Burbank's residents, employers and residents.
3. Select for implementation the short-term and long-term actions which will be found to be most cost-effective and efficient, and can be staged in accordance with Burbank's financial resources.

When completed, Burbank's Community Transit Needs Study will consist of the three following milestone decisions and accompanying reports:

1. The identification of unmet transit needs,
2. The analysis of options, and
3. The selection of a recommended plan of action.

The report representing the completion of the first set of milestone activities was completed in December, 1984. That report was reviewed with the Burbank Transportation Study Committee at its meetings in December, 1984 and January 1985. The first milestone report described the effects that current and future land use, demographic and economic conditions, as well as local attitudes have now, and will continue to have in determining the need for transit services in, to, or from Burbank.

After indicating what the key factors and trends influencing transit usage in Burbank are, and will be, the first milestone report concluded with listings of the current and future needs for transit service that could be expected from Burbank's residents, employers, and employees. These listings were prepared by evaluating current and likely transit services, analyzing census of population data, and conducting a survey of riders using Burbank's demand responsive service for the elderly and handicapped, and a sample survey of Burbank's households. Thus, both technical analyses, and comments and recommendations supplied by a cross-section of citizens through the two surveys were used to determine Burbank's short-term and long-term transit needs.

In conjunction with receiving Milestone Report 1 - Identification of Unmet Transit Needs - in order to review its conclusions and recommendations, the Burbank Transportation Study Committee also received materials that would help to begin the evaluation of options. At its January 1985 meeting, the committee reviewed a list of recommended ways of addressing the short-term and long-term transit needs, and completed a questionnaire designed to elicit the Committee members' attitudes or philosophy about transit funding and service priorities.

This, the second milestone report, describes the cost-effectiveness, efficiency, and institutional impacts of the options which are available to the City of Burbank in order to address the identified unmet transit needs now and in the future. There are two different sections to the report. The first section identifies what options were evaluated, while the second section indicates the key tradeoffs involved in selecting one course of action over another, or which actions can be considered to be the staged progression of the same policy. The data analyzed in the first milestone report, as well as the reactions from the Transportation Study Committee's members to the philosophical ways in which transit could be viewed helped to supplement the technical evaluation conducted during this phase of the study.

Before actually listing the options which were considered in this report, and describing the results of the evaluation, a keener appreciation of the conclusions identified in this report can be gained by understanding how the term option is actually being used. The dictionary's definition of option is "something chosen or available as a choice." The dictionary's definition of the word alternative, which is sometimes used as a synonym for option, is "the choice between two mutually exclusive possibilities, or one of a number of things from which one must be chosen." The word alternative is also widely used to denote "one of a set of possible courses of action."

In the context of this study's use of the words option and alternative, the two words can be considered to have synonymous meanings. However, the options or alternatives which are being reviewed in this report do not necessarily represent mutually exclusive ways of addressing the same problem (a type of unmet transit need), but different ways of potentially spending the financial resources available for transit capital projects or operating programs. These distinctions, which affect both potential capital facilities, as well as service programs, are highlighted in the evaluation section of this report.

2.

DESCRIPTION OF ALTERNATIVES

Transit needs affecting Burbank were defined in the previous milestone report as falling into the following categories, either in the short-term or the long-term:

1. The transit needs of Burbank's residents with no private vehicle available in their household.
2. The transit needs of Burbank's elderly residents, particularly those persons unable or unwilling to drive their own vehicle.
3. The transit needs of Burbank's residents unable to use regular transit services because of a mental or physical disability.
4. The transit needs of Burbank's residents travelling to downtown Los Angeles.
5. The transit needs of Burbank's residents who might consider using the Southern California Rapid Transit District's (RTD) services if the convenience of travel were improved.
6. The transit needs of Burbank's employed residents with no private vehicle available for their trips to or from work.
7. The transit needs of Burbank's employed residents who might consider using transit for their work trips if premium service (express or direct routes) were provided.
8. The transit needs of Burbank's employers who will not be able or willing to finance and provide sufficient on-site parking spaces for their employees; and those of the developers, owners, or managers of commercial and industrial land uses in Burbank's who would be motivated or held responsible for addressing their employees' and visitors' access and circulation requirements.

Short-term needs were defined as being those which existed in 1984, and which could be addressed through actions that could be implemented in the 1980's. Long-term needs are those which are not likely to exist until 15 to 20 years from now, when projected conditions would be favorable enough, or of a sufficient magnitude to warrant action in the form of a capital facility, or the operation of targeted transit service.

Based on these kinds of unmet transit needs which were identified during the first part of the study, the options listed in Table 1 were presented as possible ways

TABLE 1

OPTIONS TO ADDRESS BURBANK'S TRANSIT NEEDS

<u>Current (1985)</u>	
<u>Mobility Needs</u>	<u>Options</u>
of households with no autos available	1. trip voucher for transit, paratransit, or taxi trips
of elderly with likely inability to drive	2. option 1, plus expansion of Burbank's Transportation Service
of transit disabled persons	3. option 1, plus expansion of Burbank's handicapped-accessible service
<u>Accessibility Needs</u>	
of residents working in downtown L.A.	additional express bus trips (peak and midday)
of all residents using RTD services	service restructuring to reduce travel times - more direct routes serving Burbank, timed transfers and lower headways, longer service hours
<u>Future (2000 to 2005)</u>	
<u>Mobility Needs</u>	
same as current needs	same actions as for current needs, plus circulation shuttles
<u>Accessibility Needs</u>	
of residents working in downtown L.A. (from Burbank plus eastern San Fernando Valley)	rail transit, express bus service on dedicated lanes or guideway

TABLE 1 (Continued)

OPTIONS TO ADDRESS BURBANK'S TRANSIT NEEDS

<u>Future Needs (Continued)</u>	<u>Options</u>
of all residents using RTD services	same as current, plus express bus service to Burbank and other regional activity centers
of persons employed in Burbank (particularly Media District and Town Centre)	private and public express/-commuter buses and vanpools, preferential treatment for line-haul service
<u>Land Banking</u>	
Media District	possible satellite/intercept parking structures
Route 134 Corridor	possible park-and-ride lot
Town Centre	possible intermodal center at abandoned SP depot, transit mall
Route 5 Corridor	possible park-and-ride lot (in conjunction with intermodal center)

of addressing the unmet needs. The list of options presented in Table 1 is not limited to facilities or services which could be funded using only Burbank's Proposition A revenues, but should be seen as an all inclusive list of service improvements and capital projects which might be required to serve Burbank's transit needs.

The options listed in Table 1 need not all be considered to be alternatives to each other, or substitutes one for another. These are options primarily because they represent different strategies which could be pursued by the City. Since the summed costs of all of the options would greatly exceed the Proposition A transit revenues that Burbank will have available to spend, the optional ways of spending the funds need to be evaluated to determine the following:

1. What will be the short-term costs and benefits of implementing them?
2. What will be the long-term costs and benefits of implementing them?

3. Which would be the most effective ways of spending Proposition A funds, i.e. which options would have the largest positive impacts on usage?
4. Which would be the most efficient ways of spending Proposition A funds, i.e. which options could be implemented with Proposition A revenues being used to leverage other funds?

The options listed in Table 1 are categorized not only as to whether they are considered to be short-term or long-term ones, but are also categorized according to their role vis-a-vis accessibility or mobility needs. Accessibility's most relevant meaning in this discussion is the ability to enter or approach a site or location. Mobility is the capability of moving or being transported from one place to another. Accessibility refers primarily to places, while mobility affects people making trips.

Since the options listed in Table 1 are intended to serve specific unmet transit needs, at this point it will be constructive to present the major reasons why these particular types of capital projects or services were selected for the evaluation. In the following paragraphs, the explanation will focus on the connection between the option and the specific transit need it is intended to address. Lesser emphasis will be given to explaining the differences between the short-term and long-term suitability of the options. Those explanations are really the subject of the following chapter, Analysis of Alternatives.

These alternatives or options could also be classified as being long-range or short-term actions which could be implemented by the City of Burbank or by others. Although describing the likely potential institutional responsibilities for implementing the options being considered is actually one of the subjects of the evaluation, categorizing the options according to who might be responsible for implementing them, will help to introduce one of the key aspects of the evaluation. The potential entities responsible for the implementation of the options are listed in Table 2.

As indicated earlier, these options would compete for all of the revenues likely to be available to Burbank for the construction of transit facilities or the operation of transit services. However, since Burbank will seek to influence the actions of other agencies and advocate the implementation of certain courses of action favorable to the City, the costs and benefits of all reasonable transit development actions need to be understood.

A. Long Range Alternatives

These alternatives, the ones that would take the longest time to implement or whose implementation will not be vital until the 1990's, will be described first in order to present the potential long-term context for the short-term alternatives. For example, transit service improvements from Burbank to downtown Los Angeles would evolve from additional express bus trips in the short-term to rapid transit service in the long-term.

TABLE 2
POTENTIAL INSTITUTIONAL RESPONSIBILITIES

<u>Option</u>	<u>Entity or Agency</u>
Trip Vouchers (all user-side subsidies)	City of Burbank
Expansion of Burbank's Transportation Service	City of Burbank Joint Powers Agreement with Adjacent Jurisdictions
Expansion of Burbank's Handicapped-Accessible Service	City of Burbank Joint Powers Agreement with Adjacent Jurisdictions
Additional Express Bus Trips to Downtown Los Angeles	Southern California Rapid Transit District (RTD)
Bus Service Restructuring	RTD
Light or Heavy Rail Transit	RTD
Express Bus Service on Dedicated Lanes or Guideway	RTD, Caltrans, LACTC
Commuter Bus Services	RTD City of Burbank
Circulation Shuttles	City of Burbank
Land Banking	City of Burbank

While accessibility and mobility needs would exist both in the short-term and long-term, there is a third category of transit action which would be taken primarily to serve long term needs. This category of action, labeled land banking, refers to the lease or purchase of land in anticipation of fully developing the site for another purpose. Applicable transit purposes for land banking would include acquiring land now that would be used for a transit terminal in the future, and which if it were not purchased soon could be unavailable for its intended use.

Expanded Express Bus Services

The primary public transit operator in the region, the Southern California Rapid Transit District (RTD), provides express bus service from Burbank to downtown Los Angeles. Currently, only 2 round trips are provided on each of the two express bus routes operated by RTD which serve Burbank.

As the number of Burbank residents commuting to work in downtown Los Angeles increases from 3200 in 1985 to approximately 7500 in 2000, the viability of additional express bus trips and routes serving Burbank and the eastern San Fernando Valley needs to be investigated. In addition, the viability of provided express bus service from Burbank to other major activity centers in Los Angeles County, a service currently not provided by RTD, also needs to be evaluated. These types of services could be operated by RTD, or by a private company under contract to Burbank and adjacent cities.

Line Haul Facilities and Guideways

With the projected increase in work trips to downtown Los Angeles, and to a lesser extent, other major activity centers, the need for premium transit services will increase. In order to provide services that can compete with the automobile's total trip time, exclusive facilities will have to be provided to reduce transit's line-haul time. Examples of these kinds of facilities would include light and heavy rail lines, and busways or exclusive high-occupancy vehicle (HOV) lanes. Heavy rail lines are those, such as the Metro Rail, which are built to completely separate the tracks from any at-grade crossings. Light rail lines are those, such as the one to be built between Los Angeles and Long Beach, where vehicles equipped with pantographs can operate either at-grade or not. Busways, such as the El Monte, are separate roadways, generally within freeway rights-of-way, which are built to serve buses and carpools. High-occupancy vehicle lanes, are also built to serve only high-occupancy vehicles, but to a lower design standard than busways.

These facilities are too costly to be built by a city the size of Burbank, plus they also serve intra-regional travel, not intra-community travel. They are discussed in this report because of the need which Burbank may have to advocate their construction to the Los Angeles County Transportation Commission (LACTC), Caltrans or RTD.

Land Banking

The basic features of land banking, the advance purchase of land in order to ensure the availability of a site for an intended use, were already described on page 7. Land banking may be considered as perhaps the most flexible and powerful use of Proposition A transit revenues since sites that, in the future, will be needed for commuter rail, light rail, or heavy rail sections, multi-modal transportation centers, or park-and-ride lots or structures, may be acquired in the short-term at lower cost, and using leveraged funding. Both sites which would be developed to serve Burbank's intra-community transit needs, as well as sites which would be integral components of projects to be built by regional service providers, should be considered for advance purchase.

B. Short-Term Alternatives

The options described in the previous section are those that will prove more viable in the future than currently, or which require a long lead time to finance and build. On the other hand, the options presented in this section could address existing transit needs, and could of course continue to exist both in the short term and the long term.

User-Side Subsidy

This is one type of program which would apply to both long-term and short-term conditions. User-side subsidy programs provide a means of improving the mobility of selected individuals in a community without necessarily establishing new transportation services or providing operating subsidies to existing transportation providers. The intent of user-side subsidy programs is to distribute travel subsidies directly to the users of transportation service, and to let the users decide how they select among the participating service providers to make their trips. In this case, the users decide how they will spend the subsidies provided to them, within the eligibility, funding, and control constraints of the program.

There are various ways in which user-side subsidy programs have been implemented. The subsidy pool can be targeted to specific user groups, or to particular types of trips. The amount of subsidy provided can be either a set weekly or monthly amount, or it can be automatically adjusted according to the number of trips made. The amount of flexibility afforded the users to choose which service provider they will select for their trips can be controlled by the legislated requirements established for those agencies or companies operating transportation services in the community and participating in the user side program.

Expansion of Burbank's Transportation Service

When the riders of Burbank's Dial-A-Ride service for elderly and handicapped persons were asked in October 1984 to rate the service improvements which they were most interested in, they gave the following answers:

1. Calling for a ride the same day or the day before instead of two days in advance.
2. Scheduling a ride at, or for any time of the day instead of at prescribed times.
3. Travelling outside Burbank, particularly for medical appointments.
4. Longer weekend hours.

Providing these improvements will require additional vehicles and drivers, and more automated scheduling procedures. Options which could be considered would range from extending the service hours while operating the same number of vehicles, arranging group rides instead of individual rides to destinations outside Burbank, or providing pure on-demand service. The levels of service commensurate with these options would be similar to today's, would expand geographic coverage, or would be considered similar to a cab ride, respectively.

Other Paratransit Services

Travel by special population groups such as the elderly or handicapped occurs at low density, i.e. for any given area and time period, only a small number of trips will be made. This characteristic makes sharing rides difficult to accomplish, and results in significantly higher overall costs per trip than for most other kinds of travel.

Many cities have found that Dial-A-Ride service operated by private taxicab and van companies typically cost less per passenger than similar services operated directly by public agencies. Other cities have encouraged increased group-riding by modifying taxicab regulations and permitting the operation of jitneys. These kinds of modes are often called paratransit services to distinguish them from the conventional scheduled transit services. This section is entitled Other Paratransit Services because the City of Burbank already provides paratransit service through the Burbank Transportation Service.

RTD Service Restructuring

During the course of evaluating the existing levels of transit service provided by RTD to or from Burbank, several deficiencies were identified. Long travel times caused by the need to transfer and wait for the bus to arrive were the primary deficiencies identified for many of the possible transit trip paths to or from Burbank. This lack of directness of service affected RTD's local routes, the ones that operate almost exclusively on arterial streets. As far as the freeway-based express bus routes are concerned, the provision of only two inbound or outbound trips was identified as the major impediment to providing a level of convenience competitive with driving.

It is the RTD which will make the specific route changes that will determine the level of inter-communitiy and regional bus service available to Burbank. RTD's decisions will be based on the productivity of the routes or route segments being considered for possible change, the implications on the remainder of the network of the potential changes, and the pressure for increased cost-effectiveness of the service provided because of constrained operating revenues. Recommendations for the possible restructuring of RTD's service could be advocated by the City of Burbank for the RTD to evaluate and implement. The analysis described in Milestone Report 1, as well as more detailed service analysis and route planning occurring after this study's recommendations are made would form the basis for the recommendations to RTD.

C. Local Views About Transit

At their January 1985 meeting, the members of Burbank's Transportation Study Committee were asked to complete a questionnaire designed to indicate their attitudes about transit, and their goals for transit in Burbank. The questionnaire and the tally of responses have been included in Figure 1.

Those transit development purposes for which a strong consensus emerged included relieving congestion and parking problems, and to a lesser extent, increasing the mobility of elderly and handicapped (residents), and increasing the mobility of (Burbank's) general public. Also considered to be important purposes, but with less intense support, were attracting more people for redevelopment areas, increasing the mobility of low-income people, and increasing accessibility to Burbank's jobs. Not expanding transit's role, i.e. doing nothing more than what RTD and Burbank's Transportation Service (for elderly and handicapped) are currently providing in the form of service, and an added purpose, using transit to improve Burbank's image, received the least amount of support.

Figure 1

TALLY OF RESPONSES TO GOALS QUESTIONNAIRE

BURBANK TRANSIT NEEDS STUDY
Goals Questionnaire

This short questionnaire is intended to help us obtain an accurate perception of your goals for transit in Burbank. Please indicate your views on the following issues, and submit any additional comments you may have in support of your recommendations.

Thank you.

BARTON-ASCHMAN ASSOCIATES, INC.

Name _____ Department _____
(optional)

A. What do you feel should be the major purposes for transit in Burbank?
(Please rate each of the following.)

	<i>Very Important</i>	<i>Important</i>	<i>Not Relevant</i>
1. Increase mobility of general public.	1	5	
2. Increase mobility of elderly and handicapped.		6	
3. Increase mobility of low-income people.	2	3	1
4. Attract more people to redevelopment areas.	5	1	
5. Relieve congestion and parking problems.	2	2	
6. Increase accessibility to Burbank's jobs.			
7. Nothing more than what RTD and Burbank's Transportation Service (for elderly and handicapped) are currently providing.		3	1
8. Other _____ _____		1	
9. Other _____			

Figure 1 (Cont)

B. Which trips do you feel are the most important for transit services which are (partially) funded by Proposition A to address?

	Very Important	Important	Not Relevant
1. Work trips within Burbank.	4	2	
2. Shopping trips within Burbank.	2	4	
3. School trips within Burbank.	4		2
4. Work trips to downtown Los Angeles.	2	2	2
5. Work trips from San Fernando Valley.	2	2	2
6. Work trips to San Fernando Valley.	2	1	3
7. Shopping trips to nearby malls.		2	4
8. Trips to medical facilities.	1	5	
9. Trips to community centers.	1	5	
10. Other _____			
11. Other _____			

C. What do you think about the following statements describing public transportation for Burbank?

	Strongly Agree	Agree	Not Sure	Disagree	Strongly Disagree
1. Transit should pay for itself out of the farebox.		1		4	1
2. Transit should be seen as another utility and supported through local taxes.	1	2		2	1

Figure 1 (Cont)

	Strongly Agree	Agree	Not Sure	Disagree	Strongly Disagree
3. Transit should be provided only to the extent made possible by Proposition A and developer contributions.		3		2	1
4. Transit is not important to most Burbank residents now, and will remain unimportant in the future.		1		4	1
5. Transit is not important to most Burbank residents now, but will become more important in the future.	2	3		1	
6. Transit is not important to Burbank's development or redevelopment now, and will remain unimportant in the future.		1		2	3
7. Transit is not important to Burbank's development or redevelopment now, but will become more important in the future.	3	2		1	
8. Other _____					

9. Other _____					

As a companion set of questions, the Committee's members were asked to recommend the types of trips which they felt to be the most important ones for transit services which would be (partially) funded by Proposition A revenues to address. Generally, the patterns which emerged were not as clear as was the case for recommending major purposes for transit to serve. Serving work trips within Burbank received the largest number of positive votes. Although serving school trips within Burbank received an equally large number of votes as being "very important", its ranking was reduced by the negative votes given to this trip purpose. Serving shopping trips, trips to medical facilities, and trips to community centers received fewer "very important" votes, but didn't receive any "not relevant" votes. Serving work trips made to downtown Los Angeles, work trips trade to Burbank from other parts of the San Fernando Valley, and serving work trips made from Burbank to other parts of the San Fernando Valley received a similar number of votes in all categories. Serving shopping trips made to nearby malls received the fewest positive votes.

The third section of the questionnaire was designed to identify the philosophical views about transit held by the members of the committee. Strong majorities emerged for not expecting transit to pay for itself out of the farebox, and that transit's importance to Burbank's residents and development efforts will increase over time. Far less consensus was expressed about considering transit as another utility supported through local taxes, or providing more transit than could be funded using only Proposition A revenues.

3.

ANALYSIS OF ALTERNATIVES

This chapter contains the evaluation of the short-term and long-term transit and rideshare options identified in the previous chapter as being the most germane to addressing Burbank's needs. Since there are three primary groups who will be affected by the decisions made as a result of this study, the evaluation is based on defining the key impacts and costs which would affect these groups. The groups would be defined as follows:

1. The likely or intended users of the transportation service.
2. The providers or suppliers of the transportation services.
3. Those underwriting or funding the costs of the services provided. This category could include persons or institutions from all three groups.

This evaluation is also based on the previously stated premise that the options being evaluated are not necessarily different ways of addressing Burbank's transit needs, but do provide different ways of utilizing the Proposition A transit revenues available to the City. Therefore, another concept used in this evaluation is that of describing what the optional investments of Proposition A revenues could accomplish. The projected accomplishments will be described in terms of the number of persons that would be served, the costs of providing service, and the overall effect that this investment would have on the problem that it is intended to resolve. Therefore, based on this evaluation, the City of Burbank could determine how to most productively and effectively use its Proposition A revenues to leverage other funds, accomplish joint funding arrangements with the private sector, or support local land use development policies.

The projected cost-effectiveness of the options will be described in terms of the ridership, accessibility, or mobility benefits which could result from each possible investment in transit capital projects and operating programs. For example, the evaluation will indicate that after spending X dollars, which represent Y percent of the City's Proposition A revenues, that particular investment will achieve minimal or dramatic, short-term or long-term, and solitary or comprehensive impacts on mobility, accessibility, or transit usage by the City's residents or employees.

Finally, since the City of Burbank, and in particular those persons who make trips within or outside the City, are affected by the service development decisions made by the regional transit operator, this evaluation also considers what effects those decisions might have on the options being considered by the City of Burbank. For this reason, the possible decisions which the Southern California Rapid Transit District (RTD) might make about the orientation and structure of services will be highlighted first so as to place the options available to Burbank in a logical response perspective.

The City of Burbank is projected to receive \$738,500 in FY 1985 from the Proposition A Local Return Program. Since the allocation of the ½ cent sales that is devoted to the cities (one quarter of the Proposition A sales tax revenues generated in Los Angeles County) is based on population, and since Burbank's population is projected to grow by no more than about 1 percent per year, by the year 2000 the City could receive a total of \$11,200,000 in Proposition A funds, not accounting for inflation. Assuming a 5 percent annual real growth rate in the sales tax because of inflation and economic trends, the City could receive \$26,545,000.

A. Likely Development Scenarios for RTD

Although there are several municipal transit operators in Los Angeles County, RTD is clearly the predominant regional or intra-community transit operator, and in most areas, the only local or intra-community transit operator providing transit service to the general population. At the present time, the RTD is the only provider of scheduled fixed route transit service in the San Fernando Valley, with the following exceptions:

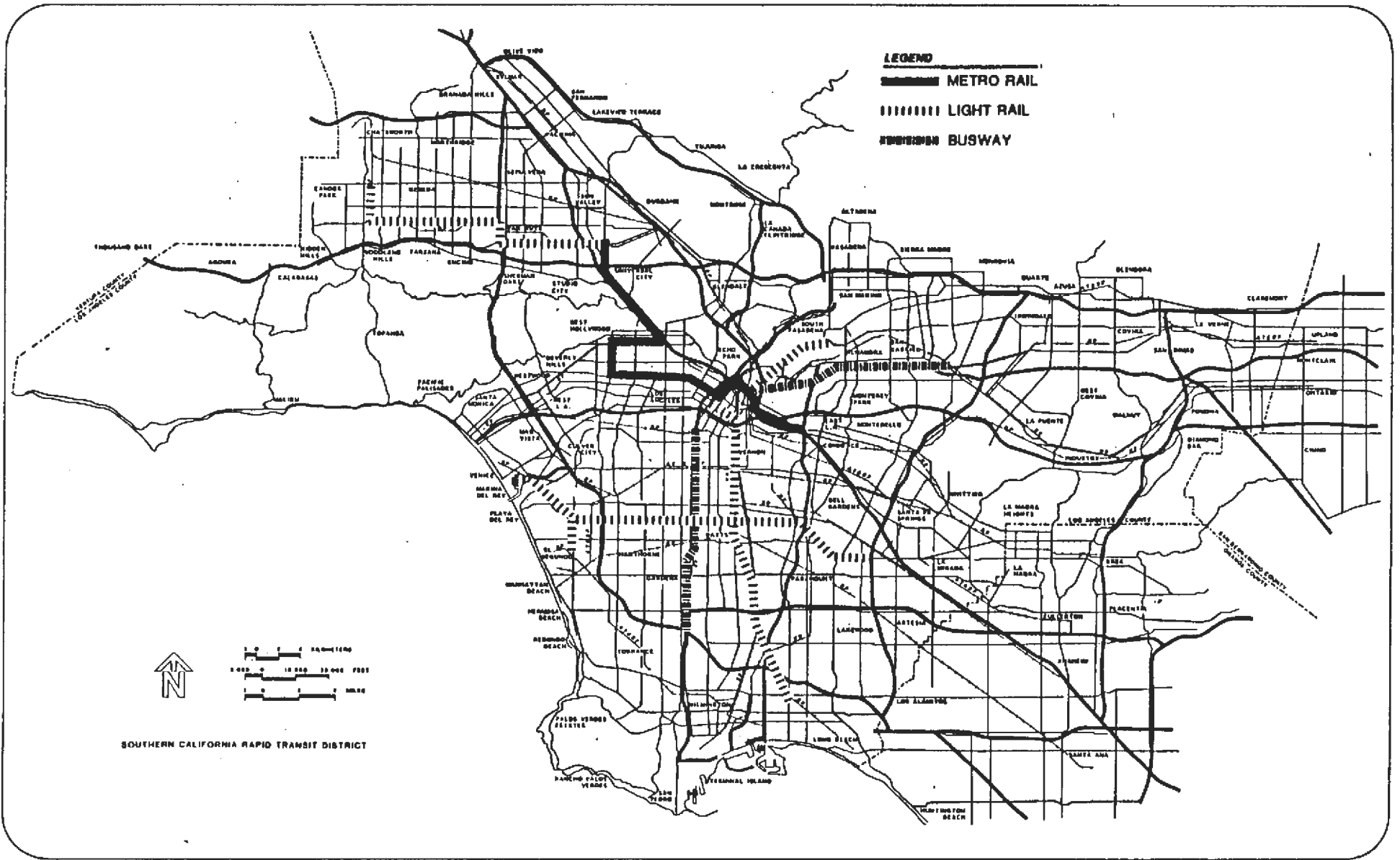
1. The City of Glendale is using its Proposition A revenues to operate a shuttle operation in its downtown area.
2. The City of Los Angeles has issued a request for proposals to receive bids from transit operators, including RTD, who would be interested in providing express bus commuter services from the San Fernando Valley section of Los Angeles to downtown Los Angeles. These services, which would be funded using the City of Los Angeles' Proposition A revenues, could replace or expand existing RTD routes.

The RTD has not prepared a detailed 10-year or even 5-year service plan, but based on current knowledge about the construction for the Metro Rail Project and the availability of capital and operating revenues for transit, it is possible to identify the agency's most likely development scenario.

Year 2000 Scenario. RTD, which is now the nation's largest all-bus transit operator, is projected to become an operator of heavy rail, light rail, and buses by the 1990's. (Heavy rail is the technical term given to urban rail systems which provide service on rights-of-way which are entirely separated from adjoining land uses and are also completely grade-separated, i.e. they never cross another transportation facility at the same grade. Existing heavy rail systems include the subways in New York and the San Francisco Bay Area's BART. Light rail is the latest name for streetcars or intra-urban railroads. Light rail vehicles, unlike heavy rail vehicles, can operate in either an at-grade or grade separated environment. Examples of existing light rail lines include the San Diego Trolley, and San Francisco's Muni Metro.)

The heavy rail, light rail, and bus guideways which the Los Angeles County Transportation Commission (LACTC) and RTD expect to have in operation some fifteen years from now are shown in Figure 2. As indicated in Figure 2, Los Angeles County's system of transit guideways is projected to consist of the following types of facilities:

1. The Metro Rail Project - 18.6 miles of heavy rail subway from downtown Los Angeles to North Hollywood.



FIXED GUIDEWAY SYSTEM IN OPERATION BY 2000

BARTON-ASCHMAN ASSOCIATES, INC.

2. Light rail lines - the first being the Long Beach to Los Angeles line, and then the Century, Coastal, San Fernando Valley, and Huntington lines.
3. The San Bernardino and Harbor Busways - separate facilities for buses and carpools.

These guideways are not assured of the funding sources required to build and operate them, but they do represent the corridors presently slated to receive the highest funding priority from LACTC.

As can be seen by reviewing Figure 2, the existing guideway development plans of the LACTC would have the following impacts on Burbank:

1. No guideways would be located within the City limits until at least twenty years from now.
2. The nearest rail guideway stations would be located at Universal City and North Hollywood. Those Metro Rail stations would be approximately 1.5 miles away from the Media District and 3 miles away from Town Centre.
3. Since 30 minutes are projected to be required to ride the Metro Rail trains from the Universal City station to the station at 5th and Hill in downtown Los Angeles, it would be persons commuting from the western neighborhoods of Burbank who would experience an improvement in transit service from the construction of Metro Rail. Currently, 30 minutes are scheduled for an express bus ride from downtown Burbank to downtown Los Angeles, so that in-vehicle travel times from the Universal City station would be comparable to those.
4. Since a transfer from heavy rail to light rail will be required at the North Hollywood station, access to the Media District from the western San Fernando Valley by rail will not be as convenient as if direct service were provided. Persons commuting to the Media District from the western San Fernando Valley by rail would have to ride light rail, then Metro-Rail, and then transfer to a feeder bus.

As far as RTD's local and express bus service is concerned, the most current 5-year and 10-year service development plans reveal no significant increase projected in service miles (coverage) or service hours (frequency) from the current levels. With the end of the Proposition A Fare Reduction Program in FY 1986 and the proposed cut-backs in Federal operating subsidies for transit, the RTD is likely to reduce service in the next one to three years and then begin to bring the service levels back up slowly to today's level. It is very likely that five years from now, RTD's service levels would be very similar to today's.

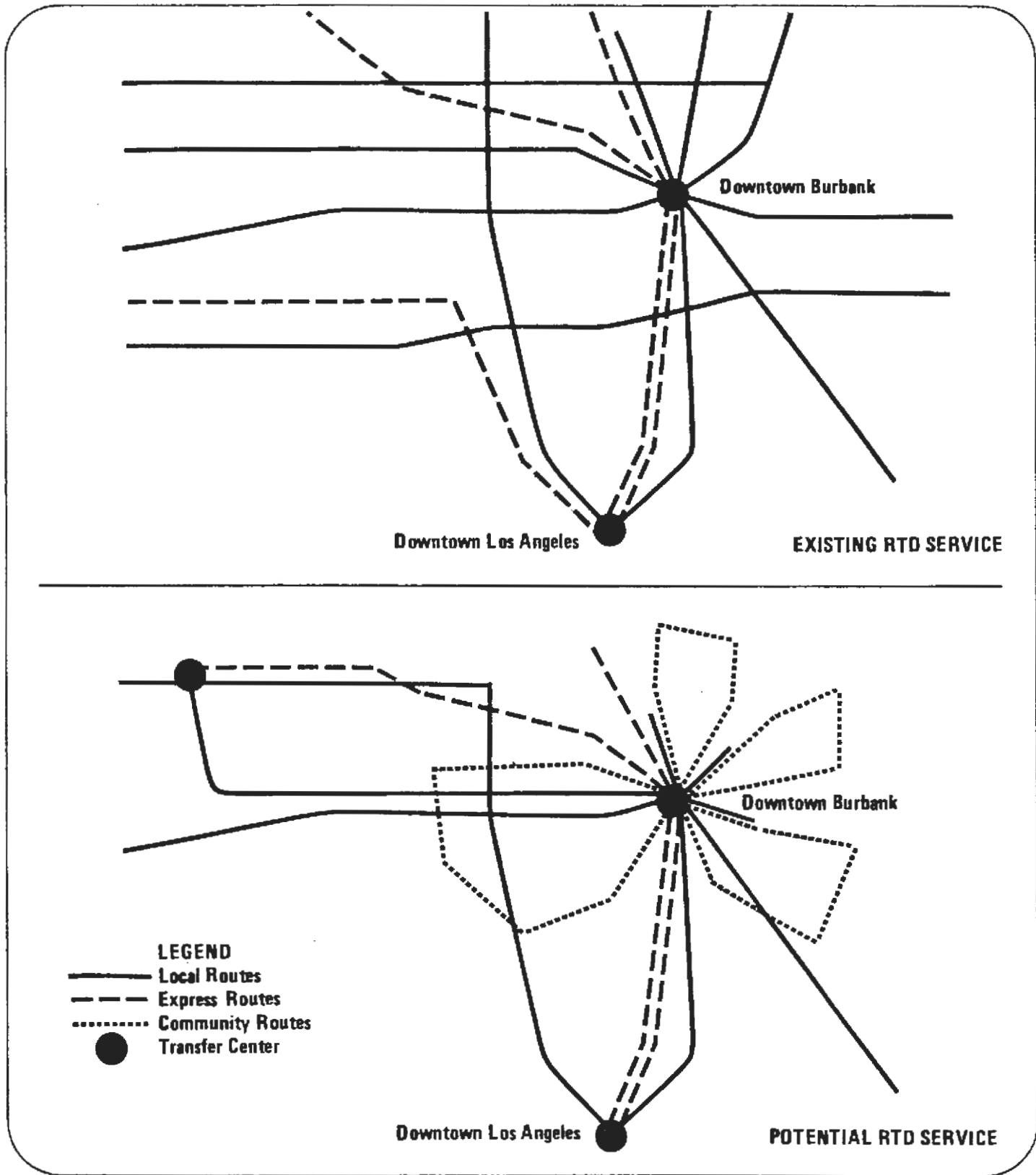
At the time that operation of the Metro Rail would begin, a coincident restructuring of RTD's bus routes is likely. Express bus routes serving the same origin and destination areas as the Metro Rail would be eliminated. Local routes would be realigned to serve Metro Rail stations, with the following changes proposed for the bus routes serving Burbank:

1. Retain the express routes originating east of I-5 (RTD 410), but eliminate the express routes originating west of I-5 (RTD 413).
2. Cancel routes which duplicate major portions of the Metro Rail's alignment or serve some of the same trip ends (RTD 96).
3. Modify the alignments or frequencies of other routes to emphasize feeder or shuttle role vis-a-vis Metro Rail stations (RTD 97, RTD 154).
4. Establish new routes to serve as shuttles serving the Metro Rail stations throughout the day or to provide limited stop service during peak periods only. The North Hollywood and Universal City stations would be the ones directly served from Burbank.

The recommended bus routing and service changes that would be implemented by RTD in conjunction with the start-up of Metro Rail operations are described in the Metro Rail Project's Supporting Services Plan (Milestone Report 9). The recommendations, some of which were described above, were adopted by RTD's Board of Directors in May 1983. Although the general thrust of RTD's plans would be to emphasize rail access to downtown Los Angeles by canceling parallel bus routes or re-aligning routes to create a transfer to Metro Rail, detailed modifications to this service concept may be made up until the start-up of Metro Rail operations.

Potential Service Orientation. In the future, RTD's service orientation could also change because the agency could decide to concentrate on inter-community regional trips and leave the provision of intra-community transit services to the cities. If this service concept were adopted, then RTD would concentrate on providing routes connecting major activity centers where local transit operators would bring in transit riders to a common transit center for transfers to occur. Implementing this potential service concept does not mean that RTD would cease to operate on all major arterials, but it does mean that RTD would concentrate its local routes on selected arterials connecting major regional and sub-regional activity centers. The differences between RTD's current service structure and this potential one are illustrated in Figure 3.

This new service concept was considered by the Southern California Association (SCAG) of Governments in the latest Regional Transportation Plan as a rational service response by RTD to the allocation of Proposition A revenues to the cities of Los Angeles County. Faced with decreasing Federal operating funds, and the reluctance of many cities to utilize Proposition A revenues to help subsidize RTD's operations, the RTD is likely to review the productivity of its routes and route segments, and could modify its grid-based routes into a more radial orientation connecting activity centers and communities.



EXISTING & POTENTIAL BUS SERVICE ORIENTATIONS

Further impetus to the change in RTD's service orientation will come from the increased fares which will be instituted next fiscal year. Currently local bus fares are set at 50¢ as a result of the Fare Reduction Program funded by LACTC's Proposition A revenues. When this program expires, RTD's local bus fares will increase to 85¢ and will continue to increase steadily so that five years from now local bus fares could be as high as \$1.25. Those persons using RTD to travel to work or to make long inter-community trips will probably have no other palatable choice available, and so their number of transit trips per capita will not decrease significantly. However, those persons using RTD to travel for personal business, and who make relatively short trips, will probably react to the increased fares by curtailing the number of discretionary transit trips they make. If intra-community services are available at low fares (say 50¢), then these local transit providers should experience an increase in trips, trips that used to be made on RTD when there was no significant disparity in fares.

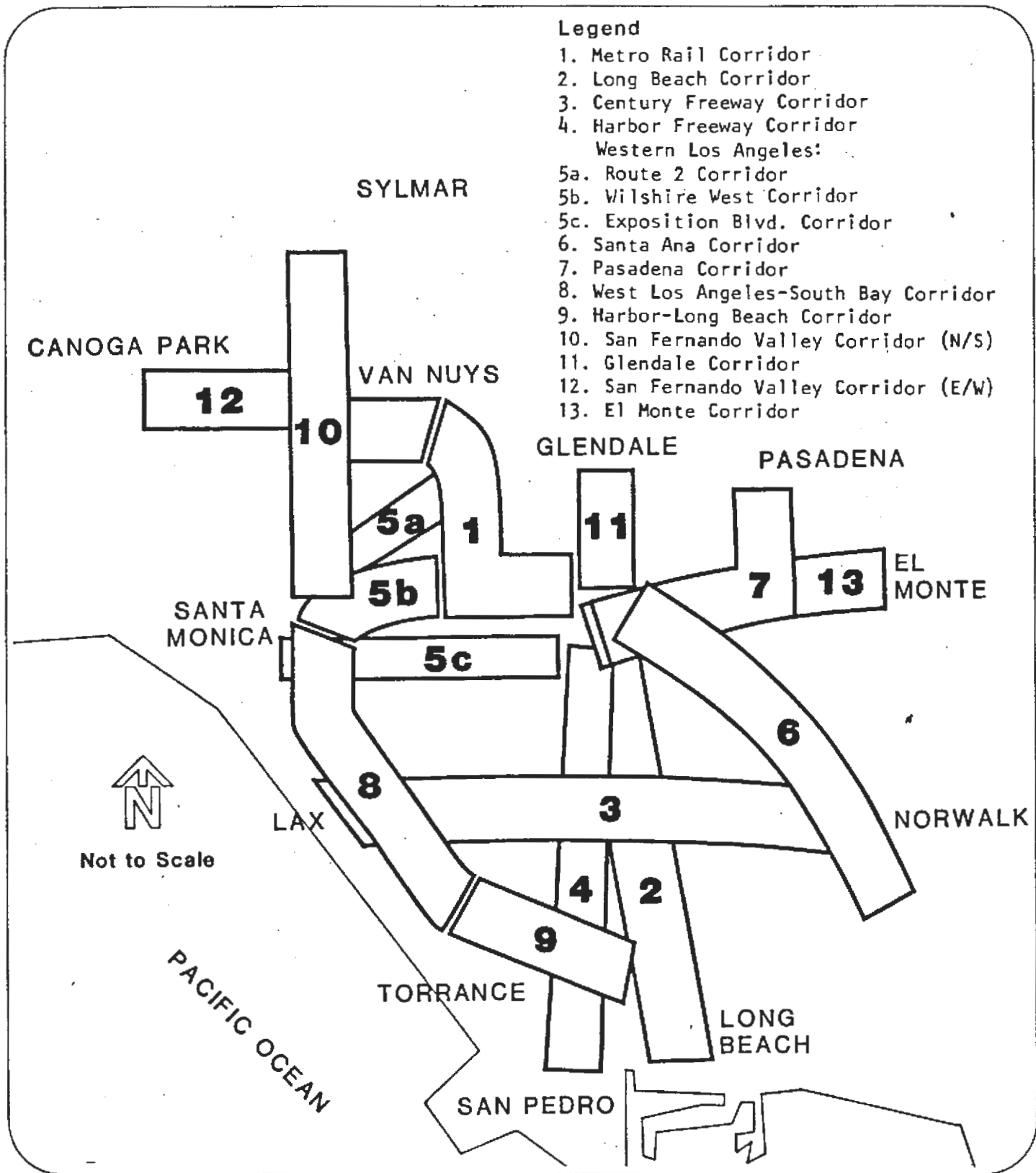
Long Term Guideway Plan. When Proposition A was approved by the voters in Los Angeles County, an additional 1/2 cent sales tax levy was earmarked for the construction of rail transit and the expansion of bus services. In order to fund local transit programs, 25 percent of the sales tax revenues collected throughout the County will be returned to local jurisdictions. Starting in FY 1986, at least 35 percent of the funds collected will be earmarked by LACTC for the construction and operation of the rail transit network. The remaining 40 percent will be allocated by the LACTC for expanded bus services, reduced fares, or accelerated construction of rail lines.

The rail corridors which the LACTC views as having been endorsed by the voters in 1980 were listed in a map included with the ballot measure. As noted in Figure 4, none of the thirteen rail corridors described in Proposition A would directly serve Burbank. Based on current planning, the construction of the mapped corridors will receive higher priority than that of new corridors. Assuming the continuation of this development policy, Burbank will not be directly served by rail transit¹ until as least 15 years from, at which time an extension could be initiated of the San Fernando Valley line, and later from the Glendale line.

B. Operating Programs

The first category of transit options to be evaluated consists of those in which services would actually be provided in order to address the short-term or long-term transit needs identified in Milestone Report 1. The transit services being considered as appropriate for Burbank range from expanding the existing dial-a-ride services for elderly and handicapped persons to incorporating transit services within a comprehensive transportation system management program for a particular area of the city. (Although the establishment of new transportation

¹ Commuter rail service is not specified by Proposition A, and could be resumed whenever an acceptable funding program was developed by Caltrans and local jurisdictions. See sections 3B5, 3B6, and 3C2 for a discussion of the impacts of potential rail service on Burbank's transit options.



PROPOSITION "A" TRANSIT CORRIDORS

services is clearly not required in order to implement a user-side subsidy program, that concept is treated as if it were an operating program because in Burbank a user-side subsidy program is likely to have to be instituted in conjunction with additional transit services.)

1. Dial-A-Ride Expansion

Milestone Report 1 contained an analysis of the current service level and identified suggestions from the riders for possible improvements to the Burbank Transportation Service. According to a survey of riders, the two most frequently suggested improvements were:

1. being able to call for a ride the same day or the day before, and
2. being able to schedule a ride at any time of the day.

Implementing these two suggestions would ease the reservation restrictions which now require riders to call 48 hours in advance of their desired trips. In practice, however, this requirement is not absolute, and is relaxed if the Burbank Transportation Service has time slots available to serve the requested trips. The Burbank Transportation Service is currently working toward the goal of reducing the advance reservation time period to 24 hours by establishing a historical record of the trips made by time of day in order to establish more permanent schedules.

Other suggestions from the riders included expanding the service area of the Dial-A-Ride Operation to serve trip ends outside Burbank, especially North Hollywood and Glendale. Presently trips to these areas are allowed only on Monday and Tuesday, and only for medical trips.

Since these suggestions come from the current riders, it is not certain that implementing these suggestions would induce large amounts of ridership from persons currently not using the service. Demand-responsive transportation service for the elderly and handicapped has been provided in Burbank since 1974. Therefore, it is unlikely that a large number of persons are unaware of the service, but it is likely that many trips have not been made because of the current inconvenience and lack of flexibility associated with advance and restricted reservations. If the program is to serve new trips, then greater marketing efforts will be needed to reach eligible users not presently able to travel.

Demand Estimates. Current ridership estimates for the Burbank Transportation Service range from 3,500 to 5,000 boardings per month, or about 120-170 boardings per day (meaning that approximately 60 to 80 people per day are making these trips). Demand estimates from other demand-responsive systems serving the elderly and transportation handicapped indicate that higher daily ridership should be occurring in Burbank. Those estimates range from 350 to 600 boardings per day, depending on how the market segments are defined and what trip generation rates are used. Based upon the experiences of a number of paratransit systems operating in southern California, the number of expected daily trips (boardings) in the year 2000 will be at least this high based on serving the estimated 20,000 elderly or handicapped residents.

Another approach used to estimate demand for paratransit services is to apply trip generation rates for various target market segments.² For this analysis, four market segments were identified as being applicable for Burbank's Transportation Service:

1. elderly, transportation disabled;
2. non-elderly, transportation disabled;
3. elderly, with no auto available, not transportation disabled; and
4. elderly, with auto available, not transportation disabled.

The results of this analysis, which are shown in Table 3, indicate that some 660 daily trips are likely for the specialized door-to-door service in Burbank. This future total includes both new trips generated by the availability of the service and trips diverted from other modes.

A third method of projecting the demand for paratransit services is based on multiplying the trip rate per 1,000 residents by the size of the total population in the service area. Using a reasonable rate of trips per 1,000 residents multiplied by the 85,000 current residents of Burbank yields 850 daily trips. Thus, the range of potential trips is at least 350 per day and as many as 850, with 660 per day being the most likely figure.

The City's policy-makers may wish to prioritize service to market segments based on transportation need. Presumably the first two market segments, composed of persons who are disabled and who may be elderly, should receive first priority for specialized transportation service. The second two market segments, composed of the elderly who are not disabled, could receive priority for service based upon their transportation need as defined by auto availability. This type of prioritization is apparently being used now by the Burbank Transportation Service to schedule trips, according to the description of the program in the Winter, 1984 Parks and Recreation Guide issued by the City.

Based on these estimates, it appears that there is more demand for door-to-door transportation service than is presently being provided. The conservative estimate of 350 daily trips would indicate that ridership could more than double from the existing level. Given that there is unused capacity in the Dial-A-Ride system during portions of the day, it should be possible to provide additional trips to the transportation handicapped at little additional cost. This could be achieved by establishing fixed schedules for midday service to the Joslyn Senior and Nutrition Center and making available the mid-morning and mid-afternoon time slots to new trips. The next section will discuss how understanding ridership patterns can assist in system management.

Understanding and Controlling Ridership. Systems currently providing transportation services similar to Burbank's can most efficiently manage the available vehicles and budget by understanding the existing ridership patterns. This step is important in order to determine that the system is providing the desired service to the clients most in need in the most cost-effective way. Close examination of system ridership can reveal if the service is not being utilized by

² Center for Transportation Research, How to Predict and Control Ridership for Community Transportation System, UMTA, 1982, P. 13.

TABLE 3

ESTIMATE OF DEMAND FOR SPECIFIED DOOR-TO-DOOR TRANSPORTATION SERVICE

Market Segment	Disabled and Elderly	Disabled Not Elderly	Elderly Not Disabled With No Auto	Elderly Not Disabled Auto Available
1. Persons in Burbank (Year 2000)	2,400	1,600	4,700	11,000
2. New daily trips generated	.04	.04	.004	.001
3. Number of new daily trips	96	64	19	11
4. Number of existing daily trips per person	1	1	1.4	1.6
5. Number of existing total daily trips	2,400	1,600	6,580	17,600
6. Trips diverted	.08	.08	.01	.005
7. Number of trips diverted	192	128	66	88
8. Total Estimated Demand (line 3 + line 7)	288	192	85	99
Total - All Market Segments			664	

Sources: Trip generation rates and diversion rates derived from Table 11, p. 14 of NCHRP No. 262, Planning Transportation Services for Handicapped Persons, 1983.

the neediest people. Even if a system were at capacity all or most of the day (which is not the case in Burbank), it is not uncommon for just a few persons to account for a majority of all trips (which appears to be the case in Burbank).

Every client, trip purpose, or service restriction that an agency imposes, for whatever reason, is likely to have some impact on ridership. Multiple restrictions tend to create confusion over who is eligible for service and may deter genuinely eligible persons from trying to use the service. The imposition of ridership restrictions implies a trade-off between the operational (efficiency) benefits gained and the program costs incurred. Eligibility and scheduling restrictions, such as Burbank's, will have the following effects on utilization of the service:

- they will require a great deal of information processing on the part of the client and referral agencies,
- they may not address the real transportation problems of the clients in question,
- they may require substantial administrative time and resources for very small returns in cost control, and
- they may lead to an under utilization of available capacity.

If a system is operating at capacity during its peak periods, the dispatcher/scheduler will have to either refuse serving a new client or ask the client to reschedule the trip. However, simply being asked to rearrange travel preferences will inhibit ridership. Additionally, certain trip times cannot be changed so the client will not be served at all for that trip. Having once been refused, the client may never return to the system. Sometimes the client will not understand the reason for the refusal and may feel that he or she is ineligible for service. Thus, in general, a system should implement the fewest trip and user restrictions possible to meet its system objectives. Since absolute certainty about rider response is not always possible, a system should be flexible and willing to consider necessary changes in restrictions and requirements.

Benefits and Costs of Service Improvements. More Dial-A-Ride trips can be accommodated through at least the following basic approaches:

- 1) Make service more available by extending hours or geographic areas served, by adding more vehicles to the fleet, or by easing eligibility requirements.
- 2) Make service more convenient by easing advance reservation requirements and simplifying the registration process.
- 3) Make service more productive by encouraging more riders during non-peak periods to utilize available capacity and/or discouraging riders during peak periods so that capacity does not have to be expanded.
- 4) Establishing a computer-based registration and scheduling system. This step should be implemented in Burbank in any event so that the system's effectiveness and efficiency can be improved.

Improving the Burbank Transportation Service by making it more convenient or more productive will increase ridership to some extent. Those actions will create benefits such as increasing the mobility of the target population, the elderly and handicapped. Each specific improvement measure will also have other benefits and costs associated with it which are discussed below.

The ridership projections which follow are based on the measure of productivity which indicates the number of person trips served per vehicle hour of service. For door-to-door specialized transportation services this measure usually ranges from 2.0 to 6.0 trips per vehicle hour.³ It is estimated that the Burbank Transportation Services currently serves 4.0 trips per vehicle hour.⁴

Extending service hours - The more hours of service that are available, the more flexible and convenient the system will be to use. Currently, service in Burbank is provided 12-14 hours per weekday (depending on the season), and 8 hours on weekends.

Extending service hours will generate fewer trips per vehicle hour than the present service, and thus lower the system's productivity. Added costs will be incurred for dispatcher and driver salaries and vehicle fuel and maintenance. The annual costs of additional service and the additional ridership generated based on deploying 4 additional vans are indicated in Table 4.

The cost per additional trip which would average about \$5.75 for both time extensions would be about 3 percent lower than the current program's cost of approximately \$5.95 per trip. The projected cost per additional weeknight rider of \$6.06 would be insignificantly higher than the cost per trips of current riders because the per capita trip making rate would be lower after sunset than before sunset, but the incremental costs allocated to the dispatching function would be lower than the current average program costs. In addition, 2 to 3 daylight hours would be included within the expanded service hours on Saturdays and Sundays so that the current trip rates would prevail. Since the incremental dispatching costs were assumed to be lower than the current program costs, the incremental costs per trip would be about 16 percent lower than the program's current average cost per trip.

Extending geographic coverage - Currently service is provided outside of Burbank only to Glendale and North Hollywood to serve medical appointments occurring on Monday and Tuesday. Extending the service area for any trip purpose on any day would make the service more flexible and convenient, while further extensions would make the system even more flexible and convenient. However, longer-distance extensions will increase vehicle mileage and consequently fuel and maintenance costs. Furthermore, longer trips to areas more distant from Burbank than Glendale or North Hollywood will mean less vehicle capacity is available for service within Burbank. Since Glendale and North Hollywood are adjacent to Burbank, some trips to these areas may be no longer than trips made entirely within Burbank.

³ NCHRP Report Number 261, Cost Effectiveness of Transportation Services for Handicapped Persons, Transportation Research Board, 1983, p. 81.

⁴ Based on 50,000 annual trips in 12,400 vehicle hours.

TABLE 4

PROJECTED ADDITIONAL COSTS AND RIDERSHIP FOR EXPANDED HOURS
OF DIAL-A-RIDE OPERATION

	Per Weekday	Per Weekend Day	Total
Additional Hours	2 (14-16 total hours provided)	4 (12 total hours provided)	
Additional Vehicle Hours	8	16	
Cost per Driver ¹	\$12.00 per hour		
Number of Drivers	Assume 4 vans		
Additional Daily Cost	\$96.00	\$192.00	
Additional Annual Cost	\$24,000	\$22,080	\$46,080
Cost per Dispatcher	\$12.00 per hour (not including overhead)		
Additional Daily Cost	\$24.00	\$48.00	
Additional Annual Cost	\$6,000	\$5,520	\$11,520
Cost per Vehicle Mile ²	\$.50		
Additional Daily Cost ³	\$40.00	\$80.00	
Additional Annual Cost	\$10,000	\$9,200	\$19,200
Additional Program Cost	\$40,000	\$36,800	\$76,800
Additional Ridership Rate	3.3 per vehicle-hour	4 per vehicle hour	
Additional Daily Trips ⁴	26.4	64	
Additional Annual Trips	6,600	7,360	13,360
Cost per Additional Trip	\$6.06	\$5.00	\$5.75

¹ Based on allocating \$282,291 for salaries and benefits to drivers and supervisory personnel.

² Includes all costs not allocated to vehicle hours.

³ Assumes utilization rate of 10 miles per hour of service.

⁴ Two trips per rider.

The additional trips which would be generated by serving Glendale and North Hollywood seven days a week without restrictions on trip purpose, or restructuring the service to medical appointments are calculated in Table 5. The responses collected from the survey of riders conducted in October 1984 were used to project that approximately 21 percent of the trips made on Burbank's Dial-A-Ride would be destined to North Hollywood or Glendale. Again, based on the survey responses, approximately 42 percent of these trips were projected to be for medical appointments. For weekdays, a trip rate of 4.5 per vehicle hour was used for all trips, while 42 percent of this rate or 1.7 trips per vehicle hour were assumed for medical trips only. (For weekend days, the trip rate for medical appointments was reduced by about 40% from the daily rate because fewer medical appointments could be scheduled, while the trip rates for all trips were reduced by over 10 percent for the weekday trip rates because the opportunities and demand for shopping, personal business or recreation trips would not be as high as during the week.)

The costs per additional trip destined to North Hollywood or Glendale were projected to range from \$4.22 for all weekday trip purposes to \$19.50 for weekend medical trips. As indicated in Table 5, serving each additional weekly trip would cost \$4.90 for all trip purposes or \$11.33 if the expanded coverage were restricted to medical trips. Serving all trip purposes would cost less on a per trip basis because more person trips could be combined into each vehicle trip than would be the case for only serving medical trips. The costs per trip could be lower than the costs per trip of the current service if group riding were encouraged so that the assumed number of riders per vehicle hour could be served. If excursions by seniors or handicapped persons to shopping centers, medical facilities or other major trip generators were organized, then the probability of achieving the projections indicated in Table 5 would be increased.

Easing eligibility requirements - Persons currently eligible to ride Burbank's Transportation Service include elderly persons (over age 60) who do not drive or do not have a vehicle, and handicapped persons (with doctor's certification required). In practice, the driving or vehicle availability requirement is often waived.

The driving or vehicle availability requirement could be dropped, the age limit lowered, and the doctor's certification requirement eliminated. By easing eligibility requirements, more potential users could receive the benefits of the Dial-A-Ride service, and the administrative burden could be reduced. However, service capacity could be taken away from the neediest persons, those who are unable to drive or ride regular fixed-route transit.

Easing advance reservation requirements - Currently, reservations for trips must be made 2 days in advance. Reservations are encouraged at certain times of the morning for various groups prioritized by their degree of transportation disability and desired trip purpose. In addition, reservations are usually not accepted after 2 p.m. because this much lead time is required to manually schedule the vehicle trips.

Reducing these registration requirements to no more than 24 hours in advance would make the system much more flexible and convenient to the riders. The increased ridership which would result and the shorter time period available would make scheduling of trips more difficult. However, computer software is readily available to make this task easier and more cost-efficient to accomplish than current manual scheduling. As recommended earlier, purchasing a personal or micro-computer and a scheduling program would greatly increase ridership and productivity at a nominal capital cost of less than \$7000 including instruction and training.

TABLE 5

PROJECTED ADDITIONAL COSTS AND RIDERSHIP FOR EXPANDED DIAL-A-RIDE SERVICE
TO GLENDALE AND NORTH HOLLYWOOD

	Per Weekday		Per Weekend Day		Total	
	Medical Only	All Trips	Medical Only	All Trips	Medical Only	All Trips
Additional Vans ¹	1	2	1	2		
Additional Vehicle Hours	12	24	8	16		
Cost per Driver	\$12.00 per hour					
Additional Daily Cost	\$144	\$288	\$96	\$192		
Additional Annual Cost	\$36,000	\$72,000	\$11,040	\$22,080	\$47,040	\$94,080
Cost per Dispatcher	\$12.00 per hour (not including overhead)					
Additional Daily Cost ²	\$12.00	\$24.00	\$12.00	\$24.00		
Additional Annual Cost	\$3,000	\$6,000	\$1,380	\$2,760	\$4,380	\$8,760
Cost per Vehicle Mile ³	\$0.50 (including maintenance)					
Additional Daily Cost	\$72.00	\$144.00	\$48.00	\$96.00		
Additional Daily Cost	\$18,000	\$36,000	\$5,520	\$11,040	\$23,520	\$47,040
Additional Program Cost	\$57,000	\$114,000	\$17,940	\$35,880	\$68,195	\$136,690
Additional Ridership Rate	1.7 per vehicle hour	4.5 per vehicle hour	1 per vehicle hour	4 per vehicle hour		
Additional Daily Trips	204	108	8	64		
Additional Annual Trips	5,100	27,000	920	7,360	6,020	27,920
Cost per Additional Trip	\$11.18	\$4.22	\$19.50	\$4.88	\$11.33	\$4.90

¹ Assumes additional vehicles required based on additional 11 and 22 percent ridership gain, respectively.

² Assumes use of computer-derived scheduling.

³ Assumes utilization rate of 12 miles per hour of service.

The demand for more trips could increase ridership by at least 35 percent (based on the survey responses to the request for service improvements) just from current riders, and by probably 100 percent if eligible persons who are not riders were made aware of the change in the scheduling process. If sufficient vehicle capacity were available, major portions of the increased ridership could be served by the current fleet of vans. A more detailed utilization analysis would be required to determine what unused capacity is available throughout each service day, and then projections made of the additional ridership demand by time of day in order to accurately project the additional costs per trip. One way in which the program's costs could be controlled would be by adopting the management philosophy described below.

Managing ridership demand. Currently, the peak periods for ridership are in the morning for medical appointments and in the late morning through early afternoon (ending about 1:30 p.m.) for visits to sites involved in senior center nutrition programs. In addition, regularly scheduled excursions accommodating evening and weekend trips to shopping centers, movie theaters, and senior center dances are allocated part of the system's capacity.

Increased productivity can be achieved in several ways. First, peak demand could be reduced by suggesting to some of the persons calling for service that they re-arrange their trips to non-peak periods. Second, peak demand could be reduced by continuing the existing restrictive advance reservation requirements. (This is essentially the way the Burbank Transportation Service is managed now because the 48 hour advance reservation requirement is often relaxed for trips requested in the non-peak periods). Making this de facto policy a formal one would communicate clearly to all users and potential users important information about how the system operates. Third, non-peak useage could be increased by scheduling more excursion trips (group rides), and by marketing the availability of service during non-peak periods. Fourth, forcing an improvement in productivity could be achieved by grouping trips more effectively through better scheduling or adopting a modified route system.

Any of these methods for increasing productivity will allow more trips to be made for the same amount of money, or the same number of person trips to be served for less money. As stated earlier in the section on understanding and controlling ridership, accomplishing this change will require knowledge of ridership patterns, close monitoring of riders, communicating effectively with riders and client agencies, persuading some riders to shift their desired trip times, and marketing non-peak service. In short, improved productivity will require more management of the resources allocated to the program.

2. Other Paratransit Services

The term paratransit covers a wide variety of operations, ranging from exclusive-ride taxis to shared-ride subscription services. Paratransit services established in many American cities include jitneys, and contract taxicab services. Paratransit systems have generally been classified as providing coordinated versus non-coordinated dispatching, and exclusive rides versus shared rides. In this analysis of options for Burbank, the emphasis will be on systems characterized by central dispatching where trips are arranged for individuals or groups of people will be considered.

This section is entitled other paratransit services because the Burbank Transportation Service with its Dial-A-Ride program for elderly and handicapped persons is a paratransit operation. Supplementing those services or substituting them with contracts established with taxicab companies or jitney operators are the other paratransit options that will be discussed in this section.

Service Parameters. Coordinated - dispatch services, such as Burbank's Transportation Service or taxicab contract operations, may be offered in a variety of patterns. The same system, as in the case with the Burbank Transportation Service, may offer different kinds of service throughout the day or during different days of the week. The routing options which are available are described in Figure 5.

Many-to-many service is currently being provided by the Burbank Transportation Service because demand-responsive service is provided between any origin and any destination within Burbank. At times of greater travel demand, such as when seniors are taken to nutrition centers, many (origins)-to-few (destinations) are served. At times when excursions are scheduled, or when passenger demands are the highest for trips destined to a particular senior center (such as Joslyn), the Burbank Transportation Service operates a many (origins)-to-one (destination) service.

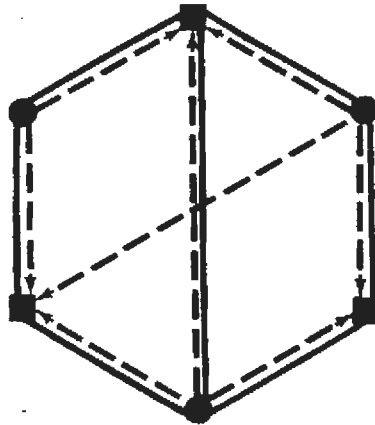
The Burbank Transportation Service does not currently provide the last two kinds of paratransit service options shown in Figure 5. Deviation-from-point service is one where the transit vehicle makes regularly-scheduled stops at designated points, but provides door-to-door service between checkpoints. Deviation-from-route service is one where the vehicles will follow a fixed route except where short deviations are requested.

Shared-Ride Taxi Operations. Many cities in Los Angeles County and in other parts of the country have established service contracts with taxicab companies in order for these companies to provide Dial-A-Ride services. These contracts have been established in order to reduce the labor costs of the Dial-A-Ride program and to serve a larger member of person trips for the same budget. According to data available to the Los Angeles County Transportation Commission, the total operating costs per vehicle hour for Dial-A-Ride services operated by public employees are averaging about \$13.50, while the costs per vehicle hour for taxicab contracts range between \$12 and 18 per vehicle hour. How these costs would compare specifically for Burbank will be described below.

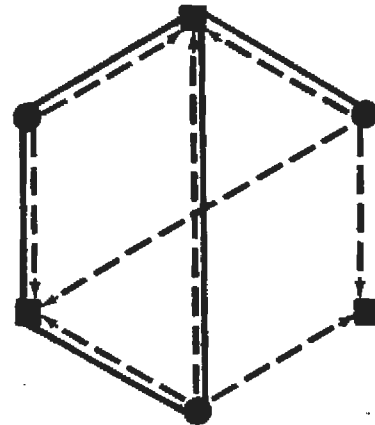
Based on an order-of-magnitude allocation of direct operating expenses, each vehicle hour of service provided by the Burbank Transportation Service costs approximately \$23.35. This unit cost figure would include the salaries and fringe benefits for drivers and dispatchers, fuel and other consumables, and maintenance and replacement costs. Administrative and management costs have not been included in this figure because these costs would continue even if a contract were established by the City for Dial-A-Ride services.

Although these cost estimates are not as accurate as bid quotes, taxicab companies operating in Burbank did indicate in telephone interviews that they would charge \$12 to \$18 per vehicle hour for a full-time contract to provide Dial-A-Ride services. The range of these costs, as indicated in Table 6 would be affected by the type of vehicle provided and the provision of a wheelchair lift on

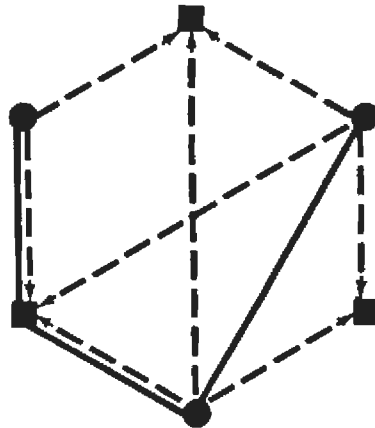
MANY TO MANY



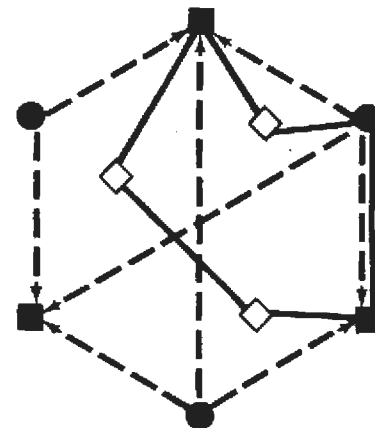
MANY TO FEW



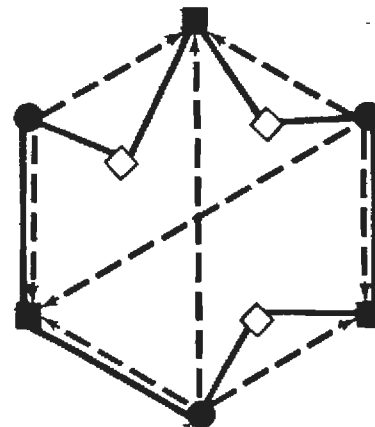
MANY TO ONE



DEVIATION FROM POINT



DEVIATION FROM ROUTE



- LEGEND**
- Origin
 - Destination
 - - - Person Trips
 - Possible Vehicle Route
 - ◇ Checkpoint/Transfer Stop

PARATRANSIT COORDINATED DISPATCH OPTIONS

TABLE 6
COMPARISON OF PARATRANSIT COSTS

FY 1984-85 Budget for Burbank Transportation Service	\$379,500
Less allocated management/administrative/monitoring costs	\$90,000 (approx.)
Estimated costs allocated to direct operations	\$289,500
Estimated annual vehicle hours	12,400
Estimated average cost per vehicle hour	\$ 23.35
(includes fuel maintenance, salaries and benefits)	
Cost per vehicle hour for private vendors	
(include fuel, maintenance, salaries and benefits)	
Sedan	\$ 12-13
Van (less than 9 seats, few modifications)	\$ 13-14
Van (more than 9 seats, left-equipped, raised roof)	\$ 16-18

the vehicle. The costs indicated in Table 6 compare favorably with the costs reported by LACTC, and in particular with the \$15 to \$20 costs per vehicle hour reported by nearby cities which have contracted with taxicab companies to provide Dial-A-Ride services.

NOTE: Since all of these cost estimates are very general, and are not based on a specific review of the budget categories for the Burbank Transportation Service, the costs discussed here are presented only to illustrate possible cost differences.

Current Taxicab Operations in Burbank. The following four companies are licensed to operate within the City of Burbank or at the Burbank Airport: Red Top/Golden State Cab, Valley Celebrity Cab, Los Angeles Checker Cab, and Universal Transportation Company. The City of Burbank has established the same regulatory requirements as the City of Los Angeles, and permits cabs operating in the City to charge rates no higher than those which can be charged in the City of Los Angeles. This regulatory policy has been implemented in order to reduce the administrative burden to the City of Burbank, draw upon the experience and expertise available to the City of Los Angeles, and, if not encourage, at least not hinder the operation of cabs connecting Burbank to adjacent cities. The larger companies provide service 24 hours a day throughout the City, while some companies operate only from the Burbank Airport.

Although the fare structure is not exactly the same among all companies, \$1.90 plus \$1.40 per mile is a representative fare. Based on the current fare structure, taxicab trips would therefore cost the following amounts based on the miles indicated:

Trip Distance (In Miles)	Taxicab Fare
1	\$ 3.30
2	4.70
3	6.10
4	7.50
5	8.90
6	10.30
7	11.70
8	13.10
9	14.50
10	15.90

Cost Implications. Based on the available data, each person trip occurring on the Burbank Transportation Service costs approximately \$5.95. In comparison, the average cost per trip for similar Dial-A-Ride operations in Los Angeles County was \$6.22 in FY 1982/83. (This is the latest year for which the Los Angeles County Transportation Commission had data available for Dial-A-Ride projects.) These high costs reflect the dwell times required to assist the elderly or handicapped riders when boarding or alighting, and the administrative costs of registration and certification of trip eligibility.

Cities which contracted with private taxicab companies or van operators to provide Dial-A-Ride service have recorded costs per trip which are up to 33 percent lower than those of public operations. These cities have reported costs per trip in the \$4 range, with Pasadena, for example subsidizing \$3.71 of the \$4.21 average cost per trip. (In that City, the contractor charges the Dial-A-Ride customers, and subsequently the City, 90% of the regular meter rate.)

As can be noted from the per mile costs listed above for taxicabs operating in Burbank, each person trip on the Burbank Transportation Service costs the same as about a 3 mile cab ride. If a more detailed analysis indicated that cost reductions were possible, then a private contract could permit the City of Burbank to provide more Dial-A-Ride trips for the same budget, serve many more persons with an increase in the Dial-A-Ride program, or provide extended evening and weekend service or geographic coverage at a lower cost per person trip.

Service Implications. Contracts for Dial-A-Ride services operated by taxicab companies or van operators typically establish guidelines for the following items:

1. Hours and days of operation
2. Response and wait times (delays and penalties)
3. Types of vehicles and equipment provided (wheelchair lift, air-conditioning, high roof, etc.)
4. Method of payment (cash, user-side subsidy programs, invoices, audits, etc.)

5. Methods of resolving complaints (reporting means, standards and penalties).
6. Limits (area served, number of trips, identification requirements).

Contracts are typically established for periods ranging up to three years in order to establish continuity of service. Termination clauses are also specified so that if a satisfactory resolution of problems cannot be achieved, the contracting agency can initiate the replacement of the contractor. It is these control measures, as well as the open bid process, which permit the contracting agency to provide the same quality of service as with a direct public operation.

Jitneys. This form of shared-ride, fixed-route taxi service was a very popular and successful form of paratransit during the early decades of the twentieth century. Driver-owned jitneys competed directly with the streetcar routes in cities such as Los Angeles, charging lower fares and providing faster service. As a result, legislation was passed which made jitney operations unprofitable, if not illegal, in most communities throughout the nation.

There are no jitneys operating in Burbank today, primarily because potential operators have not projected the availability of a market which they could profitably serve. Jitneys typically operate on streets which draw large numbers of pedestrians and bus passengers. In Los Angeles, Wilshire Boulevard is one street where jitney service has been proposed, but has not been successfully operated because of the inability to compete with RTD's current 50 cent fare. When RTD's fare will increase to at least 85¢, it is likely that new jitney proposals will be made. In addition to establishing a market among short trips made along the street served, these jitney proposals will have to be reviewed by the California Public Utilities Commission in order to determine their effects on RTD. (When the RTD was formed, the agency inherited the operating rights for certain corridors from its municipal and private predecessors.)

The provision of jitney service in Burbank will depend on the sizes of the potential markets (which will be very small along most streets), the degree of competition with established RTD routes, and the City's policy toward the service application. Potentially the most beneficial jitney operations would provide feeder service to RTD's inter-community routes or shuttle service within an area such as the Media District.

3. Transportation System Management

During the 1970's, steeply rising construction costs, growing environmental concerns, and more intense competition for available dollars combined to increase the importance of and reliance on making more efficient and better use of the existing transportation systems. This emphasis, which first began to be noticed in cities with no rights-of-way available for the construction of new highways, was officially given the name of transportation system management or TSM. A major objective of the TSM concept is not only to reduce the need for new capital investments, but also to attain broader goals such as urban redevelopment or preservation, energy conservation, and improvements to environmental conditions.

The spectrum of TSM actions is very broad, and includes the categories and examples of actions listed in Table 7.

TABLE 7
SPECTRUM OF TSM ACTIONS

-
-
1. Improved Vehicular Flow
 - Improvements in Signalized Intersections
 - Freeway Ramp Metering
 - One-Way Streets
 - Removal of On-Street Parking
 - Reversible Lanes
 - Traffic Channelization
 - Off-Street Loading
 - Transit Stop Relocation
 2. Preferential Treatment of High-Occupancy Vehicles
 - Freeway Bus and Carpool Lanes and Access Ramps
 - Bus and Carpool Lanes on City Streets and Urban Arterials
 - Bus Preemption of Traffic Signals
 3. Reduced Peak-Period Travel
 - Work Rescheduling (staggered or flexible work hour programs)
 - Congestion Pricing (all day vs. heavily parking rates)
 - Peak-Period Truck Restrictions
 4. Parking Management
 - Parking Regulations
 - Park-and-Ride Facilities
 5. Promotion of High-Occupancy Auto Use and Non-Vehicular Modes
 - Ridesharing
 - Bicycle and Pedestrian Facilities
 - Auto-Restricted Zones
 6. Transit and Paratransit Service Improvements
 - Transit Marketing
 - Transit Terminals
 - Transit Fare Policies and Fare Collection Techniques
 - Extension of Transit and Paratransit Services
 - Integration of Transportation Services
-
-

Source: Transportation System Management State of the Art U.S. Department of Transportation, February, 1977. 169 pages.

Many of these TSM actions are being recommended for implementation in both the Town Centre and Media District redevelopment projects. Particular attention to TSM measures has been given in the recommendations for increasing the person carrying capacity of the streets serving the Media District. This southwestern area of Burbank is the one most in need of a coordinated program of TSM actions for employment is projected to double in the next 10 to 15 years, without a concurrent increase in highway capacity possible.

The successful implementation of a TSM program in an area such as the Media District will depend on taking into account the interrelationships among TSM actions. For example, when pursuing the creation of more carpools and vanpools, it will also be necessary to tailor other TSM actions to complement the goals of the ridesharing program. Providing preferential parking or discounted parking rates for high-occupancy vehicles are ways of fostering more carpool and vanpool trips. Plans for the ridesharing program will also need to be coordinated with the transit and paratransit operators in the area. Intensive promotion of carpooling and vanpooling may be counterproductive because transit ridership may decrease, or the attempt to form new ridesharing arrangements will not be very successful. The markets (groups of employees by location) that would be most suited to ride transit and those that would be most suited to carpools and vanpools need to be identified. (The information, promotional, and monitoring campaigns need to be focused on the specific groups which will be most likely to use the different modes of travel.)

The establishment of marketing objectives will also have to change over time because land use and transportation developments will not occur exactly as planned. Changes to the original TSM plan will be required, and strategies will have to be altered to react to changing conditions. Unlike capital construction programs where specifications rarely change, a program of TSM actions will have to be flexible and comprehensive in order to achieve the desired results.

Both incentives and disincentives will need to be implemented in order for all of the elements of a TSM program to function effectively. Disincentives, such as prohibiting parking on certain commercial streets or in residential neighborhoods, will need to be coordinated with the provision of incentives such as those mentioned above for a ridesharing program.

In order to ensure that the TSM actions are actually implemented and that corrections are made whenever failures occur, a transportation coordinator will be required. This person would be responsible for administrative matters, be an advocate for the TSM program, and help implement TSM actions by performing the kinds of activities listed on Table 8.

Since one of the major functions of a transportation system manager or coordinator would be to increase the number of trips on transit and paratransit service, funds from the Proposition A local return program could be used for that portion of the person's salary. Other funding sources such as revenues from a benefit assessment district or contributions from developers to the City for transportation improvements could also be used.

TABLE 8
RESPONSIBILITIES OF (SITE-SPECIFIC) TRANSPORTATION SYSTEM MANAGER

1. Administration
 - o comply with guidelines and requirements of funding or pass-through agencies or private sector organizations participating in site or area-specific program
 - o establish contracts when needed for service, planning, program participation, monitoring, etc.
 - o seek grants from all available sources
 2. Advocacy
 - o represent City of Burbank's positions on transportation matters affecting specific area at outside forums
 - o present views and recommendations on transportation matters to City Council, Transportation Manager, City Departments
 - o seek participation and support from developers and property managers for Transportation System Management measures and construction programs
 3. Plan Implementation
 - o develop annual updates of specific actions and budget objectives designed to support specific plan recommendations
 - o identify annual staff activities and contracts required
 - o work with technical or citizens advisory task forces
 - o review EIRs, site plans, development plans and designs; analyze and recommend land use and circulation ordinances, zoning, and funding mechanisms
 - o establish information and marketing program designed to support achievement of ridesharing objectives
 - o describe scope, tasks, and budget for plan updates and manage or direct work of staff or consultants
 - o work with RTD and other service providers to review service plans
-
-

The Media District is projected to have as many jobs 10 to 15 years from now as Century City, Westwood, and downtown San Diego have now. Funding the position of transportation system manager is likely to cost \$40,000 to \$50,000 annually, including salary and fringe benefits. Another \$15,000 to \$25,000 will also be required for on-going production of information brochures, monitoring forms, and temporary secretarial or technician-level support. Working in cooperation with Commuter Computer and RTD, as well as any other transit or paratransit services established by Burbank or surrounding cities, the transportation system manager will be responsible for increasing the number of transit trips made by employees in the Media District from the current 2 percent level and the number of carpool trips from the current 12 percent level. When the Media District will include 40,000 employees, this will mean that, if current ridership patterns don't change, a successful TSM program will have to generate more than 800 transit riders and 4800 carpools from the employees working in the area. If transit ridership were to increase by 25 percent and carpool or vanpool trips by 10 percent, then every day an additional 680 employees would not drive their own vehicles to the area, and in a year 340,000 transit and ridershare trips would have been created. If the transportation system management program had direct costs of \$75,000 per year, each of these additional trips could have cost the program \$.22 to create.

4. Activity Center and Parking Shuttles

Shuttles are vehicles which regularly, and often frequently, travel back and forth over an established short route. Shuttles are different from local bus routes for these reasons--they generally are operated over a short route which is usually less than 2 miles long, they are operated at much higher headways⁵ which usually do not exceed 15 minutes, they are provided to serve primarily one type of trip purpose and not a wide variety of trips, and they have fares which are set lower than those of local bus routes.

Typical applications of shuttles have included the following:

1. Providing a supplemental bus circulation system in a large central business district or activity center;⁶
2. Connecting two separate locations which are occupied by the same institution such as a hospital, industrial plant, or university;
3. Connecting a major trip generator, such as a transportation terminal or hospital with another major trip generator such as a central business district or activity center;
4. Connecting a parking lot or structure located at or beyond the boundaries of a central business district or activity center with the various land uses located inside the central business district or activity center;
5. Connecting a remote or satellite parking facility with an airport terminal, stadium, or other major trip generator.

⁵ The intervals between buses.

⁶ Usually in a suburban location, as intensively developed mixture of retail, office, and other land uses.

The operating and fare characteristics of shuttles are dictated by the characteristics of the person trips which they are intended to serve. For example, midday trips by shoppers and workers are primarily short trips decided on at the spur of the moment. These discretionary impulse-type trips are far more likely to be made on a shuttle, if the bus is in sight when the trip is decided on, or if the posted schedule indicates a very short wait at the stop. The frequency of service must be set high because the potential rider does not wish to wait any noticeable length of time. Fares need to be set low so that out-of-pocket costs will compare favorably with those of driving or walking. On the other hand, although low fares are important in determining ridership levels, they are not necessarily the primary factor. Finally, if adequate shelter is not provided at the shuttle stop, bad weather will discourage potential users from waiting any period of time.⁷ Since Burbank's climate is very mild, without extremes of temperature, this is the least important factor for achieving high ridership.

Probably the greatest determinant of shuttle bus usage will be the degree of difficulty and the amount of cost involved in using alternative modes of travel. If the origin and destination of the trip were close enough, walking would be a competitive, and probably the dominant, mode. However, shuttle routes are specifically designed to serve trips that are considered to be too long for walking so that the out-of-pocket costs of driving and parking, the total trip times, and the inconvenience of having to find a parking space near the destination site, will often make using a shuttle more attractive than driving.

The comparison of the travel time required to use the intercept parking facility and then transfer to the shuttle versus driving directly to the destination provides a valuable estimate of the utility of the service. The total travel time for the competing modes would include the following components:

driving directly		intercept parking/shuttle	
from ramp to destination (1.5 miles at 15 mph)	6 minutes	from ramp to garage (.5 miles at 15 mph)	2 minutes
parking at destination	1 minute	parking at garage walkway to shuttle	1.5 minutes
walking to destination from parking lot	1 minute	waiting for shuttle bus ($\frac{1}{2}$ of 5 minute headway)	2.5 minutes
	8 minutes	riding shuttle 1 mile to destination at 12 mph	5 minutes
		walking to destination	2 minutes
			13 minutes

⁷ Downtown Bus Transportation, Urban Transportation Center Consortium of Universities, June 1972, 47 pages.

As indicated above, riding a shuttle bus after parking at an intercept parking garage is likely to take at least 5 minutes longer than just driving directly to the destination, even when 5 minute headways will be provided on the shuttle. In addition, those persons riding the shuttle will have to pay an out-of-pocket cost for parking and then the fare, which many persons driving directly will not have to pay. The shuttle/intercept parking operation will require a longer travel time, an actual out-of-pocket cost, and the inconvenience of transferring to another vehicle. For these reasons, the shuttle will attract only a minority of those persons travelling to an area, and will attain even a 25 percent share of the market only if high parking costs are imposed and limited parking capacity is provided.

Proposals for Burbank. In Burbank, the most likely location for the provision of shuttle services is the Media District which encompasses the film and recording studios located in the vicinity of West Olive Street and the Ventura Freeway. The Media District Transportation Plan contains a recommendation for peak commute period shuttle services designed to connect a peripheral parking facility with the land uses in the area, and for midday shuttle services designed to attract shopping and personal business trips. Although the Transportation Plan describes the potential routing of the shuttle as being entirely within the Media District, proposals have also been made to provide midday service as far east as the new regional shopping center to be built in downtown Burbank.

Before actually estimating the costs and ridership of potential shuttle services in Burbank, the likely parameters can be established by reviewing data from other shuttle operations. Although differences in service design and orientation, as well as the characteristics of the areas served, preclude a direct transfer of effectiveness statistics to the Burbank scenario, the probable range can be established.

Other Shuttle Operations. As indicated by the information displayed in Table 9, a number of shuttles have been operated or remain in operation in Southern California. Although the shuttle operations listed in Table 9 were designed to serve a wider variety of trip purposes than the shuttle proposed for the Media District, analyzing the characteristics of other shuttle operations serves the following major purposes:

1. Some of the trip purposes served would be the same, so that the data available for other shuttles provide an indication of what could be expected for the shuttle proposed for the Media District.
2. The information presented helps to relate the number of average daily passengers to the length of the route, its location, the hours of operation, the frequency of service provided, and the fares charged.

It is the performance characteristics for other shuttle operations shown in Table 10 which provide an even clearer indication of what the most likely productivity and subsidy parameters will be. The first conclusion to be derived from the data in Table 10 is that, except for the shuttle which operates in downtown Los Angeles and transports 26 passengers per bus trip because of the very large concentration of office, retail, and other land uses and the nearly 250,000 employees located within walking distance of the route, all other shuttles transport an average of between 1 and 6 passengers per bus trip.

TABLE 9

SERVICE AND USAGE CHARACTERISTICS OF SOUTHERN CALIFORNIA SHUTTLE OPERATIONS¹

Location Of Service	Length Of Route ² (Miles)	Route Name	Fare	Service Hours	Headways ³ (Minutes)	Average Daily Passengers ⁴	Peak Service	Daily Bus Trips
Downtown Los Angeles	4.2	RTD 602	25¢	Weekdays 7am-5:30pm Saturdays 9am-4pm	4-10	5000	Weekdays 11am-2pm	Saturdays 53 Weekdays 87 Holidays 117
Westwood	1.9	RTD 605	25¢	Fridays 6:30pm-1:30am Saturdays 11am-1:30pm	8	200	Constant	Fridays 54 Saturdays 110
Pasadena	2.3	RTD 601	25¢	Weekdays 11am-3pm Saturdays 10am-5pm	10	Weekdays 135 Saturdays 165	Constant	Weekdays 48 Saturdays 84
Glendale	3.4	Bee Line	25¢	Weekdays 9am-6pm	20 10	125	11am-2pm	108
Santa Ana ⁵	3.0	OCTD "QT"	25¢	Weekdays 10am-3pm	12	60	Constant	18
West Hollywood	7.8	W.H. Shuttle Service	50¢ ⁶	Weekdays	30	25	Constant	18

1 Selected operations for which data were available.

2 One way.

3 Interval between buses.

4 In 1983 or 1984

5 Discontinued

6 Discounts available.

TABLE 10

PERFORMANCE CHARACTERISTICS OF SOUTHERN CALIFORNIA
SHUTTLE OPERATIONS¹

Location of Service	Route Name	Passengers Per Bus Trip	Farebox ¹ Recovery Rate	Subsidy ³ Per Trip
Downtown Los Angeles	RTD 602	26	18%	\$1.10
Westwood	RTD 605	4 (Fridays)	4%	\$6.85
Pasadena	RTD 601	3 (Weekdays)	7%	\$3.40
Glendale	Bee Line	1	4%	\$6.00
Santa Ana	OCTD "QT"	1	2%	N/A
West Hollywood	W.H. Shuttle	1	20%	\$8.40

¹ Selected services for which data were available, same routes as shown in Table 9.

² The portion of operating costs covered by passenger fares, with approximate figures shown.

³ The amount of each trip's cost not covered by the passenger's fare, with approximate figures shown.

The Southern California shuttles listed in Table 10 recovered between 4 and 20 percent of their operating costs for passenger revenues (fares). The subsidy ranged from 80 to 96 percent of operating costs, or from \$1.10 to \$8.40 per trip.

RTD Convention Center Shuttle. In December 1971, the RTD operated a park-and-ride shuttle route between the Convention Center and the Bunker Hill area in downtown Los Angeles. When high-rise office buildings began to be built along the northern portions of Figueroa and Flower Streets, the City of Los Angeles recommended that the Convention Center be used as a peripheral or intercept location for persons destined to these buildings. Established prior to the construction of the parking structures related to the new office buildings, the park-and-ride operation provided for an integrated payment of daily parking fees at the Convention Center and the bus trip over to the new offices.

The RTD discontinued this service in January 1977 after ridership had dropped from 706 to 130 daily passengers. The productivity of the shuttle

operation had declined from 20 to 6 passengers per bus trip for the following reasons, according to the RTD staff analysis:

1. During the early occupancy of the new high-rise office buildings many tenants had subsidized their employees use of the Convention Center Park-and-Ride service. As convenient and cost-competitive on-site parking became available, however, the subsidies by the companies were decreased or eliminated.
2. RTD expanded the frequency and coverage of the express bus routes serving this portion of downtown Los Angeles so that transit riders could ride directly from their residential origin to their office destination.
3. RTD's transit ridership was negatively affected by a strike which encouraged a switch to carpools and vanpools. (These persons could then afford to park closer to their destination by sharing the costs of driving and parking.)

Capacity Parameters. In order to measurably affect the level of peak period congestion projected for the streets and freeway ramps in or abutting the Media District, a shuttle operation will have to intercept between 5 and 25 percent of the employees coming to work in the area. The low figure, 5 percent, would mean that as many persons would use the shuttle as are currently riding transit to get to work in the Media District. The high figure, 25 percent, represents the high end of what is likely for a shuttle to serve in an employment area of this size.

As shown in Table 11, at least 1667 parking spaces will be required if 5 percent of the 40,000 employees projected for the area were diverted to peripheral parking. (Since the Media District is projected to contain about 40,000 employees in 15 years, this figure shall be used in the discussion which follows. Lower employment figures could be used to project the number of parking spaces or shuttle buses required at other employment centers in Burbank or for intervening years at the Media District). All of these parking spaces would not have to be built at one location, but, as for the example case noted here, would be required if 2000 persons were diverted to an intercept parking shuttle operation in the future Media District.

The numbers of shuttle bus trips required to serve those persons parking at the intercept parking facilities and then transferring to the shuttle to reach their destination were calculated by assuming that 35 percent of the persons parking at the intercept facilities would use the shuttle, and that 60 percent of the employees would arrive in the peak hour. These assumptions were used to evaluate the number of shuttle bus trips required during the peak hour of service. As shown in Table 12, very close headways (of less than 5 minutes) will be required in order to serve at least 10 percent of the employees parking at intercept facilities once the number of employees in the area exceeds 20,000. In order to not project even closer headways than those shown in Table 12, the assumption was made that standard-size buses would be used for the shuttle operation. (Assuming the use of 30 foot coaches or even smaller buses, would have meant that fewer than 30 seats per bus would be provided instead of the 45 seats per bus assumed for this projection.)

TABLE 11

RELATION BETWEEN WORKERS, INTERCEPT PARKERS, AND
PARKING SPACES

Number Of Workers ¹	Percent Using Shuttle	Number Of Intercept Parkers	Peak Period Parking Spaces Required ²
10,000	5	500	417
	10	1,000	833
	15	1,500	1,250
	20	2,000	1,667
	25	2,500	2,083
20,000	5	1,000	833
	10	2,000	2,667
	15	3,000	2,500
	20	4,000	3,333
	25	5,000	4,167
30,000	5	1,500	1,250
	10	3,000	2,500
	15	4,500	3,750
	20	6,000	5,000
	25	7,500	6,250
40,000	5	2,000	1,667
	10	4,000	3,333
	15	6,000	5,000
	20	8,000	6,667
	25	10,000	8,330

1 Persons employed in the area.

2 Based on an average vehicle occupancy rate of 1.2.

TABLE 12

RELATION BETWEEN SHUTTLE RIDERS AND SHUTTLE SERVICE LEVELS

Number Of Workers	Number Of Intercept Parkers	Number Of Shuttle Riders ¹	Number In ₂ Peak Hour	Peak Number Of Shuttle Bus Trips Required ³	Peak Headways ⁴
10,000	500	175	105	2.3	26
	1,000	350	210	4.7	13
	1,500	525	315	7	9
	2,000	700	420	9.3	7
	2,500	875	525	11.6	5
20,000	1,000	350	210	4.7	13
	2,000	700	420	9.3	7
	3,000	1,050	630	14	4
	4,000	1,400	840	18.7	3
	5,000	1,750	1,050	23.3	3
30,000	1,500	525	315	7	9
	3,000	1,050	630	14	4
	4,500	1,575	945	21	3
	6,000	2,100	1,260	28	2
	7,500	2,625	1,575	35	2
40,000	2,000	700	420	9.3	7
	4,000	1,400	840	18.7	3
	6,000	2,100	1,260	28	2
	8,000	2,800	1,680	37.3	2
	10,000	3,500	2,100	46.6	1

¹ Assumes 35 percent of persons parking use shuttle service.

² Assumes 60 percent of workers arrive in peak hour.

³ Assumes 45 passengers for 40 foot long buses.

⁴ Interval between buses, rounded to nearest minute.

Although a 40 foot long bus can carry a passenger load of 70 persons sitting and standing, this load factor was not used primarily because of its negative level of service policy. In addition, a load factor based on serving only seated bus passengers provides a cushion for error if a higher percentage of persons parking were projected to use the shuttle. In that case, demand could increase by almost 33 percent without increasing operating costs if passenger loads were allowed to rise from 45 to 60 passengers per bus).

Operating Costs. Projecting the costs of operating a shuttle service requires that a schedule of service and a unit cost per vehicle hour be assumed. For this projection, a one-way route length of 1.5 miles was assumed since this assumed route length could also represent a variety of routes and route lengths whose combined length would not exceed this total. The highest level of service was assumed to be provided over 6 hours - 2 in the morning, 2 in the midday, and 2 in the afternoon. The span of service was assumed to be 12 hours, and service was assumed to be provided only Monday through Friday.

The unit costs of the potential shuttle bus operation were based on establishing a contract with a private bus company. A figure of \$30 per vehicle hour was used to project the total costs of a shuttle bus operation including administering and monitoring the contract for services. The number of peak vehicles required was calculated assuming that 12 minutes would elapse for each one-way bus trip because at an assumed speed of 15 miles per hour this elapsed time would permit up to 2 minutes for dwell time at the parking facility, or conversely 12 minutes would be required to complete a one-way trip if the operating speed dropped below 10 miles per hour because of the numerous stops required.

As shown in Table 13, the annual operating costs for a shuttle serving the Media District could range from about \$270,000 to \$1,305,000 when the number of employees will reach 40,000 and the service were developed as assumed above. The annual operating cost of approximately \$270,000 would be required to have the shuttles transport 35 percent of the 5 percent of all employees parking in the intercept facilities. The annual operating cost of approximately \$1,305,000 would be required to have the shuttles transport 35 percent of the 25 percent of all employees parking at the intercept facilities.

Based on the actual performance characteristics of shuttles operating in Southern California, the Media District shuttle would be likely to recover between 5 and 20 percent of its annual operating costs from the farebox. The shuttle operation described here -- one serving intercept parking facilities -- could recover as much as 25 percent of its operating costs from the farebox, if the following were to occur:

1. The lack of on-site parking forced the percentages of employees projected in Table 11 to park at an intercept facility.
2. Distances too long for walking trips forced 35 percent of the employees parking at the intercept facility to reach their destinations by using shuttle buses.
3. At least half of these employees used the shuttle during midday hours.
4. A service contract could be established for \$30 per bus hour and the number of service hours could be tailored as closely to passenger loads as was done in Tables 12 and 13.

Many other jurisdictions throughout the United States have become involved in establishing contracts for supplemental or substitute commuter oriented bus services. The most frequent motivation for assuming the services which may have been initially provided by the regional transit operator has been to reduce operating costs by establishing a contract for service with a private transit operator. In the cases where new services have been established, the need to improve accessibility for large new developments has resulted in establishing partnerships between local jurisdictions and private developers designed to foster and finance commuter bus services.

Analyzing the performance characteristics of RTD's express bus routes currently serving the San Fernando Valley would provide an instructive basis for projecting the performance of services that Burbank might establish. The data listed in Table 14 indicate that those routes which provide the largest number of bus trips have the lowest subsidy per trip because additional boardings are occurring during the 8 hours which comprise a driver's work assignment. Since labor costs comprise about 75% of total operating expenses, the routes which are the most expensive for public operators to operate are those for which the driver is paid 8 hours and the bus is in service for only 2 or 3 of those hours.

Private transit companies enjoy more flexible work rules, which is one reason why their average cost per hour is \$30, while that of the RTD is \$60. This disparity in costs is even greater for peak period service, since as shown in Table 14, RTD's express bus routes in the San Fernando Valley cost between \$126 and \$185 per bus hour to operate.

The subsidy per passenger ranges between \$2.18 and \$7.51 for the RTD routes listed in Table 14. If these same services were provided by private contractors, the operating costs would be reduced by at least 50%, so that the subsidy required would be reduced by at least 50%. The lowest subsidies per trip of around \$1.10 would be associated with those routes connecting the San Fernando Valley and downtown Los Angeles because this would be the corridor with the largest number of person trips. The highest subsidies per trip of around \$3.80 would be associated with routes connecting other cities to Burbank or Burbank to employment areas other than downtown Los Angeles because these corridors would include smaller numbers of person trips. For example, maps produced by Commuter Computer showing where employees of the Media District live who have formed carpools or vanpools indicate that the Western San Fernando Valley and West Los Angeles/Santa Monica are the areas accounting for the largest numbers of trips. However, unless the map indicating the residential distribution of all employees of the Media District were very different, no significant concentrations of trips are likely to be found. The productivity of the express bus or commuter bus routes serving these employees is therefore not likely to be higher than that shown in Table 14 for RTD routes 418 or 423.

An order of magnitude cost estimate for the provision of commuter bus services can be made based on assuming the most likely modal split values. For service from Burbank to downtown Los Angeles, it is likely that up to 50 percent of Burbank's employed residents travelling to work in downtown Los Angeles would ride transit. Since 7500 of Burbank's employed residents were projected to work in downtown Los Angeles, approximately 3750 of these persons would be likely to ride premium transit services. When Metro Rail is built, about half of these commuters

TABLE 14

CHARACTERISTICS OF RTD EXPRESS BUS ROUTES SERVING THE SAN FERNANDO VALLEY¹

Line Number	Terminals ²	Operating Cost Per Bus Mile	Operating Cost Per Bus Hour	Bus Revenue Miles	Bus Revenue Hours	Bus Trips
410	San Fernando-Burbank	Data Not Available				
413	Van Nuys-N. Hollywood-Burbank	\$10.28	\$140.93	95	7	4
418	Northridge-Van Nuys Reseda	\$ 7.13	\$185.44	775	30	26
419	Mission Hills-Granada Hills-Chatsworth	\$ 6.63	\$153.69	133	6	4
423	Westlake-Woodland Hills	\$ 5.64	\$144.43	246	10	6
426	San Fernando Valley - Wilshire Blvd.	\$ 6.91	\$126.23	911	49	30

Line Number	Passengers (Boardings)	Passengers per Bus Trip	Passengers per Bus Service Mile	Passengers per Bus Service Hour	Operating Cost per Passenger	Fare Revenue Passenger	Subsidy per Passenger
410	Data Not Available						
413	207	51	2.2	29.0	\$4.77	\$.64	\$4.13
418	682	26	.8	22.5	\$8.43	\$.92	\$7.51
419	156	39	1.1	28.0	\$5.91	\$1.34	\$4.57
423	175	29	.7	17.7	\$8.25	\$1.24	\$7.01
426	2419	80	2.7	49.0	\$2.56	\$.38	\$2.18

¹ Based on data collected during 1982-1984.

² Listed for the Valley only, all lines operate to downtown Los Angeles.

would find that service to offer lower travel times than transit services provided along I-5. Therefore, possibly 1800 workers travelling to downtown Los Angeles would be candidates for commuter bus services. If passenger loads of 40 passengers per bus trip were assumed, then 45 bus trips would be required to transport these commuters. Assuming a cost per vehicle hour of \$30 (based on contract service), and one bus trip per hour, 90 daily bus trips will be required at a cost of \$2700. For 250 working days per year, the annual cost would be \$675,000.

For Burbank's employed residents travelling to work in locations other than downtown Los Angeles, and for employees residing outside Burbank travelling to work in Burbank, the shares of transit trips will be lower than for those commuting to downtown Los Angeles. Lower parking costs and more parking conveniently available will mean that transit could attract about 15 percent of the trips made by Burbank residents to locations such as West Los Angeles and Beverly Hills, the areas outside Burbank that attracted the largest number of Burbank's employed residents after downtown Los Angeles. About 9.5 percent of Burbank's employed residents work in these locations, according to the telephone survey of Burbank households done in October 1984. (See Milestone Report 1 Table 30). Assuming that this percentage continues to be valid in the future, means that of Burbank's 50,000 employed residents, some 4750 will work in the West Los Angeles/Beverly Hills area, and that 15 percent or about 720 are likely to ride commuter services. Assuming passenger loads of 35 passengers per bus (because of the lower productivity than would be achieved to a concentrated destination such as downtown Los Angeles) means that 20 bus trips will be required. Based on the same calculations and assumptions as above, the annual cost of transporting these workers would be about \$300,000.

Finally, the last potential market for commuter services would consist of employees residing outside Burbank commuting to work in Burbank, and in particular the Media District, because this will be the location with the largest concentration of employees in the City. Based on the experience of other activity centers, it is possible that as many as 20 percent of the 40,000 employees in the Media District will be likely transit riders. Subtracting the 20 percent of these employees who are likely to be residents of Burbank yields about 6400 potential transit riders. If the assumption is made that only about 25 of these employees would live in locations that are both far enough away from Burbank and not planned to be served by light rail or heavy rail lines so as to make commuter bus services viable, then about 1600 employees would be likely to use commuter bus services when travelling to the Media District. Assuming a load factor of 30 passengers per bus trip, one hour per bus trip, and again \$30 per bus hour of service, the annual costs of transporting these workers would be about \$3180 daily and \$795,000 annually.

6. Intra-Community Routes

As indicated in section 3 of this report, the RTD in the future is likely to become primarily a provider of inter-community transit services. The primary reasons for this change are as follows:

1. The RTD's local bus fares will be 85 cents in Fiscal Year 1986, and are likely to rise to \$1.25 by the mid-1990s, if no additional subsidies are provided. At these rates, transit journeys of 1 or 2 miles will either not

be made, will be made on cabs, or will be made on paratransit or intra-community fixed routes. If RTD does not adopt distance based fares and the requisite fare processing mechanisms, then intra-community routes charging 50 cents are likely to serve many of the shorter trips previously made on RTD buses.

2. The RTD is likely to restructure its routes as operating revenues fail to keep pace with operating costs by eliminating unproductive routes and route segments, and concentrating on inter-community regional trunk line service.

Intra-community routes provided by the City of Burbank would consist of routes operating entirely within the city limits or crossing the City boundaries in order to serve a major trip generator such as a Metro Rail Station. These routes should operate on streets not served by RTD, or if this is not practical, traverse the minimal duplicate distances possible.

The intra-community routes will need to serve primarily transit trips which will begin and end within Burbank, but will also need to serve transit trips involving a transfer to and from RTD's bus routes and rail lines. In order that both of these functions be effectively accomplished, the intra-community routes will have to serve a common terminal, i.e. a location where transferring among buses can be conveniently performed. Downtown Burbank, which is likely to remain as the hub for RTD's bus routes serving the City, would be the prime location for this function once the regional shopping center is completed. A regional shopping center attracting large numbers of personal business and recreation trips throughout the day serves the same function in suburban areas that downtowns used to or still do in smaller urban areas. When the regional shopping center is opened and additional office and commercial projects have been developed in the Town Centre area, then there is a greater likelihood that there will be sufficient person trips attracted to this destination to make the provision of intra-community transit services feasible.

The proposed Metro Rail stations located in Universal City and North Hollywood also will provide strong anchors for intra-community routes. Routes connecting Burbank to the regional rail services available at these stations can perform a variety of functions, including providing shuttle service to/from the Media District and providing feeder service from Burbank's residential neighborhoods.

In combination with serving the major future generators listed above, potential intra-community bus routes should also serve junior and senior high schools and senior and community centers in order to increase the potential markets of trips that could be served throughout the hours of operation. Since some of these trips could also be served by the Burbank Transportation Service's dial-a-ride operation, the delineation in service responsibilities will have to be addressed should service planning proceed for potential intra-community routes together with expansion of the Burbank Transportation Service. As indicated in the section on other paratransit services, route deviations could be the means of providing the most effective combination of fixed route and paratransit services.

The responses obtained from the Burbank household survey regarding desired transit improvements and the resulting likelihood of using the transit service provide insights not only as to the desired specifications of routings and headways, but also as to potential ridership levels. For example, as noted in Table 26 from

Milestone Report 1, approximately 94 percent of those persons who indicated that they would consider using transit said that service within 2 blocks of their destination or direct service without transfers involved would be important to them if they were to use transit. Finally, 91 percent of those who indicated that they would consider using transit said that headways of 10 minutes or less would be important.

As a preliminary step to projecting ridership and operating costs, five potential intra-community routes serving Burbank have been listed in Table 15. As can be seen from the potential terminals and routings, the specific functions of intra-community routes in Burbank would be as follows:

1. Connect major employment areas, principally the Media District, with the Universal City Metro Rail station in order to serve transit riders originating from points south and west of Burbank, and with the North Hollywood Metro Rail/light rail station in order to serve transit riders originating from the western San Fernando Valley,
2. Provide transit service to areas, primarily east of Glen Oaks and west of Victory in the north/south direction currently not served by RTD routes,
3. Develop the capability to provide coordinated transfers at Town Centre, the Media District, and Magnolia/Hollywood Way or the North Hollywood Metro Rail for persons transferring among the intra-community routes or to/from RTD routes.

The service description of the potential intra-community routes found in Table 15 was developed primarily to indicate the highest priority service functions and develop an order-of-magnitude cost estimate. Based on the service spans and frequencies shown, approximately 35,815 annual vehicle hours of service would be provided. If a contract for service were established at \$30 per vehicle-hour, then the annual costs of the intra-community routes described in Table 15 would be approximately \$1,075,000. Developing a on-going marketing program, printing schedules, and administering and monitoring the service contract would raise the annual cost of the program to about \$1,150,000.

Ridership estimates for the system of intra-community routes could be based on three different methodologies. In one method, the annual number of passengers would be based on the total population living within 1/4 mile of the transit routes. Assuming that about 30,000 of Burbank's future 90,000 residents could live within 1/4 mile of the system of routes described in Table 15, then this direct demand estimation method would yield an annual ridership estimate of 300,000 for Burbank residents only.

A second way of projecting ridership would be to multiply the appropriate number of annual vehicle hours times the number of passengers per vehicle-hour for systems operated in similar areas. This methodology is based on the logic that the productivity of Burbank's intra-community routes will be very similar to that of other areas with similar household characteristics and development patterns. Using an average daily productivity of 10 passengers per vehicle service hour as a reasonable basis for estimating the ridership potential of Burbank's system and multiplying by approximately 35,815 annual vehicle hours yields an estimate of 360,000 annual riders.

TABLE 15
POTENTIAL LOCAL BUS ROUTES

Terminal	Terminal	Routing	Service Span ¹	Frequency ²	Route Length ³
Universal City (Metro Rail)	Town Centre	through Media District	16 weekdays 12 weekends	10 peak 15 off peak	3
North Hollywood (Metro Rail)	Town Centre	Magnolia	14 weekdays 12 weekends	10 peak 20 off peak	2.5
North Hollywood (Metro Rail, Light Rail)	Media District	Magnolia- Hollywood Way	14 weekdays 12 weekends	10 peak 20 off peak	2
Town Centre	Town Centre	Eastern Burbank loop	12	15	3
Town Centre	Town Centre	Western Burbank loop	12	15	5

- 1 In hours.
2 In minutes.
3 One way, in miles.

The third way of projecting ridership is to estimate the share of daily person trips that would be made by Burbank's residents on the intra-community routes and add an estimate for the number of non-resident trips that would be made on the system. Burbank's 90,000 future residents are likely to make about 235,000 daily trips. Assuming that about one-sixth of all person trips would begin and end within Burbank means that about 39,000 daily intra-community person trips would be generated. If the same percentage of persons rode the intra-community routes as responded in the Burbank household survey that they ride transit 5 or more days per week then about 2 percent of the intra-community person trips, or about 800 daily and 240,000 annual trips would be made by Burbank residents on the intra-community transit system. If the same percentage of employees rode the intra-community routes as indicated in the 1980 Census of Population that they ride transit, then 2 percent of the City's future 75,000 non-resident employees would use the intra-community services. This assumption yields a daily ridership estimate of 3,000 daily trips or 750,000 annual trips. Total ridership on the system for both residents and non-residents could be 750,000 + 240,000 or 1,000,000 trips. Based on all the land use and cost assumptions used in this analysis, the cost per intra-community trip could be about \$1.25.

7. User-Side Subsidies

A user side subsidy program is established to provide potential users of the transportation options available the ability to select which provider of service is best suited for their needs. If there are two or more taxicab, van, jitney, or transit companies operating in a community, a user-side subsidy program provides payments to travellers so that they can select who will transport them and how many subsidized trips (within the program's limits) they wish to make.

The following five basic conditions will have the greatest effect on determining whether a user-side subsidy program is desirable and feasible in a community such as Burbank:

1. A commitment by elected officials and representatives from the private sector to provide increased mobility for those population groups which are not able to afford to use existing transportation services.
2. The presence of transportation providers who can provide the services which are needed by the applicable population groups.
3. The availability of funds to cover both the administrative and subsidy costs of a user-side subsidy program.
4. The existence of formation of an agency or institution to administer the subsidy program.
5. The desire to enhance the ridership and productivity levels of a new transportation service because doing so would support mobility and accessibility objectives.

Eligible Groups. The first step that is accomplished when establishing a user-side subsidy program is to identify the specific population groups to be served. This is a policy decision which involves identifying the groups considered to have the greatest needs for increased mobility, the availability of different kinds of transit

Projected Demand. The number of potential users who will actually take advantage of the user-side subsidy program will be affected by the eligibility requirements imposed, by the number and type of service providers involved, by the net cost of the trips to the users, by the availability of alternative transportation modes, by the administrative requirements imposed on the user, and by the effectiveness of the marketing program. The evaluations which have been done of user-side programs indicate that, while the proportion of the eligible population registering in these programs may vary from 15 to 55 percent, the proportion of the eligible population actually using the program on a regular basis will be much lower, and will vary only between 8 and 25 percent. The available data also indicate that elderly or handicapped persons participating in a user-side program have made an average of 6-8 trips per month on the eligible taxis or vans. Historically, the demand for user-side subsidy programs has increased rapidly over the first 4 to 6 months, and has then tapered off to a relatively steady rate of increase, reaching the highest level about 24 months after the program was initiated.

The procedure that was used to project the demand for user-side subsidies by different population groups in Burbank is illustrated in Figure 6. The number of eligible people were taken from the projections of transit needs described in Milestone Report 1. The groups listed as being eligible are those which were identified as having the greatest need for improved transit services, and which would derive the greatest benefit from a user-side subsidy program.

The number of regular program users was assumed to vary depending on the characteristics of the specific population group, and in particular on the regularity of their trip-making. Elderly persons were assumed to make the lowest member of subsidized trips per month in specialized transportation services because they make the lowest number of total trips per month (48 based on national data).¹⁰ Since elderly persons who are unable to drive because they do not have a vehicle available or due to a disability are far more likely to use the subsidy program regularly, than other elderly persons, 25 percent of that group were assumed to be regular users compared to 8 percent of all elderly persons.

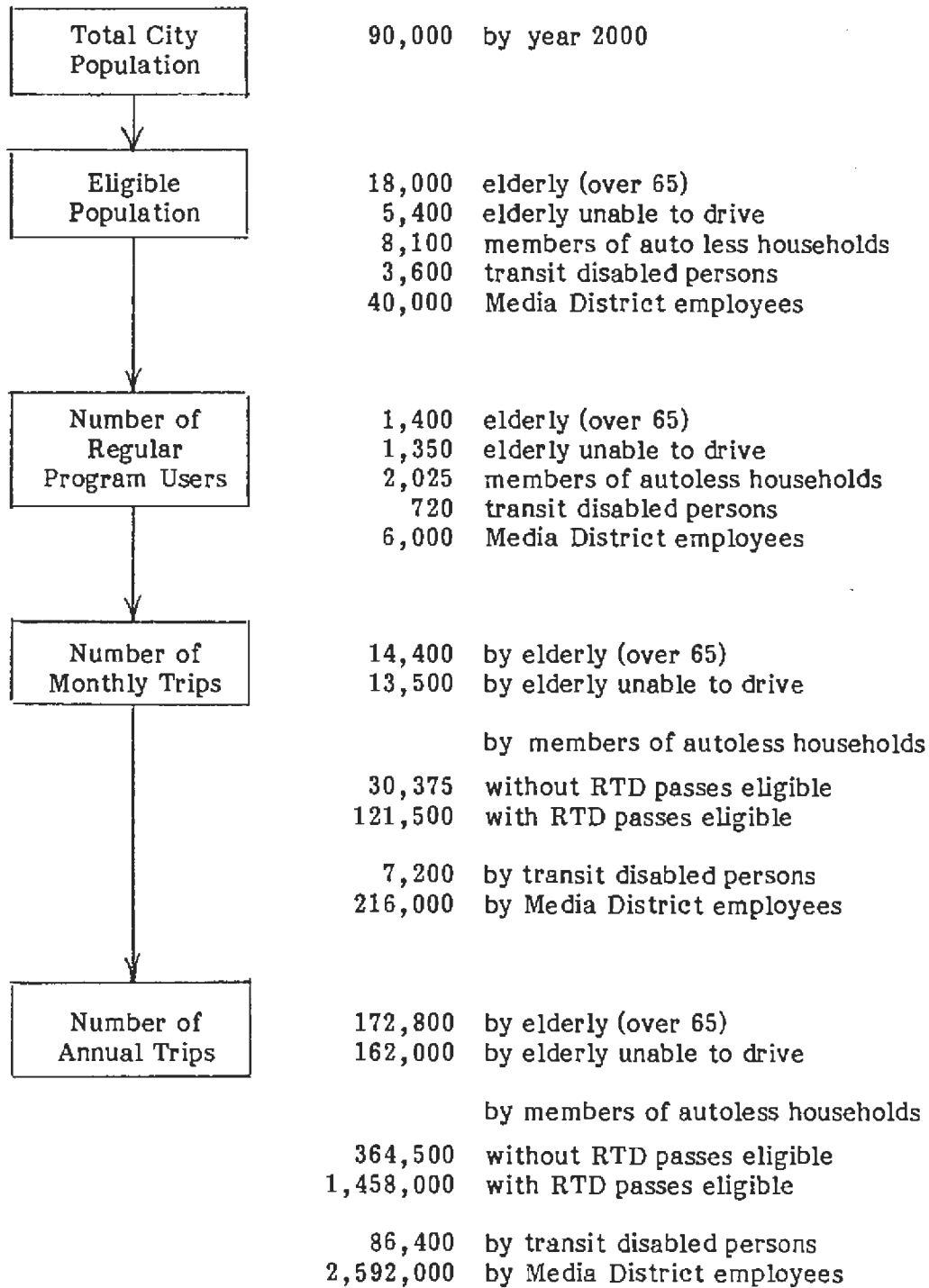
Members of households with no vehicles available were also assumed to be regular users at the 25 percent rate assumed for elderly persons with no vehicles available. These persons, however, would make more trips than do elderly persons because they would make trips for a wider variety of trip purposes. In addition, since the availability of RTD bus passes as an eligible element of the user-side subsidy program would have a very big impact on the number of trips made by all members of these households, two different trip rates have been projected for this population group. If the purchase of RTD bus passes were subsidized, then 60 monthly trips per person were assumed. If the purchase of RTD bus passes were excluded from the program, then 15 monthly trips per person were assumed because of the lessened flexibility provided the potential user.

The last population group which could be eligible for a user-side subsidy program would be employees of the Media District. Since the number of employees has proven to be the best indicator of transit ridership, based on having approximately 40,000 employees in the Media District, it is possible that 15

¹⁰ Cost Effectiveness of Transportation Services for Handicapped Persons
National Cooperative Highway Research Program Report 261. September
1985. Pages 13-15.

Figure 6

PROCEDURE FOR ESTIMATING DEMAND BY POPULATION GROUP



percent of these could select transit as their regular mode of transportation. These persons would probably not ride transit every day, and so for the purposes of this analysis, were assumed to ride transit during 18 out of the approximately 21 working days in an average month. Therefore, each employee would make $2 \times 18 = 36$ transit trips per month.

Employees of the Media District would generate the highest member of trips under a user-side subsidy program because they would generate more regular users and the second highest trip-rates of any population group. The second largest number of user-side subsidy trips would be generated by members of auto-less households if RTD bus fares were made eligible for subsidy.

Setting the Subsidies. Establishing the subsidy level means determining what portion of the costs of each eligible trip will be subsidized, i.e. will not be paid by the user. This decision is usually made in tandem with establishing the program use limits and selecting the subsidy mechanism. All of these decisions need to be made together because they will determine which users and trips will be eligible, how much each trip will be subsidized, and what the administrative procedures and costs will be.

In setting the subsidy level, the following factors will need to be considered:

1. The proportion of revenues available for transit purposes (including Proposition A, social service transportation funds, and other program funds) which the City of Burbank will determine to allocate to user-side subsidies,
2. The need to establish per-user subsidy limits so that the highest priority trips are subsidized, especially if high subsidy levels which do not vary with total trip costs are established,
3. The need to establish per-user subsidy limits so that the fixed program budget can be devoted to the largest number of trip-makers, and
4. The concurrent need to make the trips affordable to the targeted populations so that the program can increase its prime objective of improving mobility through financial subsidies.

Therefore, if the City elects to proceed with the implementation of a user-side program, the actual subsidy level will have to be determined based on the implied cost of trips to the users, the number of trips which could be subsidized given a fixed budget, and the total cost of subsidizing the number of users which the program is intended to serve.

A variety of methods are available for containing total subsidy costs, rationing the allocation of subsidies, and preventing potential abuse or fraud. Four types of strategies can be employed to limit the use of the program. Selecting which of the following strategies to use will depend on the goals of Burbank's program and the type of subsidy mechanism selected:

1. User or trip purpose eligibility.
2. Subsidy per trip limitations.
3. Subsidy per user limitations.
4. Total subsidy limitations.

The most commonly used subsidy mechanisms which have been used in user-side subsidy programs fall into the following five categories:

1. Vouchers which are turned in by the user to the provider for each trip, and which the provider then submits to the funding agency for reimbursement.
2. Scrip booklets which are sold to users at a function of their value.
3. Coupons or tickets which can be used like scrip.
4. Direct purchase of tickets, tokens, or passes by the subsidizing agency from the transportation provider which are then given or sold to eligible users.
5. Cash payments made available to eligible users.

The actual method to be selected by Burbank will depend on the application of the following criteria:

1. Ease of use by the target group and the service providers,
2. Administrative requirements and costs,
3. The potential for fraud on the part of either users or providers,
4. The amount of up-front funding required from the users,
5. Cash flow problems for the service providers, and
6. The ease of controlling subsidy costs.

Program Costs. The two major categories of costs for user-side subsidy programs are the subsidy payments to users and the administrative costs associated with operating and managing the program. The administrative costs will be incurred by registering users and providers of services, printing and distributing coupons or vouchers, redeeming coupons or scrip, and monitoring the program. The subsidy costs for on-going program range from over 90% to less than 50% of total program costs depending on the subsidy levels and the administrative organization used.

Administrative costs will be incurred to start the program, and then to keep it going. Start-up costs for planning, organizing the operation, marketing and promotion, and establishing program management procedures should be less than \$25,000. On-going administrative costs will be influenced by the size of the program (the number of registrants and trips served), the type and number of user classes, the subsidy mechanisms employed, the number of providers participating in the program, the extent of monitoring and auditing, and the degree of computerized data processing. Since labor will be the largest single cost item, and since some components of administrative costs are independent of program size, in general, administrative costs per passenger trip tend to decrease as the total ridership level increases. For example, available data indicate that administrative costs will be around 35% of program costs when the annual subsidy level is less

than \$100,000, and would drop to less than 25% for those programs whose annual costs exceeded \$100,000. On a per trip basis, administrative costs were typically \$.50 per trip, unless the annual ridership level exceeded 500,000 trips.

The cost of a user side subsidy program will depend on the subsidy level and eligibility rules established. One way in which the subsidy level could be set would be by matching the subsidy per trip which exists today for the RTD bus routes operating in Burbank. Based on reviewing RTD's latest Line Performance Trends Report, RTD's local bus routes operating in the San Fernando Valley require a subsidy ranging from \$.82 to \$1.23 per passenger. An average subsidy of \$1.00 per trip would therefore represent a viable standard for Burbank to set for local bus trips. Express bus routes typically require a higher subsidy per trip, particularly if they are operated only during peak periods. RTD's express bus routes serving the San Fernando Valley are operated only during peak commute periods, and therefore require a subsidy ranging between \$3.76 and \$4.12 per boarding. RTD's express bus routes which operate all day, however, require a subsidy per trip as low as \$1.25. This is also a viable subsidy to strive for if the commuter routes were to be operated by private companies, because their operating costs would be lower than RTD's.

Another way in which the subsidy level could be set would be by matching the subsidy percentage currently being achieved by the RTD in the San Fernando Valley. For RTD's local bus routes, the subsidy is currently ranging between 74 and 83 percent of the operating costs. For RTD's express bus routes serving the San Fernando Valley, the subsidy is currently ranging between 76 and 86 percent of the operating costs.

A third way to establish a subsidy level would be by reviewing the performance of Burbank's Transportation Service and other local circulation systems operating in Los Angeles County. Based on the data indicated earlier in this report for paratransit and shuttle operations, a subsidy of \$5.00 per trip for paratransit services would be lower than today's value, while a subsidy of \$2.50 per trip for shuttle services would result in a lower subsidy rate than has been achieved anywhere in Southern California outside downtown Los Angeles.

Applying the subsidies described above to the yearly usage rates listed in Figure 6 yields the program costs listed in Figure 7. Based on the ridership projections and cost assumptions used in this analysis, providing user-side subsidies for all elderly and transit disabled residents of Burbank would cost about \$1.3 million annually, while providing user-side subsidies for all low-income residents of Burbank would cost about \$1.46 million annually. These cost projections assume that the subsidy per trip (at \$5.00) would be lower than the current subsidy per trip attributed to the Burbank Transportation Service. If the subsidy per trip were set to be lower by program policy, then the total annual costs would drop accordingly.

If the City of Burbank purchased RTD bus passes and then sold them at a discount to its residents, then providing this user-side subsidy to all auto-less persons would cost approximately \$440,000 annually. As indicated in Figure 7, at this annual cost, both elderly and non-elderly residents could purchase RTD bus passes which the City would have discounted by \$7 and \$15 per month, respectively.

Figure 7

PROCEDURE FOR ESTIMATING PROGRAM DEMAND AND COSTS

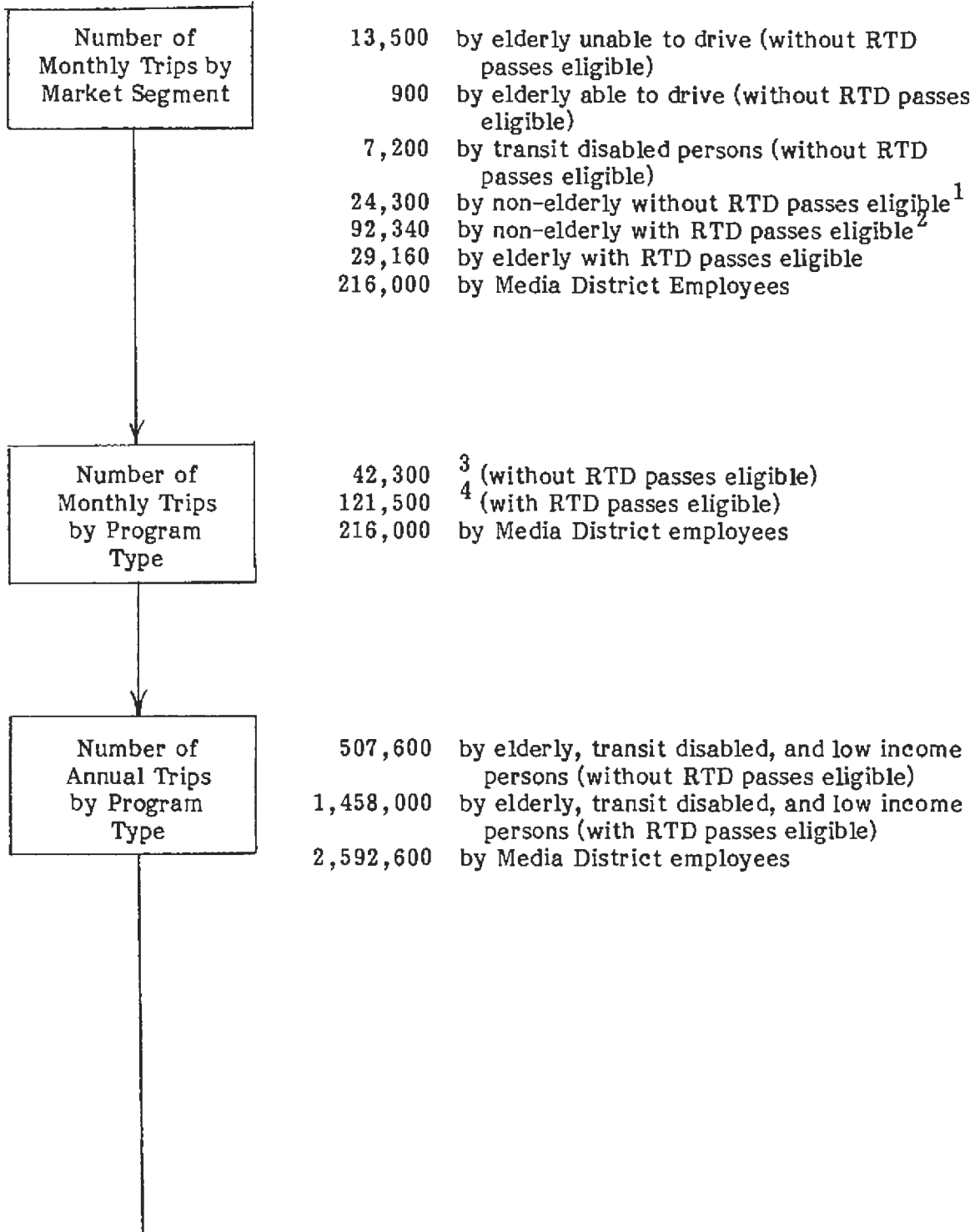
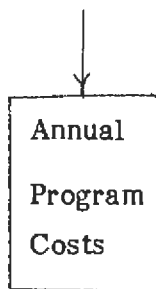


Figure 7 (Continued)



for elderly and transit disabled persons (without RTD passes eligible)
at \$5.00 per trip (compared to \$5.75 currently on Burbank Transportation Service)

for low income persons (without RTD passes eligible) at \$5.00 per trip
for taxicab service

$$= \$5.00 \times (162,000 + 10,800 + 86,400)^5 + \$5.00 \times 291,600^5$$

at demand-responsive

$$\text{levels} = \$2,754,000 (1 + .2 \text{ administrative costs}) = \$3,304,800$$

for non-elderly auto-less persons (with RTD passes eligible)
at \$15/month subsidy on an RTD bus pass (\$.25 per trip)
 $\$.25 \times 92,340 \times 12 = \$277,020$

for elderly auto-less persons (with RTD passes eligible)
at \$7/month subsidy on an RTD bus pass (\$.25 per trip)
 $\$.25 \times 29,160 \times 12 = \$87,480$

at RTD bus pass
 $\text{levels} = (\$87,480 + 277,020) \times (1 + .2 \text{ administrative costs}) = \$437,400$

for Media District employees at \$1.00 per trip
 $= 2,592,600 \times \$1.00 = \$2,596,600$

- 1 30375 - (.2 x 30375) where .20 equals elderly population proportion.
- 2 121,500 - (.2 x 121,500) where .20 equals elderly population proportion.
- 3 13500 + 900 + 7200 - .5(7200).
- 4 92340 + 29160
- 5 Number of monthly trips by market segment times 12.

The largest user-side subsidy costs, approximately \$2.6 million annually, would be incurred by establishing a program for employees of the Media District. The costs of the user-side subsidy program could be as large as projected here if all employees who were likely to use transit (15 to 20 percent of the total) were eligible for subsidies of \$1 per trip or \$60 per month. This is a subsidy rate similar to that occurring on RTD's local bus routes and much smaller than that occurring on most of RTD's express bus routes.

C. CAPITAL PROJECTS

The second category of transit options available to Burbank consists of utilizing the Proposition A revenues to fund all or a portion of the construction costs of transit related facilities. These capital projects could range from park-and-ride lots to multi-modal transportation centers. All of these projects would be built only in conjunction with the provision of related transit services.

Before actually proceeding to the evaluation of the capital options, it would be timely to indicate why certain types of projects were not considered. The construction of bus or rail guideways by the City of Burbank was not considered to be an effective use of the limited transit funds available to Burbank. For example, the construction of at-grade streetcar tracks would cost at least \$4 million per mile, which would represent the City's allocation of Proposition A funds for 5.3 years. The construction of elevated guideways, such as for monorail or heavy rail, would be much more expensive, with an average cost of at least \$15 million per mile, which would represent the City's allocation of Proposition A funds for 20 years. These facilities, which would serve primarily inter-community trips, should be funded using LACTC's Proposition A revenues.

Other capital projects not included in this analysis are bus shelters. These were omitted for two reasons. First, private companies not only provide bus shelters and maintain them at no cost to the local jurisdiction, but they also share a portion of the proceeds from the advertising located on the shelters. Second, using the Proposition A funds for this purpose would be more appropriate if advertising on the shelters were prohibited, or where protection from the weather would be required as part of a larger transit capital project. In those cases, the costs of the shelter have been incorporated within the costs of the larger project.

1. Town Centre Transit Facility

This project would involve constructing a public transportation facility in downtown Burbank to serve RTD, and potentially other, bus passengers. The objectives of this facility would be to:

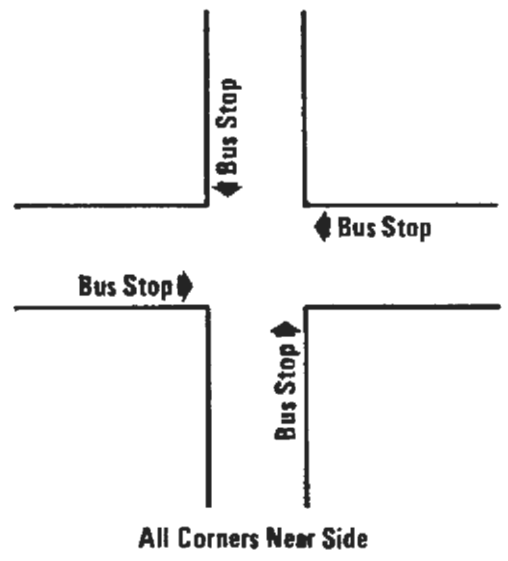
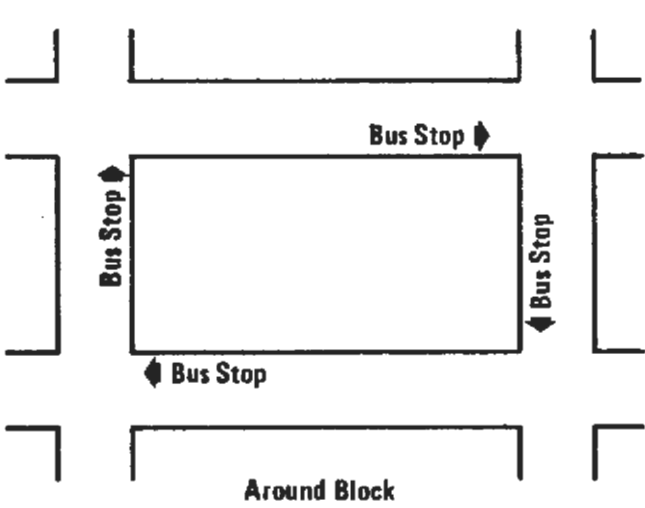
1. Maintain or improve convenient access to the Town Centre redevelopment area via public transportation, and possibly minimize walking distances to travel generators.
2. Maintain or improve bus access to the core area, while attempting to minimize vehicle-miles of travel and traffic delay.

3. Provide additional queuing space to accommodate passengers waiting to board transit vehicles.
4. Maintain or improve transfer convenience by minimizing walking distances and vehicle conflicts between bus boarding locations.
5. Improve the quality of passenger waiting areas and thereby contribute to the overall enhancement of transit service.
6. Attract greater numbers of travelers to transit to support downtown development and redevelopment objectives.
7. Attract new travel markets to transit; i.e., tourists, white collar employees, and regional commuters.
8. Alleviate passenger/pedestrian crowding on sidewalks which inhibits access to adjacent ground floor businesses.
9. Contribute to the quality and image of the downtown environment, thereby enhancing opportunities for new investments in office and commercial developments.
10. Provide a facility that services both short- and long-range transit needs.

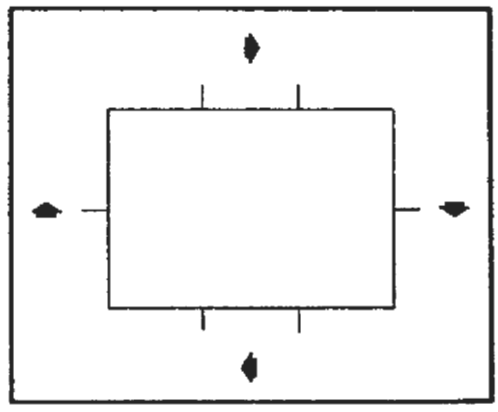
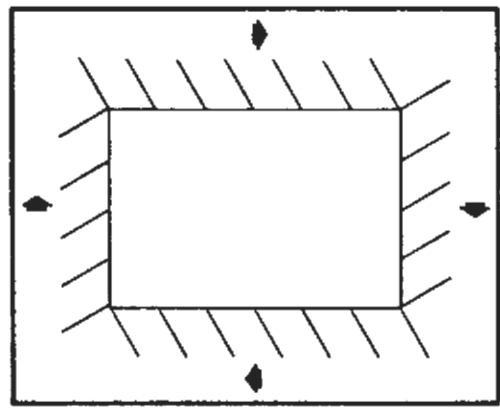
In order to respond to these objectives, the existing bus stop area on Olive Street at the Golden Mall would be replaced with a new transfer facility. A transfer facility serving downtown Burbank could be constructed on street, by using a street segment or block not essential for traffic circulation; or off street using all or a portion of a city block. Examples of alternative layout schemes are illustrated in Figure 8.

Regardless of the type of design selected, the facility's location should be selected with the following considerations in mind:

- o It should be accessible to all transit routes using the facility without causing unnecessary circuitry.
- o It should be within a three block walking distance of the Town Centre's largest trip generators.
- o It should be designed and situated to increase the prominence of transit and thus potential ridership.
- o It should support and/or be compatible with adjacent land-uses.
- o It should minimize the need to relocate existing businesses and households.
- o The property's size and shape should be adequate to accommodate current and anticipated transportation needs.



ON STREET



OFF STREET

TYPES OF TRANSFER FACILITIES

A cursory reconnaissance of downtown Burbank revealed that several sites potentially exist which meet these locational criteria. If located on street, one block length would be sufficient to accommodate the twelve RTD bus routes which currently serve downtown Burbank. If located off-street, approximately 0.7 acres would be needed to accommodate the current number of bus arrivals.

The transfer facility would include a bus circulation roadway, a raised platform for pedestrian queuing, benches and shade trees providing amenities for waiting passengers, an enclosed passenger area for weather protection and information, public telephones, and possibly drinking fountains and rest rooms. For the size of facility required, the construction costs, exclusive of land acquisition, would likely range between \$500,000 and \$700,000, depending on the quality of materials utilized. Based on the most current costs of parcels in downtown Burbank, the land costs would be about \$1.3 million an acre, if the most desirable locations were not selected. Total costs for the transit facility would therefore range between \$1,415,000 and \$1,615,000.

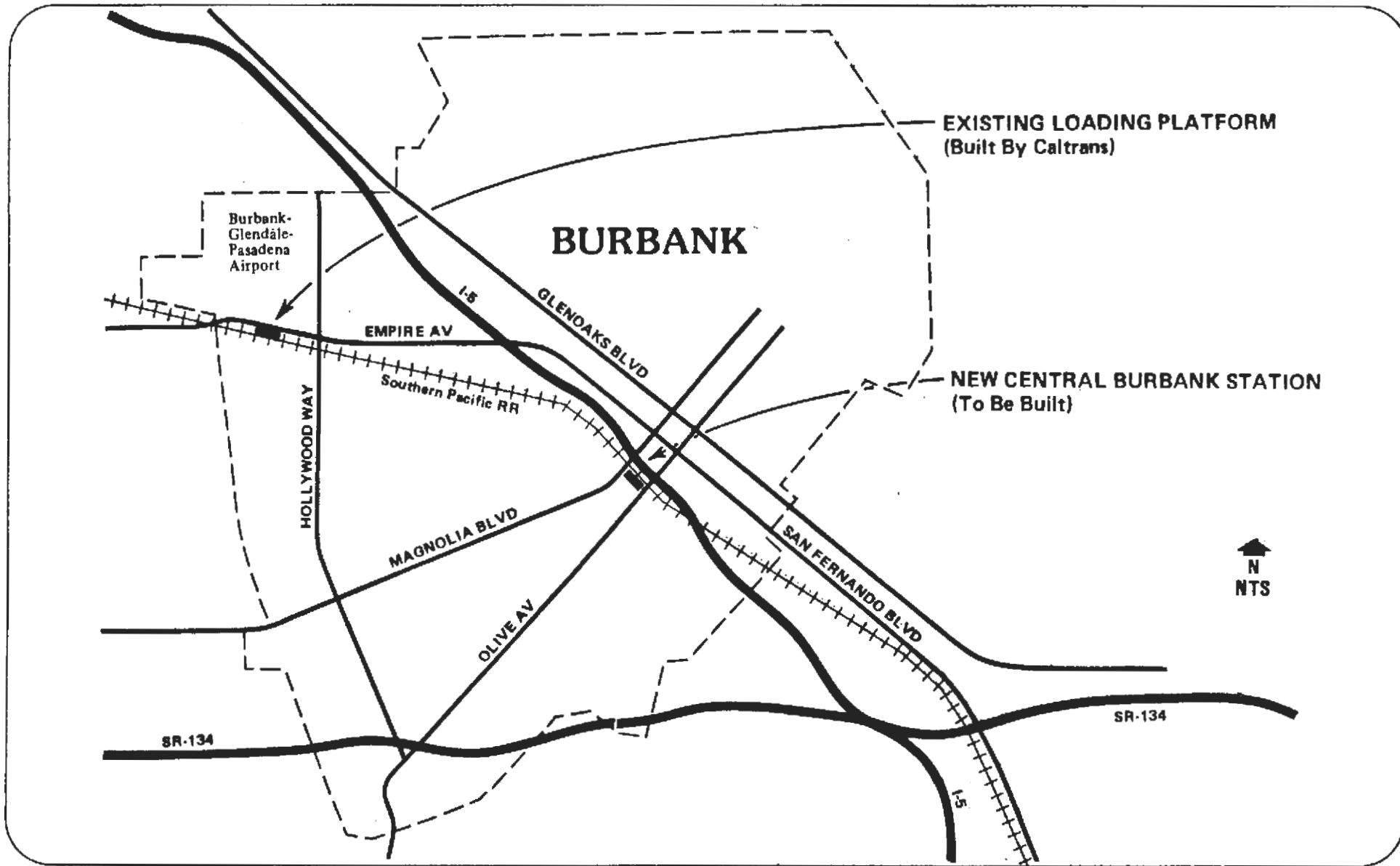
Although the most important objectives that a transit facility built in downtown Burbank should accomplish have been described in this section, the specific functions of the facility cannot be specified until the long-term purpose of the facility is determined. For example, if a transit facility that were to serve both bus and light rail passengers were to be built, then obviously determining the alignment of the light rail lines would take priority. In another case, the transportation center could be located at the previous Southern Pacific train station. The implications of the possible renewal of commuter rail service and the provision of light rail service on a multi-modal transit center located in downtown Burbank are discussed further in upcoming sections of this report.

2. Commuter Rail Station

This project would entail the purchase of Burbank's old SP railroad station and surrounding properties along North Front Street for the purpose of (1) providing a satellite supply of parking for downtown Burbank; and/or (2) providing a central Burbank commuter rail station. The renewal of commuter rail service between Ventura County and downtown Los Angeles through the San Fernando Valley is a distinct possibility, if a financial plan can be developed.

The previously used station area extends along North Front Street from the Olive Avenue overcrossing north to the Magnolia Boulevard overcrossing, a distance of approximately 0.2 miles. This property is privately owned, and is currently occupied by industrial companies such as Railchem, Dynafab and a heavy construction equipment storage yard. Local access to the former station is available from Burbank Boulevard and Verdugo Avenue and regional access is possible via on/off ramps to I-5. (The locations of the existing and potential commuter rail stations in Burbank are shown in Figure 9.)

The old station site is large enough to accommodate an at-grade parking lot holding approximately 200-250 automobiles. Providing this many parking spaces would require the purchase or lease of approximately 1.7 acres (including the old station); the relocation of existing businesses; the clearing, grading, and paving of the land for parking purposes; and the provision of security fixtures such as lighting and emergency telephones.



POTENTIAL COMMUTER RAIL STATIONS IN BURBANK

BARTON-ASCHMAN ASSOCIATES, INC.

To utilize this site as a satellite parking facility for downtown Burbank, it will be necessary to provide a convenient linkage over to downtown. A pedestrian connection is possible through the construction of a stairway to the Olive Avenue overcrossing, but the resulting walking distance to the employment core (1/4 to 1/2 mile) is probably beyond the acceptance levels of commuters. To provide acceptable access, it would therefore be necessary to operate shuttle bus service between the satellite parking facility and major trip generators throughout downtown. This shuttle service would be needed for a minimum of six hours per day, and would require one vehicle to provide an adequate frequency of service. If intra-community bus routes were established in Burbank, then four of the routes listed in Table 15 could provide shuttle service from the new parking facility and/or commuter rail station to downtown Burbank, as well as over to the Media District.

Benefits usually attributed to fringe parking facilities include reduced CBD traffic activity, lower land costs (for the peripheral site), the provision of additional parking capacity, and higher use of CBD land assets. Negative aspects include the failure of such parking facilities to attract users, except in intensively developed downtowns with high cost/limited parking supplies; and the additional operating cost of providing shuttle bus service.

An alternate or future use of the parking facility would be as a commuter rail station. Commuter rail service was briefly operated over the Oxnard to Los Angeles SP line during 1982. Although supported and funded by Caltrans, the service was strongly resisted by the Southern Pacific Transportation Company, and this opposition eventually led to a termination of service. Ridership was low on the four daily trains, but this lack of consumer response was largely a result of the tenuous nature of the service as publicized in the media.

In the future, commuter rail service may be renewed and enhanced. Caltrans has expressed interest in this proposal, but wants funding support from the San Fernando Valley cities — similar to that received in Northern California for the San Francisco to San Jose commute rail service. Should this support be forthcoming, and should the SP/Santa FE rail merger foster greater cooperation, downtown Burbank is excellently located for a new commuter rail station. (Commuter rail service could also be provided to the stop previously serving the Burbank-Glendale-Pasadena Airport.)

Benefits of renewed commuter rail service and the construction of a downtown Burbank station would include alternative commute opportunities for Burbank residents and regional rail service to the City. Disbenefits include the cost of supporting this rail service and the cost of purchasing the station area land and making improvements.

At an approximate cost of \$765,000 per acre, the cost of purchasing the land is estimated to be \$1,305,000. Relocating the existing businesses could cost another \$100,000; and improvements such as paving and lighting would add \$350,000 to the construction cost. Total capital costs for the parking lot would, therefore, be \$1,755,000.

The cost of maintaining and operating the facility as a parking lot is estimated at \$35,000 per year, while providing shuttle bus service to the downtown would add \$50,000 to the annual operating expenses. These operating costs could be partially offset by parking revenues which could total \$30,000 per year, if all spaces were filled during weekdays at a daily cost of 50¢ per space.

The passenger handling area for a commuter rail stop could be as simple as the platform built by Caltrans near the Burbank Airport, or as ornate as the refurbished or reconstructed station (building) near downtown Burbank could become. Construction costs for a passenger loading platform together with a simple roof would be less than \$75,000. Costs for refurbishing the abandoned buildings would be at least as high, with a more detailed analysis required to provide reliable cost estimates. No significant additional maintenance and operating costs would be attributed to a platform, but the annual salary of a station agent plus maintenance and operation of the building and equipment would increase the recurring costs of a station including a building.

Re-construction of the building at the SP station in central Burbank could lead to the development of this site as a multi-modal transportation facility serving RTD buses, intra-community routes, freeway-oriented commuter buses, as well as commuter rail, and perhaps light rail. The conditions necessary for this development to occur are discussed in sections 3C1, 3C4, and 3C5 of this report.

3. Media District Intercept Parking Structures

This project would involve the construction of one or more large parking facilities on the fringe of the Media District to intercept commuter traffic. These parking facilities would in turn be linked to the major studios and surrounding office/medical developments via a shuttle bus system. (See the discussion of shuttle operations in section 3B4 of this report).

The concept of providing intercept parking in the transportation plan prepared for the Media District was suggested as a means to mitigate traffic impacts in this area which is now undergoing intense development. As a byproduct of office and commercial development, employees and visitors are parking in adjacent residential neighborhoods and traffic congestion is increasing on the arterial roadways which traverse the area (Olive Avenue, Alameda Avenue, Riverside Drive, and Hollywood Way).

Unfortunately, the best sites for intercept parking facilities are also the best sites for office buildings, and these have been taken for the latter during the past few years. At this time, construction of a major parking structure south of the Ventura Freeway would require the conversion of parklands to parking or the purchase and relocation of multiple family dwelling units. In the latter instance, the three blocks bounded by Riverside Drive, Screenland Drive, Olive Avenue, and Pass Avenue offer the only significant potential for the provision of a large enough site.

To the north of the Ventura Freeway lie perhaps two sites suitable for a major parking structure. Probably the most feasible site is bounded by Olive Avenue, Alameda Avenue and Avon Street, and is diagonally opposite NBC Studio. This site is currently occupied by approximately 20 multiple family dwelling

units, a barber shop, the Lima-Alameda office building, Dimples Restaurant, the P.D.S. dance studio, and Trinity Church. Over 50% of the site is currently vacant and cleared. The second site which is a much more problematic one, is located within the City limits of Los Angeles south of the Disney Studios. Since this parcel forms part of Griffith Park, development of it would be precluded unless the two cities could arrange a land swap for undeveloped land located adjacent to Griffith Park within Burbank's City limits. In addition, although access to and from the Ventura Freeway is available close by from ramps located at Buena Vista Street and Catalina Street, this site is located east of the Media District while the majority of the commuters will be arriving from the west. The political issues, and technical deficiencies associated with this site mark it as a very weak site.

Assuming the retention of Trinity Church and the Lima-Alameda Building, approximately two acres could be developed for parking at the site opposite NBC Studio, yielding approximately 250 spaces per floor. The resulting cost of this parking structure, excluding land purchase and relocation expenses, would be as follows:

<u>Levels</u>	<u>Spaces</u>	<u>Cost</u>	<u>Cost/Space</u>
2	500	\$2.9 Million	\$5,800
3	750	\$4.9 Million	\$6,500
4	1000	\$7.0 Million	\$7,000

For the purposes of this preliminary analysis, the Burbank Redevelopment Agency's staff has estimated the cost of an average acre of land in the Media District to be about \$90 per square foot or \$3.9 million per acre. Given that approximately 2 acres of land would be required to accommodate each intercept parking structure, land costs would amount to about \$7.8 million. Land acquisition and construction costs for a four level structure accommodating 1000 cars would therefore total approximately \$14.8 million. If two separate parking structures containing 750 cars each were built, then the total costs of this 2-site project would be \$7.8 million x 2 for the land, plus \$4.9 million x 2 for the structure for a total capital cost of \$25.4 million.

This parking supply would be within walking distance of several major office developments and could be reasonably accessed from the Ventura Freeway. The garage(s) could be linked to the major studios along Olive and Alameda Avenues via shuttle bus service and could stimulate new development north of the freeway.

No other sites for fringe parking of sufficient size were uncovered which also had nearby freeway access. Although some sites seemed to provide these attributes, further inspection found these sites to be slated for office development or to be too small in size to accommodate sufficient parking spaces. This search was preliminary however, and confined to the Media District itself. Further investigations of sites further afield could yield additional sites.

It should be pointed out that nationally, high parking cost is the primary reason for the use by commuters of fringe or peripheral parking lots. Peripheral lots that fail generally do so because they do not offer a significant total cost savings to the user. Charging a fee for fringe parking has been successful as long as the fee is significantly lower than rates charged in the activity center. Also,

Table 16
 Characteristics of Bus Fringe Parking and Service

	<u>Milwaukee</u>	<u>Seattle</u>	<u>Vancouver</u>	<u>Miami</u>	<u>Shirley Highway</u>
Lot type	shopping center	park/ride only	exhibition park	park/ride only	park/ride only
Bus service	freeway express	freeway express	express	arterial express	freeway express
Bus headway (minutes)	12	15	5-10	10	15
Mid-day/evening service	local bus	local bus	n/a	n/a	n/a
Distance to CBD (miles)	10	9	5	10	16
Priority facilities	none	exclusive ramp	none	exclusive lane	exclusive lane
Highway congestion	moderate	moderate	moderate	light	severe
Access to/from highway ^{1/}	good	good	good	good	poor
Amenities	lighting/shelter	lighting/shelter	lighting/shelter	lighting/shelter	n/a
Tolls, CBD parking cost	\$1.25	\$1.00	\$.82	n/a	\$1.45
Park/ride daily cost	\$1.00	\$.70	\$.50	\$1.20	\$1.45
Usage/capacity	150/300	475/475	600/-	400/950	250/400
	<u>Hartford</u>	<u>Washington, DC</u>	<u>Atlanta</u>	<u>Santa Monica</u>	<u>San Francisco</u>
Lot type	shopping center	shopping center	shopping center	park/ride only	park/ride only
Bus service	freeway express	arterial express	n/a	freeway express	freeway express
Bus headway (minutes)	10	18	15	15	10
Mid-day/evening service	n/a	n/a	mid-day only	none	n/a
Distance to CBD (miles)	7	10	5	13	9
Priority facilities	none	none	none	exclusive lane	exclusive bridge lane
Highway congestion	moderate	n/a	n/a	severe	severe
Access to/from highway ^{1/}	good	good	n/a	poor	good
Amenities	lighting/shelter	lighting	n/a	attendant/shelter	lighting/shelter
Tolls, CBD parking cost	n/a	n/a	\$.50 - \$.60	\$1.50	n/a ^{2/}
Park/ride daily cost	\$.90	\$1.60	\$.50	\$1.00	n/a ^{2/}
Usage/capacity	200/250	80/150	40/200	30/300	60/185

^{1/} "Good" access is within approximately 1/2 mile of the major highway.

^{2/} The cost difference is believed to be significant due to high San Francisco parking costs and toll on the Bay Bridge.

n/a Information not available.

Source: Traveler Response to Transportation System Changes, Barton-Aschman Associates, Inc. for U.S. Dept. of Transportation, July, 1981.

5. Light Rail Extensions in Burbank

As noted in Figures 2 and 4, there are no plans to build heavy or light rail lines in Burbank. However, if financing can be secured, the Metro Rail project is planned to be completed within 15 years from downtown Los Angeles to the North Hollywood terminal. At that station, and when the Metro Rail is built, a light rail line would extend west and northwest through the San Fernando Valley.

There are two possible extensions of light rail service into Burbank that could be protected through advance land acquisition. One potential extension would begin at the North Hollywood station and proceed east at-grade along Chandler Boulevard to the Golden State Freeway. At that point, major policy and engineering questions would need to be answered, including how and where to cross the freeway, whether or not to serve the commuter rail station, and how to tie in to the second possible extension.

The second, and perhaps more long-term extension of light rail service into Burbank would occur when the Glendale line was built, and probably utilize Glenoaks Boulevard north to downtown Burbank. In the long term, Burbank could be served by both north-south and east-west light rail lines.

Another potential extension would provide light rail service to the Media District. Civil and traffic engineering issues would greatly influence the feasibility of this extension, as would the relation to the Chandler Boulevard extension.

Major questions regarding their feasibility affect all of these proposals and these issues must be studied in further detail before these proposals can be seriously evaluated. For example, the use of Hollywood Way or Pass Avenue and resulting traffic and parking impacts must be examined. The under or overcrossing of the Golden State Freeway and Southern Pacific mainline tracks is a potential barrier to the downtown connection. Potential ridership, frequency of operation, operating and maintenance expenses, and multi-modal implications are each important questions needing further study.

The City of Burbank could best preserve these light rail options by undertaking a feasibility study in cooperation with RTD and LACTC. That study would identify critical parcels which should be acquired in order to preserve the rights-of-way (land banking), cost and funding requirements, and the possible financing arrangements with the LACTC and private developers designed to advance the construction of the lines by including them in the Proposition A plan and program.

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