

EXCERPTS FROM  
SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT  
REPORT ON  
EVALUATION OF COST SAVINGS  
DECEMBER 1983  
BACKGROUND INFORMATION ON SCRTD

CHAPTER I DISCUSSION OF MEASURES  
OF INCREASED PRODUCTIVITY

Excerpts Relating to  
Proposition A

CHAPTER II FEASIBILITY OF SUBSTITUTING  
PRIVATELY PROVIDED TRANSIT  
SERVICES

Entire Chapter Included

BACKGROUND INFORMATION ON RTD

The RTD in 1964 and its predecessor, the Los Angeles Metropolitan Transit Authority (MTA) in 1958, were established by the State Legislature to acquire, develop and operate a comprehensive regional network of bus lines, providing both local and express services. The State Legislature also charged the MTA and in turn the Southern California Rapid Transit District (SCRTD) with responsibility to plan, construct and operate a regional rapid transit system. Since 1976, the responsibility to plan and construct a regional rail system is now shared between the SCRTD and the Los Angeles Transportation Commission (LACTC). The LACTC also has the programming responsibility for both public transportation and highway projects. Both agencies are involved in planning for and construction of rail transit projects, while the RTD will be the operator of all rail services constructed by either agency.

RTD BUS SYSTEM

The RTD operates about 90 percent of the service and carries about 90 percent of the public transit riders in the County. This is accomplished with a fleet of approximately 3,000 buses, which includes a reserve fleet. Presently 2,100 buses are in service during the weekday peak periods. As of October 1983, the RTD carries more than 1,500,000 passengers (boardings) each weekday.

## PROPOSITION A IMPACTS ON BUS SYSTEM

For the first three years of Proposition A funding, the referendum mandated that the RTD implement a Reduced Fare Program, which had the effect of reducing base fares from 85 cents to 50 cents, with similiar fare reductions for the balance of the fare structure. (Only after this period does the minimum 35 percent for rail purposes begin.) Following the California Supreme Court Validation of the Transit Funding Sales Tax Referendum on April 30, 1982, fifty cent fares went into effect on July 1, 1982. The program will end on July 1, 1985. As expected, ridership has greatly increased. During the first 18 months, ridership will have increased more than 25 percent since July 1982. This ridership increase, a significant portion of which occured during off-peak periods, has been acomplished with only a 5 percent increase in service. Financial commitments have prevented the addition of more service which would have resulted in even greater ridership increases and in less overcrowding on the most heavily travelled bus lines. However, a greater concern now is planning for the end of the reduced fare program. Fares will have to significantly increase, and it appears that service reductions throughout the system will be unavoidable.

EVALUATION OF COST SAVINGS  
OPPORTUNITIES IDENTIFIED IN MEMORANDUM OF UNDERSTANDING  
WITH THE LOS ANGELES COUNTY TRANSPORTATION COMMISSION

Prepared By:

The Southern California Rapid Transit District

DECEMBER, 1983

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## I. DISCUSSION OF SERVICE DEPLOYMENT STRATEGIES TO INCREASE PRODUCTIVITY

This report was prepared at the request of the Los Angeles County Transportation Commission in order to evaluate service redeployment strategies and various productivity measures that are appropriate for the Southern California Rapid Transit District. The report is organized in two parts. The first examines strategies presently employed at SCRTD. The second part discusses strategies that are either being tried now or might be tried in the future.

### A. Current Efforts to Provide More Productive Service

#### 1. Patronage Trends Since Proposition A

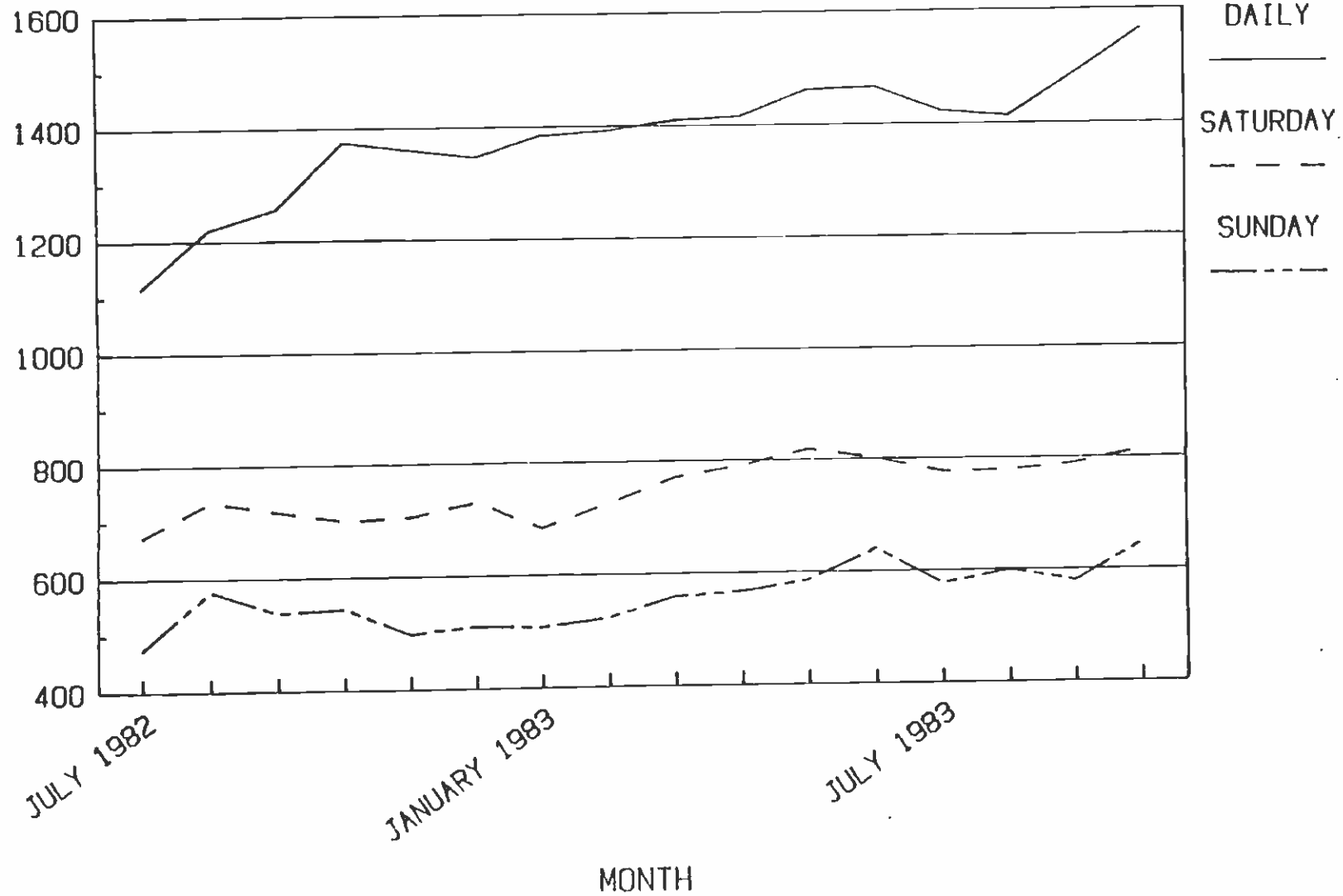
Figure 1 shows the growth in average daily boardings for the calendar months from July, 1982, the start of the Reduced Fare Program, through June, 1983. As can be seen in Figure 1, the weekday boardings have steadily increased each month except for some seasonal patronage losses which, nevertheless, represented ridership levels well over the previous year. Saturday and Sunday ridership levels, though more erratic month to month, have also experienced a substantial overall gain since July, 1982. Sunday patronage has experienced a larger relative increase than Saturdays. SCRTD's original predictions, drawn from past experiences with fare reductions, had stated that system patronage would probably level off around October or November, 1982. This pattern of continuing growth has been unexpected.

An indication of the relative growth among the components of SCRTD's ridership can be made by examining bus pass sales by category of pass. The graph in Figure 2 shows growth in sales by type of pass purchased. Although pass sales for all types are higher since the bus fares were reduced, the student and

FIGURE 1

# PATRONAGE GROWTH SINCE THE REDUCED FARES

PATRONAGE (000'S)

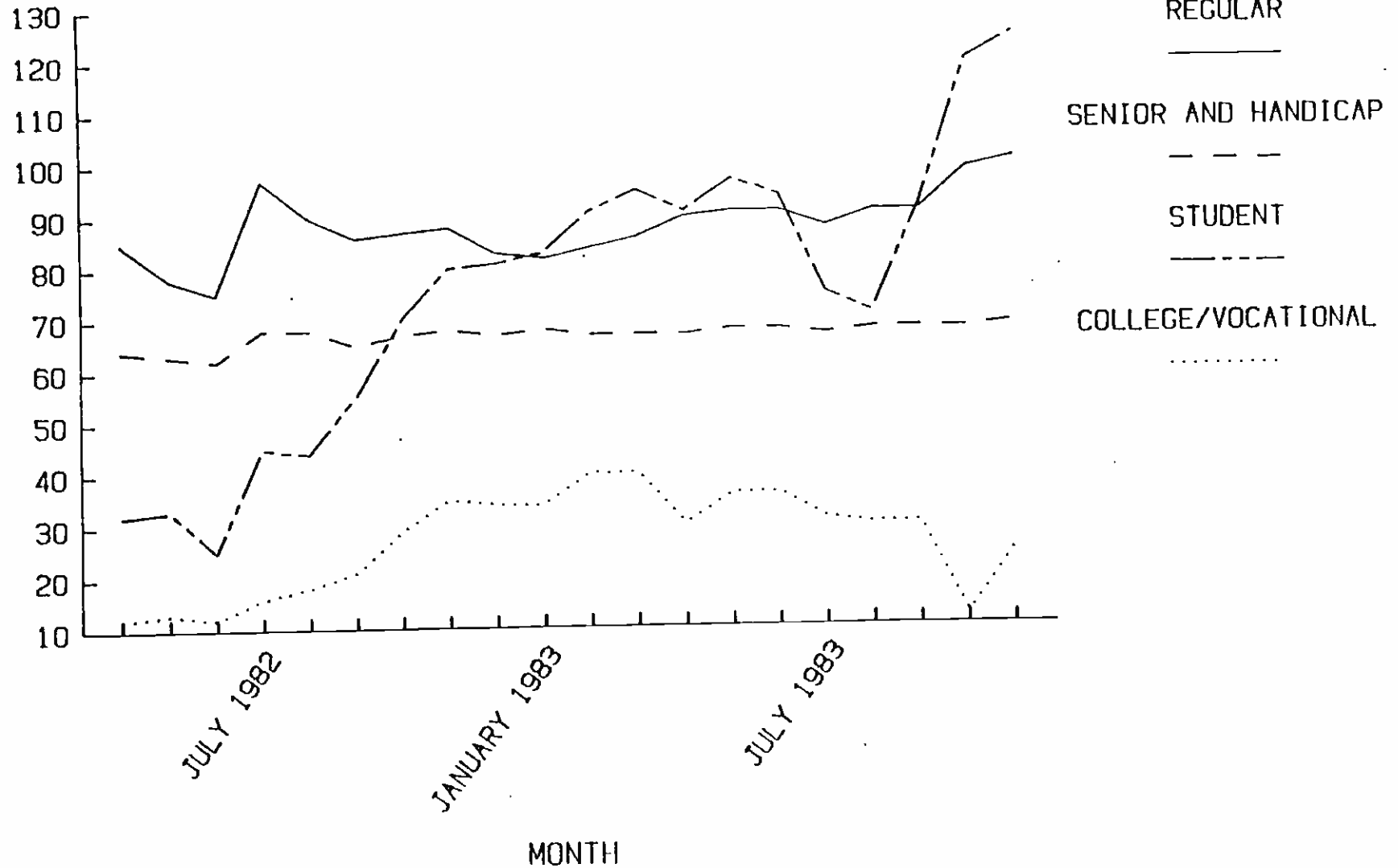


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FIGURE 2

PASS SALES BY TYPE PER MONTH

PASSES SOLD (000'S)



college/vocational pass categories demonstrated the most dramatic rise, with student pass sales escalating to surpass both senior citizen and regular. The disproportionate growth in student pass sales is attributable to the 80% reduction in student pass price on July 1, 1982 versus a 41% reduction in regular pass price. The Pasadena Unified School District has, in fact, cancelled its school bus contracts for the 1983-1984 school year, and is utilizing SCRTD instead. Even with staggered school hours and efficient scheduling, providing school bus service exerts a heavy impact on the District, because students travel in patterns requiring extra bus assignments and excessive non-revenue miles.

When pass use is viewed as a percent of average daily unlinked boardings, the effect of the reduced student fares can readily be seen. Table 1 compares pass use as a percent of average daily unlinked boardings for the months of February, 1982 and February, 1983. While actual sales of regular passes rose 2% from February, 1982 to February, 1983, the percentage of average daily boardings by regular pass fell 2.8%. Concurrently, the sale of student passes rose 162% and the percentage of average daily boardings by student pass gained 6.3%. Student pass sales surpassed the sale of regular passes for the first time in SCRTD history in January, 1983.

## 2. Accommodation Of Additional Patronage

### a. Service Hours and Equipment

The patronage increase strained the capacity of many lines by October, 1982, and service had to be augmented. Table 2 reports the annualized system revenue vehicle hours in effect on ten representative months from April, 1982 to October, 1983. The drop in service hours that occurs between April and June, 1982 reflects the seasonal

TABLE 1: PASS BOARDINGS AS A PERCENTAGE OF AVERAGE  
DAILY BOARDINGS

<u>PASS TYPE</u>	<u>FEBRUARY 1982</u>	<u>FEBRUARY 1983</u>	<u>CHANGE</u>
Regular	25.6%	22.8%	-2.8%
Senior & Handicap	12.7%	12.1%	-0.6%
College/Vocational	3.6%	7.6%	+4.0%
Student	9.2%	15.5%	+6.3%
TOTAL	51.1%	58.0%	+6.9%

TABLE 2: CHANGE IN REVENUE VEHICLE HOURS<sup>1</sup>

		<u>ANNUALIZED<sup>2</sup></u> <u>REVENUE HOURS</u>	<u>PERCENTAGE</u> <u>CHANGE</u>
<u>1982</u>	APRIL	6,650,353	-----
	JUNE	6,599,144	-.77%
	SEPT	6,673,098	+1.12%
	DEC	6,767,312	+1.41%
<u>1983</u>	JAN	6,860,569	+1.38%
	FEB	6,874,360	+.20%
	APR	6,928,705	+.79%
	JUNE	7,097,213	+2.43%
	AUG	7,085,909	-.16%
	OCT	7,086,883	+.01%

<sup>1</sup>-For months coinciding with significant changes in the bus system.

<sup>2</sup>-This includes only currently scheduled revenue hours.

service decrease caused by schools recessing. Revenue vehicle service hours then climbed in September, and continued growing through June, 1983. The District made an effort during this period to abide by the MOU when augmenting service. Previous reports have described the internal standards adopted by SCRTD to prevent unnecessary service additions. However, as FY 1983 entered its second half, the annualized revenue hours being operated by SCRTD surpassed, the 6,883,000 hour cap agreed upon in the FY 1983 MOU.

Another aspect of increasing service is the additional bus requirements. Figures 3, 4, and 5 exhibit the number of additional buses added for months from July, 1982 to October, 1983. Weekday equipment requirements increased in the AM and PM peak periods, while weekends required additional equipment during the mid-day and PM peak periods. As can be seen in Figure 3, weekday bus additions hovered around 30 buses in the peak periods for the first months of the reduced fare program and have since risen to almost 180 buses in October, 1983.

As shown in Table 2, the largest rise in service hours, 2.4%, occurred in June of 1983. This corresponds to the implementation of Phase VI of the Sector Improvement Program and augmented beach service for the summer season. At this time, neither of these service changes have been evaluated to determine their effects isolated from the effects of the ongoing trend of patronage growth. However, service hours have experienced a slight reduction since June, in spite of the addition of 56 buses to provide school related services, and the deployment of 32 buses to relieve overcrowding. This would indicate that some economies had been implemented.

FIGURE 3

# PROPOSITION A BUS ADDITIONS WEEKDAY

# OF BUSES

180  
160  
140  
120  
100  
80  
60  
40  
20  
0

AM PEAK  
MID-DAY  
PM PEAK

JULY 1982    OCTOBER    JAN. 1983    APRIL    JULY    OCTOBER  
MONTH

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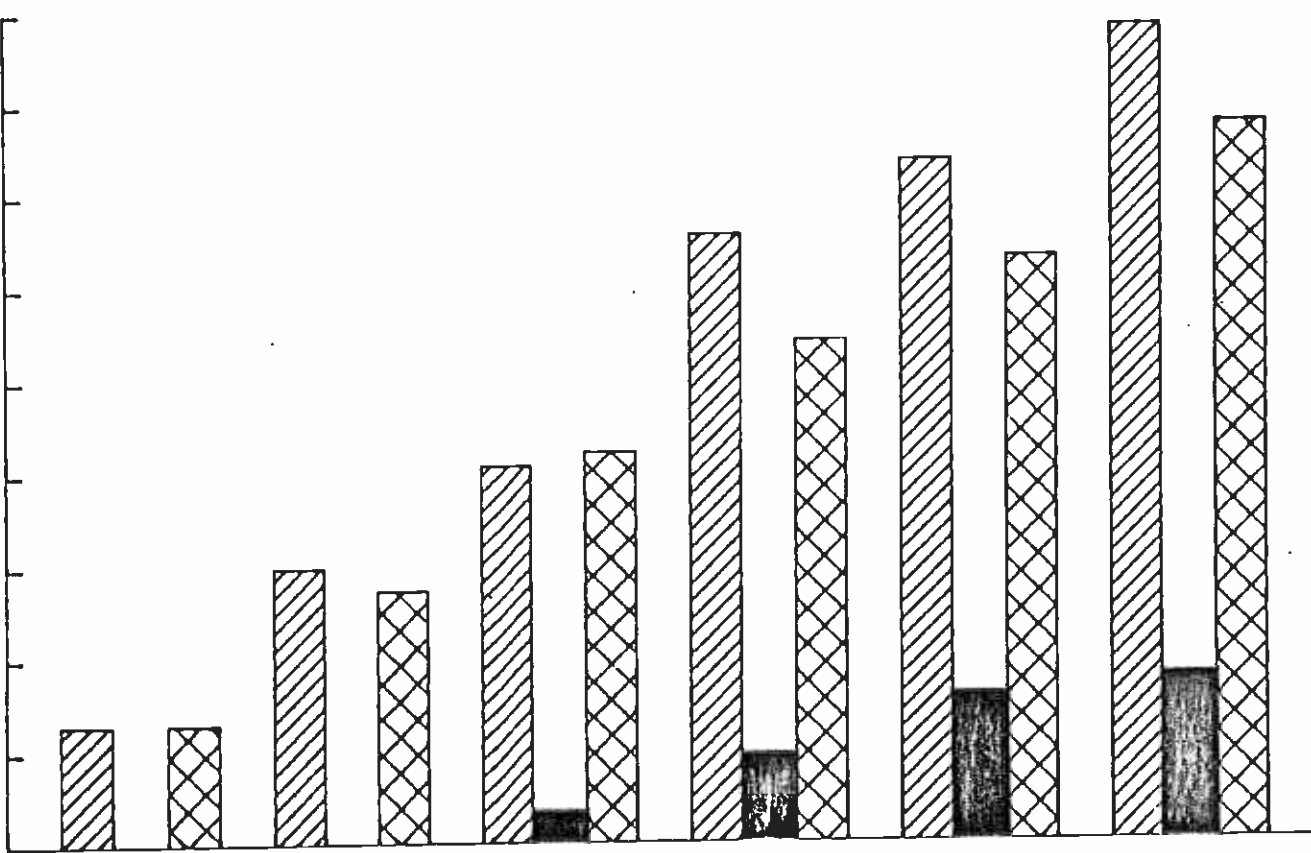
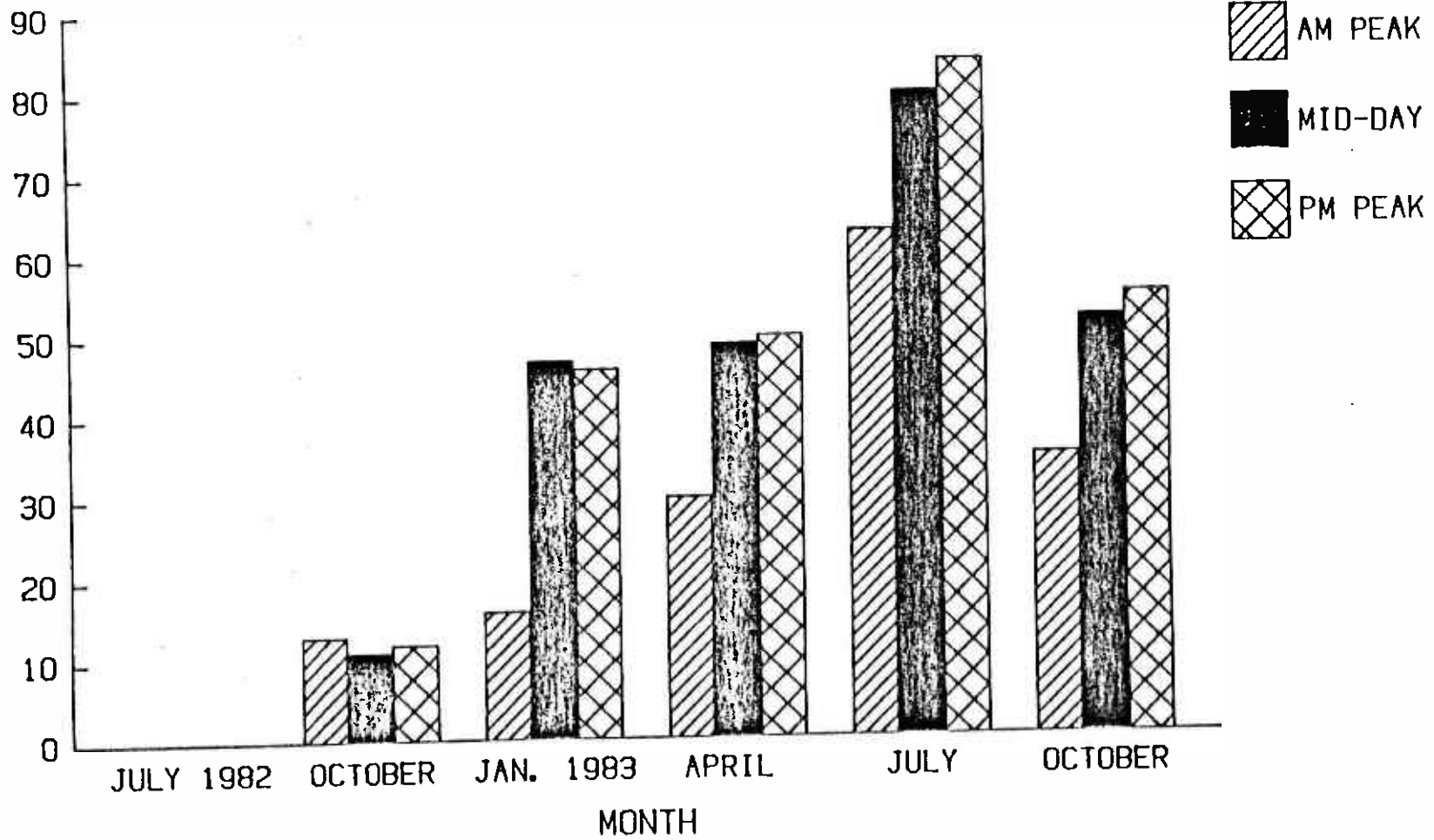




FIGURE 4

# PROPOSITION A BUS ADDITIONS SATURDAY

# OF BUSES

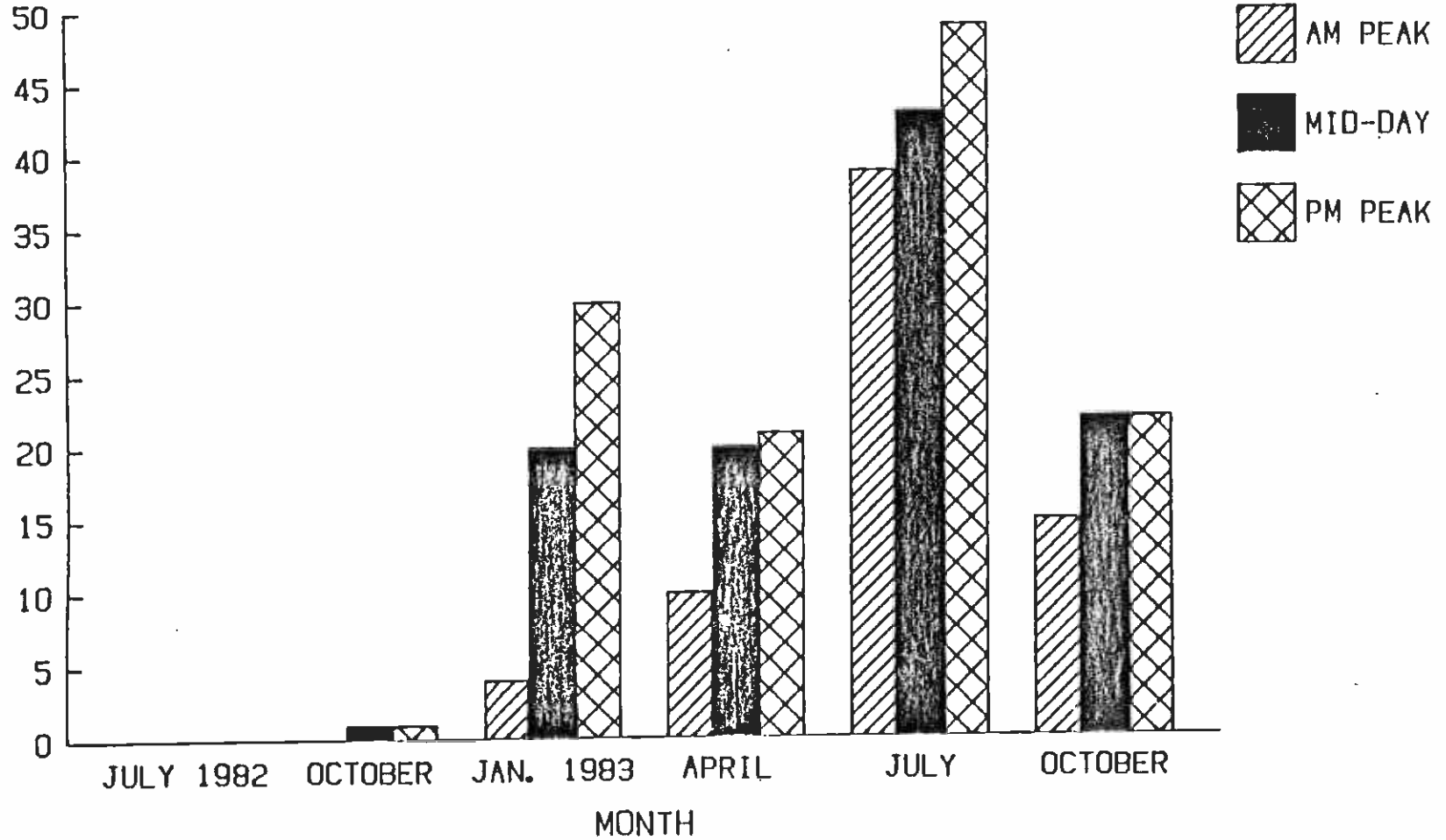


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FIGURE 5

# PROPOSITION A BUS ADDITIONS SUNDAY

# OF BUSES



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## II. FEASIBILITY OF SUBSTITUTING PRIVATELY-PROVIDED TRANSIT SERVICES

### A. Introduction

The financial and operating structure of transit provision in the United States has changed substantially in recent years. Prior to 1960, the majority of all transit companies were privately owned and operated competitively at a profit. As the profitability of providing services decreased, however, many communities adopted public ownership of their transit systems in order to maintain and improve service. This trend became particularly strong in the 1960's when the opportunity for Federal government financial assistance became available. The profit maximizing philosophy of private carriers was thus largely replaced by these public agencies whose functions were to run urban transit systems as public services. These public agencies assumed the role of providing service at minimum resource cost, subject to providing service at some minimum overall quality and given fare. They were not, however, constrained to cover all costs from farebox revenues as their predecessors were. In the years since this restructuring has taken place, the need for subsidies to operate these public transit agencies has increased substantially.

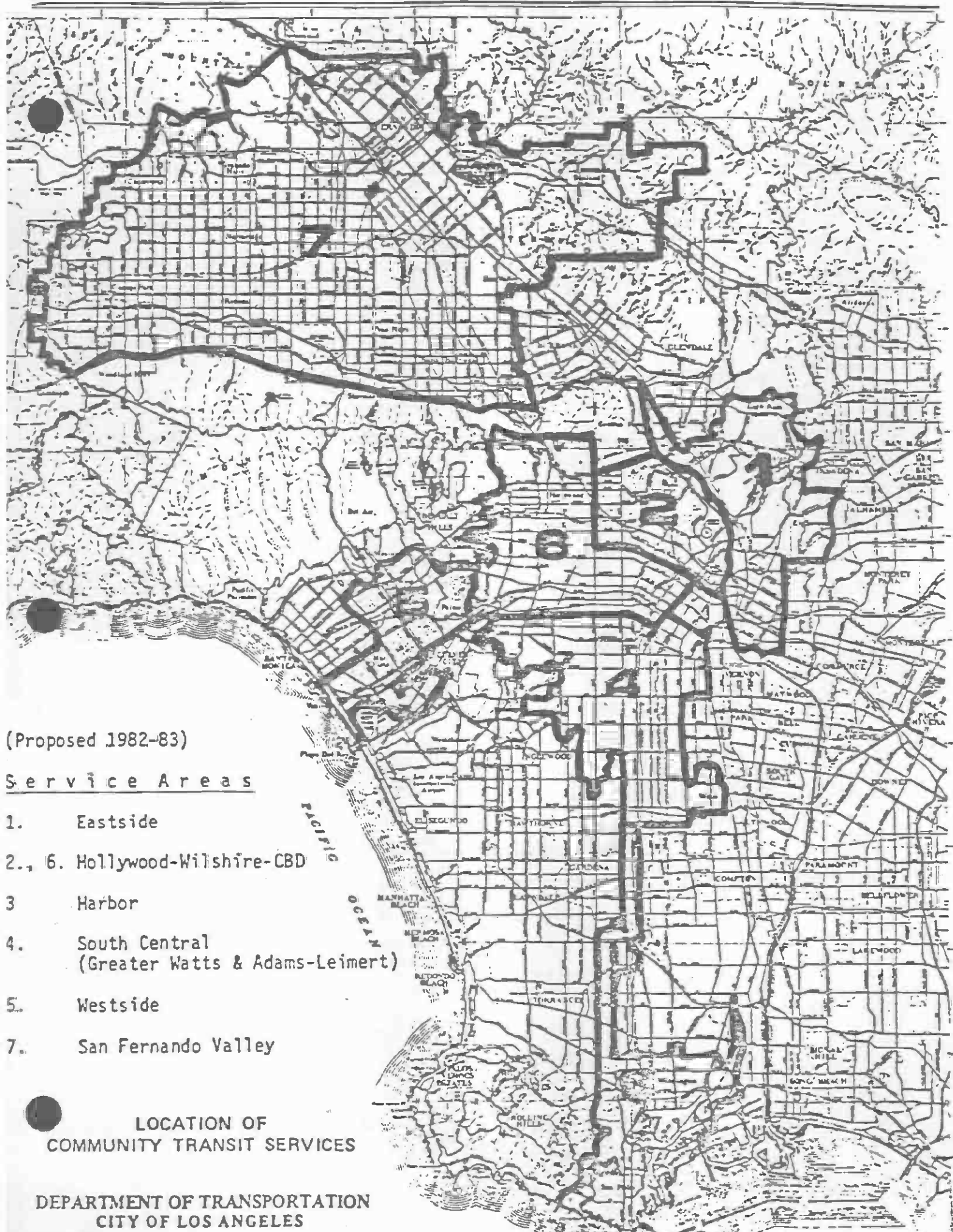
With the prospects of continually rising operating costs and possible reductions in operating subsidies, however, public transit agencies now face the problem of how to improve service while attaining greater cost economies. The changing nature of demand in certain markets, such as longer trips, warrants an evaluation of existing lines where service alternatives may be substituted. In light of the possible expiration of the Proposition A Fare Program in July of 1985, SCRTD is also faced with additional financial uncertainties. The District, therefore, is currently evaluating opportunities for achieving cost economies by improving the productivity and efficiency of its system. One such opportunity being studied is that of providing transit service by private firms as a means of relieving the District of unprofitable parts of its operation.

This chapter examines the feasibility and desirability of such an option within the constraints of meeting the District's goal of providing, to the greatest extent possible, an efficient and equitable transit system for the entire area. There are basically two broad categories of alternatives in which private carrier service can be substituted: 1) suspending existing service for private carrier substitution and 2) the subcontracting of service to private carriers. The cost and institutional feasibility of these alternatives and the various options available for their implementation are examined in this chapter. The experience of other transit agencies which provide paratransit services and an examination of the SCRTD Pomona Valley Study, which exemplifies the nature and scope of undertaking an endeavor to improve the quality and efficiency of service in the District, is also presented.

B. COST FEASIBILITY OF SUBSTITUTION OF SCRTD SERVICE WITH PARATRANSIT SERVICE

1. Existing Los Angeles City Dial-A-Ride Services

The City of Los Angeles, as of 1982, provides Dial-A-Ride services to six separate service areas of the City through service agreements (see attachment). The last remaining unserved portion of the City, the San Fernando Valley, is scheduled to be served with a similar demand-responsive service. The method of operation consists of service contracts with local taxi cab companies. Only one area, the East-Northeast area, is served by a company which uses five dedicated vans for this service. In addition, the City contracts with a service broker who acts in an intermediary capacity between the City Department of Transportation (DOT) staff and the carrier under contract to the City. The broker/coordinator's responsibilities include administration of the transportation coupon fare program.



(Proposed 1982-83)  
Service Areas

1. Eastside
- 2., 6. Hollywood-Wilshire-CBD
3. Harbor
4. South Central  
(Greater Watts & Adams-Leimert)
5. Westside
7. San Fernando Valley

LOCATION OF  
 COMMUNITY TRANSIT SERVICES

DEPARTMENT OF TRANSPORTATION  
 CITY OF LOS ANGELES

Donald R. Howery General Manager

These services are available only to persons 60 years and older and to the handicapped. An exception is the service provided in the greater Watts area in which all persons within specified service areas are eligible for the service. Except for the Watts district (which has a 25 cents fare) and for the East-Northeast district (in which donations are the only passenger revenue) a transportation coupon program is in effect. A maximum of \$20.00 per month in \$10.00 amounts are available per person with the user paying only \$2.00 per \$10.00 value of the coupons. Coupons can be used for a maximum of \$7.00 per trip with the balance being paid by the user at full cab fare.

For reference purposes, 1982 cab fares within the City result in about a \$7.00 charge for a three mile trip. As shown on the attachment, the average cost per passenger, including approximately 20% in administrative costs was \$6.20. This indicates that the average trip length was less than 3 miles. City DOT staff estimated the trip length to be between 2.0 and 2.5 miles for these Dial-A-Ride services.

Patronage is constrained by the funding available for the transportation coupons (limit of \$20.00 per month per person). In the case of the East-Northeast service which has no fare, patronage is constrained by the funding limitation of five vans in service, which are in maximum use, given the restricted population which is eligible to use the service and given the population density and distribution of rider demand within the service area.

Operating costs expressed in terms of miles and hours operated are not very relevant when the demand-responsive service uses undedicated vehicles, i.e., regular taxicab service. In this case, the most comparable statistic is cost per passenger. The City's experience for FY 1981-82 shows an average by service area cost range of \$5.70 to \$9.00 per boarding. City

DOT staff explain that the higher range number comes from the West Los Angeles service area which to date has experienced lower ridership, causing the relatively fixed broker/coordinator costs as a percentage of fares to be disproportionately high.

Operating costs for dedicated service can be expressed in unit service costs similar to conventional fixed-route services. The one service area, East-Northeast area, using five dedicated vans has the following cost experience for FY 1981-82:

EAST-NORTHEAST AREA

	<u>Total Cost to Carrier</u>	<u>Approximate Admin. Cost</u>	<u>Total Cost</u>
Total Hours	\$20.00/hr.	+20%	\$24.00
Total Miles	\$1.50/mi.	+20%	\$1.80
Boardings/ Total Mile	.20/mi.		

Los Angeles City - 6 Dial-A-Ride Operators

Average Cost Per Boarding	\$5.89
Cost Range: Cost/Boarding	\$5.70-\$9.00

The LACTC has developed service and financial statistics on a wide range of paratransit operators within the Los Angeles County. The District Planning staff has attempted to identify the operating costs of a representative sample of demand-responsive services which are operated with dedicated vehicles and also services using taxicab operators. Most of the services use regular taxicabs, in which cases the operation is referred to as a user-side subsidy.

There is a wide range in the costs reported for these services. This is particularly true for the taxicab operations. As a generality, LACTC staff reports that currently demand-responsive services cost in the \$15.00 to \$20.00 range per total hour of operation. This cost includes administrative costs in the range of 12% to 15%. Riders or boardings per vehicle hour and per vehicle mile are very low by fixed-route productivity standards; they equate to approximately two boardings per hour and .30 boardings per mile, respectively. This low productivity is due to the inherent nature of demand-responsive service and to the fact that the ridership is, in almost all cases, restricted to seniors and the handicapped. The fare box recovery for this service generally ranges between 10% and 20% of reported operating costs.

2. Orange County Transit District Experience with Dial-A-Ride Services

The Orange County Transit District (OCTD) has had experience in operating dial-a-ride service in several variations for ten years. After several years of experience in portions of their service area, the OCTD after consideration of several alternatives, implemented a comprehensive District wide demand-responsive service to the general public. The services are operated under contract by private operators, one operator for each of five contract areas. A total of 100 vehicles are used, all carrying the OCTD logo. In general, the private operators handle all supervision and administrative matters, including service complaints and community liaison requirements. In some cases OCTD provides major maintenance service, and in other cases the private carrier handles it all. The present manual dispatching performed by each private operator is being phased out in favor of an automated dispatching and control system operated by OCTD. Presently OCTD already has converted two of the five private operators to the new system.



The system is an adaption and refinement of the dispatching system first developed for the Haddonfield demand-responsive system and later used by the Rochester system.

The five contract areas encompass a total of 39 fare zones with each fare zone about ten to twelve square miles in size. The regular fare is \$1.00 per zone or \$.50 per zone for seniors and handicapped riders. Riders have to transfer to travel outside each zone. The response time goal is an average wait time of 20 minutes, with 75% of the service requests being met in 30 minutes and 90% of the service requests being met in 40 minutes. The OCTD Dial-A-Ride Manager believes that these response time goals are being met. The service is operated 7:00 a.m. until 6:00 p.m., Monday through Friday and 9:00 a.m. until 5:00 p.m., Saturday. No Sunday service is operated.

During FY 1981-82, it is estimated that the OCTD Dial-A-Ride system cost about \$5,915,000, excluding OCTD overhead costs of about 25%. The cost per vehicle hour is about \$23.00, which includes about a 25% additive for administrative costs. The average driver pay per hour is between \$4.00 and \$5.00 per hour. Farebox revenues are estimated to be \$541,000, which amounts to about an 8% recovery when administrative costs are included. About 810,000 boardings are projected and ridership productivity is projected to equate to 3.2 boardings per hour and .20 boardings per vehicle mile. In future years, productivity is projected to gradually increase to a maximum of six boardings per vehicle hour.

### 3. Projected Operating Costs of SCRTD Paratransit Substitution

It can be assumed that the private carrier's cost of providing substitute service on the District's existing lines would be considerably lower, since such service is highly labor intensive and private carrier non-union wages are generally

much lower than the District's. It can also be assumed that in order to induce private carriers to operate service on the District's unprofitable lines, that they would have to be allowed to set the level and quality of service they would provide relatively freely. Thus, a reasonable cost analysis and comparison of this type of service cannot be made.

Projected operating costs of subcontracted demand-responsive service as a substitute for existing SCRTD service involve a number of unknown factors. As noted in the previous section, existing paratransit services generally have a total operating cost in the range of \$15.00 to \$20.00 per hour of operation (FY 1981-82 dollars). In theory, the larger and expanded paratransit operations which would be required as a substitute for SCRTD services, could result in some economies of scale, in terms of spreading the overhead costs over a larger number of vehicles with their attendant staffing requirements. On the other hand, there may be significant increases in cost as a result of an expanded scale of operation. The impetus behind this cost increase would be the need to upgrade service in terms of more coordination and more support services. Paratransit service that is a substitute for existing SCRTD fixed-route service is likely to generate public demands and expectations for service far beyond present experience with paratransit services in Los Angeles County. Therefore, it appears that a more reasonable minimum cost estimate, for FY 1981-82, would be \$20.00 to \$25.00 per hour instead of \$15.00 to 20.00 per hour.

The reasonableness of a \$25.00 per hour of operation estimate for demand-responsive service is further confirmed by review of the operating cost per bus hour for the well established Dial-A-Ride service in La Mirada and for that provided by Orange County Transit District (OCTD). The cost per hour for FY 1981-82 for these two services is approximately \$33.00 and \$23.00 respectively, including administrative costs. Both of

these services are open to the general public as opposed to being restricted to seniors and handicapped riders.

4. Theoretical Cost Comparison of Fixed-Route to Demand-Responsive Service

The example of Pomona Valley, as shown in Table A, has been used to develop a theoretical comparison between fixed-route service and demand-responsive service. Column A of Table A shows in summary form the primary financial service and ridership data items for the District's 1982 fixed-route local circulation routes, consisting of Lines 451-453 and 452-454. (These line numbers have since been changed to 291-293 and 192-194 respectively on October 2, 1983.) Columns B through G show variations of demand-responsive services.

A key input to this comparison is the assumption that the paratransit alternatives shown in Alternatives B through G could be operated in FY 1982-83 for only \$25.00 per bus hour compared to \$55.00 per total bus hour for District operated bus service. This assumption is based on applicable current paratransit operating experience in the region and was discussed in the previous sections of this report.

Given the assumption that demand-responsive service could be operated in FY 1982-83 for only \$25.00 per bus hour, it can be seen that slightly more than twice the number of bus hours could be operated for the same total operating cost of \$6,050.00 per day. Yet, as shown in Column C, no more than the same number of riders could be carried due to the inherent lower productivity of paratransit services. In fact, seven boardings per hour is considerably higher than most many-to-many paratransit services, even including the more productive services that are open to the general public. A less optimistic figure of five boardings per hour, as shown in Column B, produced only 1,200 boardings per day, 500 fewer

TABLE A

Pomona Valley  
Theoretical Comparison: Fixed Route  
Compared to Demand Responsive Service  
Average Weekday Statistics  
(FY 1982-83)

Alternatives	A	B	C	D	E	F	G
Service Description	Fixed Route 451-453 & 452-454	Demand Responsive				Modified Demand Responsive Additional Fare	
		Present Fare	Higher Fare	Higher Fare	Higher Fare		
Buses	8	16	16	16	8	8	8
Hours	110	242	242	242	120	120	120
<u>Financial Description</u>							
Fare Revenue	850	600	850	1200	840	1800	3000
Net Cost	5200	5450	5200	4850	2160	1200	0
Total Cost	6050	6050	6050	6050	3000	3000	3000
Fare Recovery	14%	10%	14%	20%	28%	60%	100%
Fare Level	.85	.85	.85	Higher	Higher	Higher	Higher
<u>Ridership</u>							
Boardings	1700	1200	1700	1200	840	1200	1200
Bd/Hr	15	5	7	5	7	10	10
<u>Service Stat.</u>							
Cost/Hr.	55.00	25.00	25.00	25.00	25.00	25.00	25.00
Rev./Bd.	.50	.50	.50	1.00	1.00	1.50	2.50
Net Cost/Bd.	2.30	2.30	2.30	1.80	1.80	1.00	.00
Total Cost/Bd.	2.80	2.80	2.80	2.80	2.80	2.50	2.50
Headway (Min.)							
Response Time (Min.)	40	20-30	20-30	20-30	20-30	20-40	20-40

#-10  
C

boardings compared to the present fixed-route service. Columns F and G show ten boardings per bus hour. These two paratransit alternatives are listed as "modified demand-responsive" services because normally this productivity level exceeds the capability of the many-to-many mode of demand-responsive service. Modifications such as the following can make a productivity of ten boardings an hour more feasible: many-to-few, many-to-one, group riding, and connections to scheduled service through scheduled demand-responsive service. (The latter is somewhat of a contradiction in terms.)

In fare recovery, the present fixed-route service recovers an estimated 14%. This compares with a paratransit range of between 10% to 100%. The 10% recovery is achieved from five boardings an hour at the present average fare of \$.50 per boarding. A recovery of 28% is obtained in alternative E, assuming an average fare of \$1.00 which is double the present average fare. A recovery of 60% and 100% is obtained from average fares of \$1.50 and \$2.50, respectively. These fare levels are three and five times the present average fares, respectively.

The level of service provided to the user is another comparison. In theory, in low density areas, demand-responsive service can provide more convenient service where the alternative is widely spaced, infrequent fixed-route service. This service when operated in a door-to-door, many-to-many mode may be more attractive if the wait time can be held to reasonable lengths, such as 20 to 30 minutes after placing a call. On the other hand, the productivity of such service may not be able to exceed five boardings per hour. Even under modified paratransit operating conditions, productivity is not likely to rise above ten boardings per hour, a figure which is less than one fifth of the District's system average.

One clear conclusion to be drawn from this theoretical comparison is that for the same total operating cost and for the same cost per passenger (boarding), only under the most favorable assumptions and circumstances will the same number of passengers be served with paratransit compared to the present fixed-route services. Moreover, the boardings per hour assumed for the demand-responsive service shown in Table A are maximum productivity levels based on general experience from dial-a-ride systems. This contrasts with the fixed-route service (Lines 451-453 and 452-454) which has a large unused capacity. The maximum for the dial-a-ride service, operating in a many-to-many mode is about seven boardings per hour, compared to the fixed-route lines which could easily handle 40 to 50 boardings per hour operating over their present routes in the Pomona Valley.

### C. INSTITUTIONAL FEASIBILITY

#### 1. Suspending Existing Service for Private Carrier Substitution

One method of using private carriers in the provision of District service would be to suspend service on certain lines, in accordance with District Service Standards, and offer them to private carriers. An initial task in evaluating this option is to determine the situations in which private transit providers would, or could be induced to, provide service. One must assume the private operator's sole motivation is profitability. To be profitable it must also be assumed that service conditions and fares could be set relatively freely by the carrier. Assuming that no competition of subsidized transit exists and a real demand for services, it appears likely that a private carrier would be able to operate at a profit.

As the only motivation of substituting private carriers for existing service is to become more cost-effective, candidate lines for substitution would be those which are the least profitable. To generate a profit on these lines, the private operator would set service conditions and fares at levels in which a profit could be generated. In this instance, a private operator could enhance the overall quality of service with much higher fares or reduce the quality of service with only slightly higher fares.

In practice, it appears that quite often when private carriers have been allowed to operate substitute service on a line with relatively little restrictions on their fares or service conditions, that they have done so by offering both higher fares and quality of service than the existing service. Fares, although usually regulated to some extent, have often been three or more times higher than that of existing public agency fares. It also appears that new patrons have been attracted by improving service quality.

In February of 1968, the Transit Authority of New York implemented an experiment in which a private operator was allowed to attempt profitable service on one of their existing express bus lines. While the fare was regulated by the New York Board of Estimate, other characteristics of the service such as frequency, coverage of the area and the cleanliness of the vehicles were left to the discretion of the operator. To date, this service is still in operation. It has been extended to additional lines, and is considered by the Transit Authority to be a success. Notable aspects of this service are that the express bus service is operated at a high level of service and efforts are taken by the carriers to ensure that all passengers have a seat. Fares are approximately three times the normal Transit Authority fare. The privately provided services in the off-peak, however, are infrequent and only provided on some of these lines.

In light of the District's public responsibility to provide equitable transportation service to the area, it is possible that if the District allowed private carriers to operate existing service with substantially increased fares, a minimum level of service at a reduced lower fare would have to be maintained resulting in much higher subsidies. It could thus be alleged that allowing the private carrier to provide high quality service is in effect like allowing them to "skim the cream" from the public carrier, to the detriment of the general community.

The District's LAX service could possibly be considered an example of this. A private carrier has been allowed to operate an express service to the airport. The private carrier provides a relatively high quality of service to LAX from various hotels in the Los Angeles area and does so at fares that are substantially higher than the SCRTD fares. However, since this service could not be considered as a substitute for the service previously operated by the District, service to LAX is still provided by SCRTD at the regular fare to serve the general public equitably.

Allowing private carriers to set service levels and fares relatively freely does not, however, necessarily mean that a higher quality of service will result. In order to generate a profit on the District's unprofitable lines, carriers may in fact provide service which is well below present District service levels. The District would have no means of monitoring the private carrier's frequency of service, reliability, area of coverage, and cleanliness of buses.

## 2. Subcontracting Service to Private Carriers

Should the District seek to substitute private carriers on unprofitable lines and no profit maximization incentive exists, an alternative is to subcontract the service to



private carriers and provide incentives through subsidies at levels which would make it profitable for carriers to provide services. Under this option, the District could regulate the fare, and the level and quality of service to be consistent with the rest of the District's service goals and standards. This alternative lends itself particularly well to the provision of dial-a-ride services in lieu of fixed-route service in areas where transit demand is low as in low density suburban areas, in periods of low service demand, and selected express lines that provide point-to-point service.

Under regulated service and fare conditions, there is little or no reason for private operators to compete for service contracts without at least a limited amount of subsidy. The premise to subcontracting and providing subsidies is that subsidies can be provided to private carriers and the service can still be less expensive since private carriers generally have labor costs which are substantially lower than agency unionized labor. As dial-a-ride services are highly labor-intensive, the cost feasibility of subcontracting will therefore generally depend on the private carrier's labor rates as well as operational overhead.

Assembly Bill 216, enacted into law as Chapter 43 will become effective January 1, 1984. This new law will allow the District to contract with public utilities for the provision of transit services within the District. This law amends Section 30634 of the Public Utilities Code which allowed the District to contract for service only with cities or the county. While the subcontracting of services to private operators will soon be permitted by State law, there are still a number of issues which must be considered regarding the United Transportation Union, the labor union which represents the District's bus drivers.

Under the District's current contract with the United Transportation Union, the subcontracting of services to private carriers is not allowed. Article 7, Section 2 of the contract reads as follows:

Subcontracting and Paratransit

- a. Nothing in this contract shall be deemed to preclude the District from contracting for service with common carriers of persons operating under a franchise or license for services, providing that no contracting shall take place unless there is insufficient equipment, or there are insufficient operators to perform said service, and provided further that said contracting shall not adversely affect the existing employees of the District.
- b. Nothing in this contract shall prohibit the District from becoming an "umbrella" agency with responsibility for administering, regulating, and contracting with respect to Paratransit Programs.
- c. At no time during the term of this contract or any extension thereof between the District and Union will the District reduce its hiring of new employees covered by said contract as a result of the inclusion of subcontracting of Paratransit Programs.
- d. The District's participation in subcontracting or Paratransit Programs shall not adversely affect any of the District's employees covered by this Agreement.
- e. No Paratransit equipment shall, during the term of this contract, be stored, serviced, repaired or maintained on any District property where District revenue equipment is stored.

Thus, unless the District could prove it was out of either buses or operators, subcontracting would not be permitted nor could equipment be stored or maintained by the District, until this section of the United Transportation Agreement is changed.

Another labor issue concerns Section 13(c) of the Urban Mass Transportation Act of 1964. Section 13(c), as amended, requires protective arrangements for employees who might be adversely affected by a project assisted with federal funds. This requirement may severely limit the feasibility of paratransit options which would require financial assistance from the U.S. Department of Transportation.

The primary consideration is that District Union representatives may view the substitution of existing District service with paratransit services with private contractors as a threat to union jobs and job security. Union representatives could seek protection under Section 13(c) and federal funding subsidies for service subcontracted to private carriers requiring such subsidies would not be practical.

In practice, it appears that this constraint has made it extremely difficult for UMTA to provide assistance to public agencies for paratransit alternatives which might result in reduced employment for conventional transit services, even though some of these alternatives may have great cost effective potential. Should SCRTD Union representatives object to subcontracting to private carriers who would use their own vehicles and drivers, the District would instead have to consider using its own buses and drivers and it is possible that the provision of paratransit services may lose much of its cost-effectiveness. The District may, however, be able to negotiate with Union representatives, particularly if it can be shown that any of the subcontracted services would not mean a loss of existing jobs to the Union and would in

fact result in avoiding certain lay-offs if present conditions were allowed to remain unchanged.

3. Analysis of Orange County Transit District Experience

The OCTD Dial-A-Ride system, as described previously, has been designed to avoid competing with the fixed-route system. The requirement to transfer between zones ensures that the primary purpose of the system will be to serve short distance trips of two to three miles in length throughout the OCTD service area. An alternative approach for OCTD would be to deploy dial-a-ride service as a substitute for fixed-route services in the outlying low density areas. OCTD has not taken this approach for two reasons. First, from the political standpoint, there has been a strong demand for dial-a-ride service throughout the OCTD service area. Every city wants to be served. Second, OCTD does not believe that dial-a-ride service is an adequate substitute for fixed-route service. Productivity limitations and the requirement for longer distance trips dictate a fixed-route solution. Scheduling dial-a-ride for transfer connections can help integrate the service with the regional fixed-route network. But in doing so, the dial-a-ride service is basically becoming a regular fixed-route service.

Related to the integration of dial-a-ride services is the question of labor protection measures. As long as the service remains purely a dial-a-ride service, the OCTD union (UTU) has not raised any objections to the use of non-union private operators under contract to the OCTD. It is believed that efforts to integrate the dial-a-ride service into the OCTD system, through such measures as scheduled meets at transfer points, may give rise to union demands for unionization of the dial-a-ride services.

#### 4. National Experience

Research and review of existing documentation of service subcontracting by transit agencies in the United States that have either directly or indirectly replaced traditional fixed-route service are discussed specifically in two case studies that follow: Examples 1 and 3, applying respectively to San Diego, California, and Norfolk, Virginia. Example 2 is a review of a subcontracted paratransit project in Ann Arbor, Michigan, that is a late night service expansion of the transit district. Examples 1, 2, and 3, point out innovative techniques as to how an integration of paratransit services and fixed-route services have been attained. The Urban Mass Transportation Administration considers Examples 1, 2 and 3, illustrations of some fairly successful experiences. In contrast, Example 4 is a review of a paratransit project in Deerfield, Illinois, that was discontinued because the constraints of increasing project cost could not be overcome.

In summary, general conditions for subcontracting paratransit service has been where fixed-route service previously operated by a transit district had to be discontinued because of low ridership and decreasing available funds. At that time residents of the affected community brought local pressure demands for transit service from their geographically isolated community to feed into express routes to downtown areas and nearby employment centers.

Another type of paratransit project subcontracted to a private taxi operator is a late night, demand-responsive, door-to-door service, expanding the services of a transit district. This

has been initiated in response to requests by local citizenry for safer transit in neighborhoods with attractions that generate late night activities, such as universities.

Historically, transit districts have applied for an UMTA Demonstration Grant to subcontract for a taxicab feeder service on low demand lines. The 13(c) Labor Protection Agreement is necessary in order to obtain UMTA funding for the demonstration of the paratransit project. Negotiation with labor representatives could cause a project time delay of at least one year. This one year delay could negatively affect the projected cost and timing of any proposed paratransit projects.

Generally, paratransit services have lower vehicle productivities than conventional fixed-route systems. There are two exceptions to this rule. The first exception is that those subscription bus services servicing the work trip commute can have high productivities. The second exception occurs in low density areas that are sometimes geographically isolated where a fixed-route transit system usually operates with very low productivity. Other conclusions are that dial-a-ride systems need a shorter trip length to operate efficiently. Furthermore, dial-a-ride systems have worked in areas that are geographically isolated, with a scattered ridership, not located near major fixed-route corridors.

Operating costs of unionized transit systems are higher and unless these costs are made up for in a higher productivity on a fixed-route system, subcontracting a low productivity line to a private provider of transit may become more cost effective. A thorough analysis would be required on a case-by-case basis before a firm conclusion can be reached.

### EXAMPLE 1

In San Diego, California, a taxi feeder service was started as a replacement to a previously discontinued fixed-route service in Paradise Hills. This six square mile residential community, with a population of 25,000, is located in the southeast quadrant of the City of San Diego. The demonstration site has a hilly terrain and a discontinuous street pattern. Furthermore, the Paradise Hills Community is geographically isolated from the rest of the City of San Diego but borders National City on the east. About 42% of Paradise Hills residents' travel demand is to nearby employment centers, National City and Chula Vista.

Prior to July, 1979, SDT operated fixed-route service from Paradise Hills to National City on Route 12. Since the SDT is a corporation and not a transit district, it can only operate within another city's borders, such as National City, if the other city is willing to pay for the service. In July, 1979, during post-Proposition 13 days, National City decided that SDT's service costs were too high and decided to operate the portion of Fixed-Route 12 within National City themselves, but would not serve Paradise Hills which was outside their jurisdiction.

Subsequently, Paradise Hills residents brought local pressure demands for transit service to feed into express routes to downtown San Diego and into National City. During the next three years, the SDT tried three different, east-west, fixed-route alignments within Paradise Hills in order to serve that community. Cost became a problem in that the subsidy per passenger was more than \$5.00 and demand remained low due to the incomplete coverage of the service areas. San Diego Transit (SDT) discontinued fixed-route service in Paradise Hills in July, 1981.

SDT received an UMTA grant to subcontract a taxicab feeder service to Paradise Hills and DART (Direct Access to Regional Transit) was initiated on July 15, 1982. After the UMTA grant funds for the demonstration are finished in Spring of 1984, San Diego Transit has indicated that they will provide operating funds to continue DART.

SDT is responsible for system design, service modifications, project administration, and marketing. The subcontractor, who is Co-op Cab, provides personnel, equipment, a radio dispatch center, and daily supervision. Co-op Cab is a non-profit organization formed in 1977, after the San Diego Taxi industry underwent deregulation. Co-op Cab's principal business is providing radio dispatching service for independently owned taxicabs. In order to provide incentive, Co-op Cab pays the taxi feeder service drivers the same hourly rate they could average operating an exclusive ride taxi service.

Originally, DART offered service during the peak-period hours, 5:30 a.m. to 9:00 a.m. and 3:30 p.m. to 7:00 p.m., on two-fixed routes (DART-1 and DART-2). These two fixed-routes replaced about half of the fixed-route service that had been discontinued the year before. The cab company also was required to provide demand-responsive service between the off-peak hours, 9:30 a.m. to 3:30 p.m.

A further service change was instituted on November 1, 1982 to increase ridership in East Paradise Hills during the peak-period. One of the peak-period fixed-routes, DART-1 was changed to demand-responsive service both during peak and non-peak hours. DART-2 continued to provide peak-period, fixed-route service for the higher density West Paradise Hills, with a half hour frequency of service.



DART service operates Monday through Friday, from 5:30 a.m. to 7:00 p.m. DART-2 is a feeder service that provides timed transfer connections, with a maximum wait time of ten minutes, to three San Diego Transit routes, two National City Transit routes, and one Chula Vista Transit route. The taxi feeder fare is the same as express route bus service, one dollar, and includes a free transfer to any connecting bus. Seniors and handicapped passengers' fare during non-rush hour service is \$0.40. Return trips can be arranged at the same time if the passenger knows his return trip arrival time within two minutes. DART-1 drivers will honk their horn but are not allowed to wait for more than two minutes. Passengers can also make DART-1 reservations one day in advance. Outbound demand-responsive service is provided from a passenger's home to several transfer points. Inbound demand-responsive service is provided from several transfer points to a person's home.

SDT's reimbursement plan with the taxicab company that provided service to Paradise Hills is as follows: Co-op Cab retains all the money its drivers collect, which is subtracted from the amount SDT owes Co-op Cab for providing the service. SDT's reimbursement for the peak-period, demand-responsive service is based on vehicle service hours and mileage, resulting in less cost than the fixed-route service. The fixed-route service payment is based on the number of vehicle service hours Co-op Cab operates. Reimbursement for non-peak service is provided to the taxi company on a per passenger basis. The taxicab company does not dedicate a special fleet of taxis for the demand-responsive service; instead any driver assigned by the dispatcher can pick up a DART passenger, reducing the taxicab company's costs.

According to staff at SDT, before National City removed itself from Route 12 in July, 1979, the subsidy per passenger on the fixed-route service to National City was approximately \$2.00. During the interim phase when SDT tried out three different

fixed-route alignments in Paradise Hills, the subsidy per passenger had risen to an amount between \$5.00 and \$6.00. As of August, 1983, the average passenger subsidy for the taxi-feeder service both for the peak and non-peak periods was \$2.18. Another effect of the service change has been that weekly ridership of Paradise Hills residents has increased to over 400 passengers from about 200 Paradise Hills passengers who rode the fixed-route SDT service prior to July, 1979.

#### EXAMPLE 2

A second example of an ongoing paratransit project is located in Ann Arbor, Michigan. The Ann Arbor Transportation Authority (AATA) operates public transportation service in the Ann Arbor urbanized area and also in the surrounding area. The service area of the AATA has a population of 208,782. The City of Ann Arbor has a population of 108,000, of which 28,000 are students at the University of Michigan. Ann Arbor has a large transit demand for late night service because the University of Michigan generates late night activities.

It was determined that the cost would be too high for the AATA to operate a late night dial-a-ride service. As a result in March, 1982, the Ann Arbor Transportation Authority (AATA) subcontracted to a private taxi operator a late night, demand-responsive, door-to-door, shared-ride service for the general public called Night Ride; this service did not replace any previous service of AATA. AATA started the Night Ride service because of local pressure requesting a dial-a-ride transit service during late night hours to increase public safety. Funding for Night Ride has been provided by an Urban Mass Transportation Administration (UMTA) Demonstration Grant.

Ann Arbor taxi companies are required to operate all night; also, it was well known they had excess capacity during late night hours, a low demand period. The AATA opened discussion

about the possibility of subcontracting Night Ride with the two local taxicab companies.

AATA subcontracted Night Ride to a private operator because the taxi company could provide the service at a lower cost. In order to insure quality of service the AATA specified in their contract with the taxicab company that Night Ride be operated by licensed taxicab drivers using licensed taxicabs.

In order for a private taxi company to be able to provide the Night Ride service, the AATA had to negotiate a waiver from the Ann Arbor Taxicab Ordinance, which prohibited shared rides and required that fares be based on the taximeter. The Taxicab Board agreed to exempt the taxis used for Night Ride from the ordinance because those taxis were reclassified as "mass transit vehicles." The "mass transit vehicles" were exempted as far as fares but not licensing inspection portions of the ordinance.

Night Ride's patronage dips during summer months when a large portion of students leave the city, but during the regular school year patronage counts rose up to 1300 passengers in November, 1982. The subcontracted taxicab company dedicates one to four taxis for the Night Ride under their agreement with AATA. With the City of Ann Arbor, Night Ride operates between the hours of 11:00 p.m. and 6:00 A.M., seven days a week.

The AATA pays Veterans Cab a \$7.50 subsidy per vehicle hour and the taxicab company retains all fares. In addition, the AATA pays for a Night Ride telephone line and is responsible for marketing. Equipment, personnel, and dispatch service are provided by the taxicab company. The fare is a flat rate of \$1.50 per trip, regardless of trip distance. Advance reservations are not necessary, but calls must be made on the day of the trip. The average wait time is between 15 and 20

minutes, but individual wait times are more variable, occasionally as long as 40 minutes. This occurs because at certain times more trips are requested than can be handled by the number of vehicles available. Veteran's Cab usually routes their vehicles so that a series of pickups are made first, followed by a series of drop offs.

### EXAMPLE 3

A third example of an ongoing paratransit operation is located in Norfolk, Virginia. The Tidewater Transportation District Commission (TTDC) operates public transportation over a 1,092 square mile area; about one third is urbanized. Five cities, Chesapeake, Norfolk, Portsmouth, Suffolk, and Virginia Beach, are members of the Commission. The TTDC serves a population of approximately 800,000. Even though TTDC provides transportation service for five cities, each city must pay for its own service. TTDC was awarded a National Ridesharing Demonstration Program project, sponsored by FHWA and UMTA. State aid funds were also granted to the TTDC.

TTDC had previously discontinued several fixed-route services; this service was substituted with a demand-responsive, door-to-door, dial-a-ride service. The shared-ride taxi service was contracted out to a taxicab company using vans. Originally, the fixed-route system that was replaced were low demand portions of several routes operating from downtown Norfolk to the suburbs. The outer portions of the fixed-route service became very costly to operate because of the low ridership and decreasing available funds. One option was to terminate service altogether. A second option, which TTDC decided to act upon, was to shorten the fixed routes to a major transfer point at the regional shopping mall. Therefore, passengers traveling to the Community of Deep Creek and several other suburban areas could avail themselves of the door-to-door, dial-a-ride service within their community.

The Deep Creek area of Chesapeake is a low density, rural area, with several fast growth suburban developments, bordering the City of Portsmouth. Deep Creek has a population of 19,222 within an area of 19.06 square miles. Fixed-route service to Deep Creek had a history of declining ridership and two hour headways. Finally, bus service was discontinued to Deep Creek in early 1979. After a six month interval of no service, residents of Deep Creek brought demands for transit service to the City Council. As a result, the TTDC decided to initiate a shared-ride taxi service for the Deep Creek service area.

The service concept for Deep Creek transit service was to replace low patronage, two hour headway bus service with dial-a-ride feeder service to the major shopping center with bus connections. The service operates from 6:00 a.m. to 7:00 p.m., Monday through Saturday with at least a 60 minute response time. The fare is \$1.50 with a free transfer to connecting buses.

A second service change was made in the City of Norfolk on the Coronado Route. The City of Norfolk has a population of 30,520 within an area of six square miles. The Coronado bus route was a low demand route at night. Traditional fixed-route service was replaced with fixed-route jitney service from 9:00 p.m. to midnight daily. This jitney service also operates on weekends all the way into downtown Norfolk, Virginia.

On the Hampton Boulevard Corridor, two parallel routes performed poorly at night. These low demand fixed-routes were replaced with door-to-door, dial-a-ride services from 7:00 p.m. to midnight, daily. As of March, 1981, only one van serves this area and ridership is 885 per month.

The TTDC also subcontracted dial-a-ride services in the urban Community of Ocean View, located in the City of Norfolk. The

fixed-route that was replaced here was a highly circuitous bus route with a history of low ridership. Instead the TTDC has initiated door-to-door, dial-a-ride service. This service was expanded in September, 1981. A fixed-route jitney service was provided during the AM and PM peak periods with demand-responsive service in the off-peak period.

All dial-a-ride, shared taxi services are provided by Yellow Cab of Chesapeake, at \$14.00 per vehicle hour. TTDC has estimated that the new service has reduced costs along the outer portions of this route by half. Operational problems have included supervision of the privately operated services, acceptance by Union officials, and control of fare revenues.

The Tidewater Transit District Commission has also subcontracted fixed-route service in the downtown area. In fact, on one fixed-route, two of the runs during low demand periods are subcontracted to a private minibus operator and two of the runs are operated by TTDC. The 13(c) labor contract was revised to include a new classification of minibus driver with a lower wage rate, competitive to the wages of non-union drivers working for transit subcontractors.

Basically, even though the TTDC had trouble renegotiating their 13(c) labor agreement with the local labor union, they basically went ahead with their plans anyway. It seems initially that TTDC's drivers were not interested in the subcontracted routes because the new routes only paid the lower minibus wage rates. Still TTDC's drivers felt that the new service would be a threat to their jobs. Interesting to note, the cab drivers felt the same; they perceived demand-responsive shared-ride taxi service would reduce the number of persons using exclusive-ride taxi service. At this time, the TTDC is in the process of renegotiating the 13(c) labor agreement.

#### EXAMPLE 4

The Northeastern Illinois Regional Transportation Authority's (RTA) Paratransit Brokerage Demonstration Program was created in 1974 by a region-wide referendum, which imposed local taxes to pay for improved public transportation. The RTA is responsible for providing public transportation in the six county Chicago metropolitan area. The goal of the RTA program is to have municipalities operate and partially fund innovative transit services in areas that cannot support fixed-route, fixed-schedule service. Therefore, the RTA acts as a transit broker, in that they arrange funding of programs by obtaining agreements between federal, state, regional, local agencies, and the provider.

With RTA's decentralized approach to transit brokerage, the RTA does not directly match providers and consumers. Instead the RTA lets local municipalities ascertain their own transit needs and plan for a service that the municipality feels best addresses those needs. The RTA provides technical expertise, brokers money, acts as a technical facilitator, and also coordinates paratransit with conventional service. Under this demonstration project the local governments received grants to operate paratransit service using small buses and taxis.

In order to obtain UMTA funding for the demonstration of the paratransit project a 13(c) Labor Protection Agreement was necessary. Negotiation with labor representatives caused the project a time delay of one year. This one year delay negatively affected the projected cost and timing of the projects. As a direct result, the relationship between the RTA and local officials became strained at the start. Also at a later date in 1980, increased funding was required from UMTA to compensate for inflation. Therefore part of the 13(c) process had to be renegotiated.

RTA staff had worked out an innovative 13(c) agreement, which focused on part-time operators/mechanics, and a wage differential between the regular operators' and the paratransit operators' wage rate. However, the Union agreement that was finally worked out was fairly standard in that union operators were protected. Furthermore, the union was not willing to adjust wage rates so that service costs could be reduced.

When the paratransit project was first initiated, two persons performed this function in the Operations Planning section. Further into the project, paratransit became one of the eight departments reporting directly to the general manager. Also a RTA Board Paratransit Committee was created. The Board had a stated desire to expand the paratransit program. By September, 1982, RTA had almost 30 operating paratransit projects and applications for 98 additional projects.

Deerfield Dial-A-Ride was one of RTA's paratransit brokerage programs. This dial-a-ride service operated for the general public in Deerfield, a low density suburb 24 miles north of Chicago. The community was composed mainly of upper middle income residents. NORTRAN (Northern Suburban Mass Transit District), a public carrier that provides fixed-route, fixed-scheduled service to Deerfield and 20 other suburban communities. NORTRAN fulfilled the 13(c) Labor Protection Agreement requirement of the paratransit project because they were an existing local union operator. NORTRAN already provided peak-hour feeder service to the commuter railroad station, which was RTA funded. Since the dial-a-ride was a non-peak hour service only, drivers could work both routes, thereby cutting the costs of each service.

Problems arose when the RTA cut the Deerfield peak-hour commuter service and operator expenses would no longer be shared between the two projects. As a result, costs rose



dramatically after the first year of service. UMTA funding ended, which was 90% of the project's cost. The RTA was to pick up half of the costs, the other half of the costs would be picked up by the local community. In order to reduce costs the RTA recommended that the community of Deerfield choose another provider to cut costs or reduce service. Since Deerfield was pleased with NORTRAN service, they chose the reduction in service. Total project costs dropped but so did ridership, resulting in reduced RTA reimbursement. Three months later, Deerfield officials decided local costs were too great and the dial-a-ride service was discontinued.

D. IMPLEMENTATION OF PARATRANSIT SERVICE

1. Identification of Lines as Candidates for Paratransit Substitution

The District is currently in the process of developing new Service Standards which will provide a means of evaluating routes for remedial action or deletion, consistent with the District's overall goals and objectives. A procedure contained within the Action Plan (which is the Addendum to the FY 1984-88 Short Range Transit Plan for the District) will be presented to discuss how candidate lines for paratransit substitution may be identified. This procedure was developed in that document to identify lines as candidates for service elimination for the purpose of doing a required analysis of scenarios which required service cuts.

The Action Plan procedure was developed to rank each route on the basis of three performance measures: Revenue-to-cost operating ratio, the number of boardings per revenue bus hour, and passenger miles per seat-mile of revenue service. The revenue-to-cost operating ratio is indicative of the relative recovery of operating costs from farebox revenues on a route.

Routes with low values for this variable require relatively higher subsidies from non-farebox sources and generate the largest savings from service reductions. The number of boardings per revenue bus hour indicates the relative demand for service. Routes with the lowest number of boardings per revenue service hour are utilized by the least number of patrons. The number of passenger miles per seat mile of revenue service measures the average load ratio on each transit route. Low values for this measure indicate that buses are running with excess capacity relative to routes that have high values for this measure. While boardings per bus hour measures productivity in the number of patrons generated by a line, passenger miles per seat-mile measures efficiency in the level of service provided on a route.

The ranking of routes is obtained by developing an index based upon the three selected performance measures. For each performance measure, the highest value observed for all transit routes is selected as the reference point for that performance measure. The index for each Route (I) is then calculated using the following formula:

$$\begin{aligned} \text{INDEX (I)} &= .40 * (\text{OR (I)}/\text{OR (REF)}) \\ &+.35 * (\text{BHB (I)}/\text{BHB (REF)}) \\ &+.25 * (\text{PMPS (I)}/\text{PMPS (REF)}) \end{aligned}$$

WHERE:

INDEX(I) is the Index for Route I;

Operating Ratio weight is .40.

Boardings per bus hour weight is .35.

Passenger miles per seat-mile weight is .25.

OR(I) is the operating ratio for Route I;

BHB(I) is the number of boardings per bus hour for Route I;

PMPS(I) is the number of passenger miles per seat-mile for Route I;

OR(REF) is the highest operating ratio for all routes;  
BHB(REF) is the highest number of boardings per bus hour  
for all routes; PMPS(REF) is the highest number of  
passenger miles per seat-mile for all routes.

These weights were selected to emphasize the importance of cost-effectiveness as measured by the operating ratio, and productivity of routes in generating patronage as measured by boardings per bus hour. The efficiency of service allocation as measured by passenger miles per seat-mile of service is oriented toward express services whereas the boardings per bus hour is oriented towards local services with high patron turnover. Altogether, the ranking methodology identifies the services which provide the least benefit for the greatest cost as candidates for service elimination. It must be emphasized, however, that this procedure was developed only to meet LACTC requirements and has not been adopted as a procedure to be used by the District.

## 2. Transfer of Service Scenarios

A range of scenarios have been identified from minimum District involvement to service contracting with major District involvement in the provision of support service. These scenarios involve, in ascending order, an increasing amount of District and LACTC involvement in the support and management of private operation of service formerly operated by the District. Scenarios IV through VI involve at least minimal amounts of public funding of the private operators. It is assumed that service subcontracting requires at least a limited amount of subsidy funding to work. Without this funding it appears there is little or no reason for private operators to compete for service contracts compared to the normal Public Utilities Commission (PUC) application process in which public transit Districts are excluded from any involvement other than to submit testimony if the District

opposes the application. A brief discussion of each follows:

**Scenario I: Minimum District Involvement**

The principal action of the District would be to inform the public and the riders affected of the lines to be suspended. The District would disseminate this information on board the lines to be suspended and other channels immediately following a final decision by the Board of Directors.

Commuter Computer information could be distributed on board to help displaced riders form carpools, vanpools and bus pools. Also the District could develop special brochures to show riders of the suspended lines and the nearest alternative District routes.

The most pertinent operating and ridership statistics could be made available by the District directly to interested private operators. Or preferably, under this minimum involvement scenario, this information would be disseminated by LACTC staff.

Once private bus operators are ready to start operations on specific routes and trips, the District could disseminate information through appropriate channels. Again, under this minimum District involvement scenario, development of this marketing information about the private operators is probably best left to a combination of Commuter Computer and LACTC staff efforts. District assistance in this effort would simply be to disseminate routinely what has been developed and prepared by the other two agencies.

Under this scenario, the District would not support the private operators in any other way. It would be reasonable for the District not to object to joint use of District bus stops, provided no layover is taken in these bus zones. The

District would not provide route information on the private carriers at the stops, but would not object if the carriers affixed route information to the bus stops, with approval in advance from the District Stops and Zones Section.

**Scenario II: Assist LACTC and PUC in Application Process; No Other RTD or LACTC Involvement**

The primary difference in this scenario with Scenario I is that the District staff would be actively involved in assisting private bus operators to form bus pools and to obtain PUC approval for the operation of these bus pools.

The District staff would also advise and assist the private operators as to various possible modifications to their present mode of operation, which generally can be characterized as subscription service. Modifications for consideration include making the privately operated service more like regularly operated District service which is open to the general public on a daily cash fare basis.

**Scenario III: Same as Scenario II with Limited Support Service by LACTC and Possibly Commuter Computer and with District Public Information Support**

The primary difference in this scenario compared to Scenario II is as follows: 1) LACTC and possibly Commuter Computer would provide ongoing support service in the areas of route planning, bus scheduling, marketing and public information; 2) District would accept responsibility for dissemination of public information about privately operated services in a more active way compared to Scenarios I and II. Specifically, the District would regularly seek to directly update service information and to make this information available on a timely basis to the public. In addition to brochures, the information might also be made available through the District's telephone information system.

Given the inherent unorganized and unsystematic method of operation of the private commuter operators, acceptance of responsibility for this expanded scope of public information services on behalf of the private operators could become a major and time consuming District effort.

Scenario IV: LACTC Subcontracting with Limited Support Service and with District Public Information Support

This scenario differs from Scenario III in that the LACTC would subcontract the service to private operators. Private operators would, on a competitive basis, bid on the service and would be reimbursed for their net costs on a cost less revenue basis. Specific routes and schedules and standards of service would be set in the service specifications contained in the request for proposal (RFP).

It is assumed that service subcontracting requires at least a limited amount of subsidy funding to work. Without this funding it appears there is little or no reason for private operators to compete for service contracts compared to the normal PUC application process in which public transit districts are excluded from any involvement other than to submit testimony if the District opposes the application. Based on review of current reported operating costs for private operators it is suggested that a minimum subsidy in the range of 10% to 25% of their total operating costs may be necessary to make subcontracting work. If a significant level of support services are included and made a condition of service subcontracting, it is possible that some private operators would be interested in subcontracting without any other form of public funding support.

One important issue that needs to be fully investigated is the legal ramifications of using public funds to support private bus carriers. What rules and regulations and policy

constraints, applicable to District operations, will also apply to private carriers as a result of their receiving public funds? This issue was addressed previously in this report to some extent in regards to Section 13(c) of the Urban Mass Transportation Act of 1964 and the District's Union contract.

**Scenario V: District Subcontracting with Limited Support Service, to Include Public Information Support**

This scenario differs from Scenario IV in that the District rather than the LACTC would subcontract the service to private operators.

As discussed previously, the District's contracts with the United Transportation Union restricts the subcontracting of services to private carriers. This scenario assumes that the District would obtain approval from the Union. Up to now, the UTU, on behalf of the District's drivers, has been strongly opposed to any form of subcontracting work presently performed by the District's drivers. In this regard, it must also be assumed in this scenario that issues relating to Section 13(c) of the Urban Mass Transportation Act have been resolved.

District subcontracting would include all contract administration and performance monitoring requirements.

**Scenario VI: District Subcontracting with Major Support Services**

This scenario differs from Scenario V in that additional support services would be provided for the private bus operators.

Under this scenario, full route planning, bus scheduling, public information and marketing services would be provided in the same manner in which District supports its own services. The identification of the service would conform to the District's new route numbering system. Bus stop information would also be provided, similar to the present formats in use.

In the planning and scheduling area, the usual ridership checks and the usual tabulation of operating statistics would be performed. Ongoing schedule and route adjustments would also be carried as indicated by field checks, passengers and general community feedback and other sources of input. Full community relations and customer relations support would be provided, including the handling of complaint calls and letters.

Depending upon pertinent provisions in in the District's union contracts, other support services involving a greater degree of integration into the District compared to the above support services could also be provided. These could include monitoring of service by road supervisors with authority to provide limited directives to private company bus drivers under clearly defined circumstances. Also there could be provision of emergency back-up bus service in the event of a bus breakdown. Under this circumstance, the service contract would probably provide for assessment of charges against the private bus operator, each time District back-up service had to be used.

Lastly, the service operated by private bus operators, whether subscription or regular scheduled service, could use the District's fare structure. Due to the probability of lower subsidy levels (or even no direct subsidy at all) a surcharge could be applied to private bus operators. The surcharge might have to vary between private bus operators and/or between the different routes.



One of the advantages of integration of the private bus operators fare structure with the general District fare structure would be to make it more feasible to disseminate private carrier fare information to the public by the District and for the District to sell passes and tickets, etc., that would be used by the private carrier riders.

#### Scenario VII: Lease of District Buses to Private Bus Operators

This last item is an option that could be employed in any of the six scenarios outlined above.

District has leased its buses to other transit agencies in other metropolitan areas. The District's union agreements, discussed previously, may prohibit the lease of the District's surplus buses to private bus carriers for use in service formerly operated by the District. Union restrictions as well as the legal ramifications of this option would have to be fully explored.

Lease of District buses for this purpose would provide an immediate supply of buses to private operators. The District would benefit from obtaining some revenue from this source compared to the buses otherwise being stored as part of the District's contingency fleet.

### 3. Procedural Arrangements

The procedures outlined for the subcontracting of services are broken down into two phases. The first phase establishes basic District policy and procedures. The second phase involves the routine series of steps required every time service is proposed for subcontracting or every time existing service contracts need to be rebid.

Special union approval would be needed if service subcontracting was desired immediately under the present union-management agreements in effect for the United Transportation Union and possibly the other two District unions. The service subcontracting procedures outlined herein are predicated on modification of the present work rules in the three labor agreements to permit service subcontracting.

## PHASE I

### Establish Basic District Policy and Procedures

#### Tasks/Steps

Planning Department Proposal\*

- Basic Procedures
- Proposed Lines and/or
- Service Packages
- Develop list of potential bidders

NSRB Review and Approval

Board of Directors Review and Approval

\*Note: Includes informal discussions and liaison with LACTC staff and with potential bidders on studied service candidates for subcontracting.

## PHASE II

### Service Subcontracting Steps Following Approval of Policy and Procedures

#### Tasks/Steps

Planning Department Proposal\*

- Cost/Revenue/Net Cost Analysis
- Service Specifications
- Development of RFP packages

NSRB Approval of RFP

Purchasing Committee Approval of RFP  
Includes requisition for estimated net cost of service to be paid to subcontractor.

Executive Staff Approval of RFP

Board Approval of RFP

\*Note: Includes informal discussions  
and liaison with LACTC staff  
and with potential bidders on  
studied service candidates for  
subcontracting.

Issue RFP

Minimum 30 days is required but 60 days  
is a more reasonable response time for this  
type of RFP.

Close Bidding Period

NSRB Recommend Approval of Contract  
Award

Executive Staff approve award of contract

Start service under award of contracts

If PUC certification process is required,  
companies awarded service contracts can  
proceed to get necessary PUC approval  
during this period of time.

## E. POMONA VALLEY STUDY

### 1. Background

On May 5, 1982, the SCRTD Board of Directors approved a resolution to study the transportation needs of the Pomona Valley. This action was originally prompted by a request from the cities of Pomona, La Verne, Claremont, and San Dimas who in April of that year asked that the District help develop this study with their cooperation. The overall objective of the study was to improve transportation services in the Pomona Valley.

Subsequent to that time, a special management committee was formed to administer the development of the study. Known as the Project Management Committee (PMC), it is comprised of a

representative from each of the cities mentioned above along with a representative from the San Bernardino Association of Governments (SANBAG), Southern California Association of Governments (SCAG) and the Los Angeles County Transportation Commission (LACTC). In addition, the District's Director of Planning serves as Project Chariman.

On November 11, 1982, the District entered into a contractual agreement with the consulting firm of Schimpeler-Corradino Associates to develop the Study. The cost of the project is \$121,000 of which the District has committed \$45,000 as its share. The balance of the cost is shared between the four cities of the Pomona Valley, SANBAG and SCAG.

A comprehensive work program was developed by the PMC to guide the consultants' work. The work program contains seven major tasks. Each task is designed to produce a series of specific work products leading to the development of an action plan for service improvements in the Pomona Valley. The following is a list of the seven work tasks and their corresponding objectives:

- Task 1: Develop Project Goals and Objectives
- Task 2: Data Collection and Definition of Needs
- Task 3: Develop Service/Management Alternatives
- Task 4: Evaluate/Select Service Alternatives
- Task 5: Evaluate/Select Management Alternatives
- Task 6: Implementation Plan
- Task 7: Final Report and Program Adoption

To date, Tasks 1-6 have been completed by the consultant and approved by the PMC. Task 7, the Final Plan, has also been approved by the PMC and pending formal approval by the four City Councils and the District's Board of Directors. At this time, the Final Plan is scheduled to be presented to the four City Councils on December 15th for conceptual adoption. Formal adoption is scheduled to be taken in January 1984 by the four City Councils and the District's Board of Directors.

## 2. Service Improvement Plan

The Final Plan recommends a series of improvements to existing fixed-route and paratransit services operating within the Pomona Valley. Collectively, the recommended improvements are designed to form an integral part of a new network of public transportation services for this area. The Service Implementation Plan itself is divided into five principal components. These elements include: (1) the Recommended Service Plan; (2) an Optional Operating Plan; 3) a Pilot Demonstration Project; (4) Other Service Improvements; and (5) a Monitoring Program.

The Recommended Service Plan is the primary component of the Implementation Plan. It addresses improvements to SCRTD services as well as improvements to paratransit services for the elderly and handicapped. Issues included in the Recommended Service Plan include a five-year program for: (1) staging of improvements; (2) annual capital and operating costs; (3) annual ridership and revenue projections; (4) implementation responsibilities; (5) estimated financial resources; (6) financing plans for capital and operating costs; and (7) service equity.

Under the Recommended Service Plan, SCRTD fixed-route improvements are proposed to be implemented in early 1984. Several SCRTD bus lines are affected. As proposed, regional Lines 187, 480 and 482 would undergo route modifications designed to improve mobility both within the Pomona Valley and to the Montclair area of San Bernardino County. Local Lines 192, 194, 291 and 293 are proposed to be discontinued. The more productive portions of these routes, however, are proposed to be retained and operated primarily by new local Routes 1 and 2. These new routes will be implemented and operated exclusively within the Pomona Valley. These improvements to the fixed-route system may be implemented by

redeploying existing equipment and at no increase in operating costs. A slight decrease in vehicle hours is projected. The District would continue to manage and operate all fixed-route service as it does today.

Improvements to existing paratransit service for the elderly and handicapped are proposed to be implemented after July 1984. As proposed, existing paratransit services for this targeted market will be greatly expanded. Ownership and management of this system will be administered through a Joint Powers Authority (JPA) comprised of the Cities of La Verne, San Dimas, Pomona, and Claremont. The District may be asked to participate as an advisory JPA member only. The JPA is recommended to be formed early in 1984 and will assume all responsibility for the operation and maintenance of paratransit services in the Pomona Valley.

An Optional Operating Plan is the second component of the Implementation Plan. This section is included as a contingency plan in light of the uncertainties facing SCRTD in July 1985 with the possible expiration of the Proposition A Fare Program and its impact on District services. Under this scenario, strategy options are identified that could be used by the JPA to replace local fixed-route service in the Pomona Valley with paratransit services. This option would only be exercised in the event that SCRTD would be forced to remove service from the area as part of an economy move associated with expiration of the current Proposition A Fare Program.

A pilot demonstration project for the general public is the third element of the Implementation Plan. The pilot program is an experimental demand-response system proposed to provide service for the general public in the Pomona Valley. Ownership and management of this system will be the sole responsibility of the JPA. This system is proposed to be implemented after July 1985 and operate for a period of one

year, which may be extended at the discretion of the JPA. This system along with the elderly and handicapped system described above will be coordinated with the fixed-route system to allow for the transfer of riders at key transfer locations within the Pomona Valley.

The fourth element of the Implementation Plan addressed the Monitoring Program. The monitoring program is included as a decision-making tool for the JPA to ensure the efficiency and effectiveness of their paratransit services.

### 3. Feasibility

The study assumes the area will be declared a Transportation Zone. With a Transportation Zone status, the area would qualify for regional and federal subsidies to support paratransit services in the Pomona Valley. Without this status it is doubtful that the area could qualify for any change in the amount of regional and federal dollars currently allocated to the region. Hence, proposed increases in paratransit service levels would not be possible. The LACTC must decide whether the Pomona Valley warrants Transportation Zone status and is expected to begin to act upon this matter after completion of the study.

### F. CONCLUSION

Two broad categories of substituting private carriers for District service exists: 1) suspending existing service for private carrier substitution and 2) the subcontracting of service to private carriers.

Under the first category, in order to induce carriers to provide service on unprofitable lines, SCRTPD would have to allow them to set the fares and levels of service characteristics relatively freely. This may result in a higher quality of service at higher

fares. As a public carrier, a minimum level of District service may still have to be maintained at regular fares in order to serve the general public equitably for services the private carrier may deem unprofitable. There also is the distinct possibility that in certain situations a lower level of service would eventually be provided to ensure profitability.

The second category, subcontracting service to private carriers, would permit the District to regulate the fare and the level and quality of service to be consistent with the District's service standards and goals. At least a limited amount of subsidy would be necessary to induce private operators to compete. If private carrier operating costs were substantially lower, however, this option could still be considered cost-effective.

Paratransit costs have been found to be about \$25.00 (FY 1982-83) per vehicle hour including overhead and administrative costs. This compares to the District's cost per bus hour of \$55.00 (FY 1982-83). The maximum that can be carried by a dial-a-ride service (in many-to-many mode), however, is about eight boardings per hour. This is lower than the least productive District service when computed on an all day basis. A comparative analysis was made of SCRTD's fixed-route lines 451-453 and 452-454 and the hypothetical substitute of dial-a-ride service. This analysis showed that the cost of providing such service would not be substantially lower in cost. In fact, one clear conclusion to be drawn from the theoretical comparison is that for the same total operating cost and for the same cost per passenger (boarding), only under the most favorable assumptions and circumstances will the same number of passengers be served with paratransit service compared to the present fixed-route services.

Paratransit service cannot be considered a more cost-effective substitute for fixed-route service. Each mode serves different markets. The one and possibly only important exception may be night and Sunday service in some low density fringe areas.



Paratransit could, however, be viewed as a supplement and a complement to fixed service.

The above opinion was substantiated by the OCTD dial-a-ride project manager. OCTD has had ten years of operating experience with various dial-a-ride services in various portions of their service area. In this regard, it is important to note that OCTD's ability to subcontract service is a key factor in making their present comprehensive dial-a-ride services both operationally and financially feasible.

While the subcontracting of services to private operators will soon be permitted by State law, there are still a number of union labor issues which must be resolved. The District's contract with UTU prohibits subcontracting to private agencies and, in the past, the UTU has been strongly opposed to any form of subcontracting work presently performed by the District's drivers. Additionally, Section 13(c) of the Urban Mass Transportation Act of 1964 requires protective arrangements for employees who might be adversely affected by a project assisted with federal funds. Thus, should Union representatives view subcontracting as a threat to union jobs, it is likely that they may seek protection under this requirement and federal funding could be withheld.

With respect to consideration of possible service subcontracting by the District, although a cautious experimental approach appears prudent, there is the potential for many benefits, including innovations in public-private bus carrier joint and cooperative efforts, if the District could subcontract selected fixed-route services. For example, service operated by private carrier under District service contracts, could under the right circumstances, provide full District support services to the public while at the same time saving on the costs of operation per unit of service. This procedure would also avoid the potential problem of the PUC granting permanent operating rights to private carriers within the District's service area.

These innovations would not necessarily have adverse effects on the District's unionized labor force. Perhaps various assurances can be offered in the contract negotiations to allay union fears that a large scale transfer of unionized jobs to the private sector would occur. It appears a compromise oriented approach would be to seek Union concurrence for the District to experiment with service subcontracting in a limited fashion over the life of the next labor contract.