

TRAVEL TRENDS IN NON-CBD ACTIVITY CENTERS

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TRANSIT OPTIONS FOR NON-CBD ACTIVITY CENTERS

Executive Summary

Los Angeles is the prototypical policentric and dispersed metropolitan region. It has more activity centers than other large U.S. metropolitan areas, but this 'Los Angelization' is being replicated across the nation. Largely because of the availability of local public funding (Proposition A) over several years, Los Angeles probably has a wider array of local transit and paratransit services than other metropolitan areas. The coexistence of many political and fiscal jurisdictions raises important issues from service provision in response to local needs to region-wide coordination.

Activity centers are much broader than employment centers because many types of activity (e.g. retail and entertainment) generate more trips (up to 33 times more) than their employment would suggest. Total trips generated per gross acre in 1980 were computed for the 1285 Analysis Zones (AZs) in the Los Angeles five-county area, and these were ranked. The 59 highest-ranked AZs accounting for 17.5 percent of the region's employment locations were mapped and 19 major centers (including an enlarged CBD) were identified. Fourteen of these were in Los Angeles County, and four (Santa Ana, Riverside, San Bernardino and Ontario) were in the peripheral counties. The Los Angeles core area remains dominant, accounting for 46 percent of the centers' employment (but only 8 percent of the region's employment), more than four times larger than the second center (Westwood-Beverly Hills-Century City) in terms of jobs and 3.5 times larger in terms of trips generated. The 19 centers show some degree of specialization in their economic structures; for example, the Los Angeles core specializes in finance and public administration, the Westwood and Hollywood centers in entertainment, Huntington Park in manufacturing and wholesaling, and so on. However, an analysis of Los Angeles County's 369 largest firms, facilities and sites (including shopping centers, hotels, industrial parks and office buildings as well as companies) showed that many of the facilities (the exceptions were banks, office buildings and property management companies) were predominantly located outside the centers (on average 9.2 kilometers from the nearest center). These results suggest that the Los Angeles region is as much dispersed as policentric, a fact that severely restricts the market for conventional transit services.

The matrix for traffic flows (total trips, journeys-to-work -- JTW --, and transit JTWs) was constructed for the 46 Regional Statistical Areas (RSAs) used by the Southern California Association of Governments (SCAG) and for the 19 identified activity centers. However, the data for the centers were separated from the RSA in which they were located so that 19 of the RSAs are, in effect, 'donuts'. This procedure generates a 65 X 65 traffic flow matrix. Of the 4.7 million roundtrip commutes in the region, only 250,000 (5.3 percent) are by transit, and of the latter more than 77,000 (31 percent) are to the Los Angeles core area (the enlarged downtown center). The other 18 centers receive less than 37,000 workers by transit, less than 15 percent of the region's transit commuters.

The analysis of traffic flows revealed several generalizations:

i) Many trips to and from the centers, roughly about one-half, are either internal to the center or with the surrounding hinterland ('donut'). This even applies in the Los Angeles core area.

ii) Inter-center traffic flows, including those with the Los Angeles core, are very small. In fact, the centers have much more interaction with dispersed locations (non-centers) outside their own 'donut' than with other centers. The four peripherally located centers outside Los Angeles County have even less interaction with other centers.

iii) The vast majority of trips in the region (including JTWs) is between dispersed origins and destinations, bypassing the centers (including the Los Angeles core). This confirms the above finding from the analysis of facility locations that Los Angeles is a dispersed rather than a policentric metropolis.

iv) Transit JTWs are on a very small scale in the region as a whole. Very few transit commuters work in the non-CBD activity centers, and only the Los Angeles core is a prominent transit destination.

The regional transportation system in the Los Angeles region relies heavily on the automobile. Vehicle occupancy is low; there is not much ridesharing in spite of Computer Commuter, some successful commercial commuter vanpools, and the growth in airport van service. Congestion has been increasing because vehicle miles traveled have been increasing much faster than freeway mileage (which has remained more or less unchanged for many years). Nevertheless, total trip times remain tolerable and most drivers choose the freeway even though there is a highly developed surface street system. The dispersed settlement and workplace pattern has not provided a favorable environment for the growth of transit. The regional transit agency, the Southern California Rapid Transit District (SCRTD), the largest all-bus system nationwide, has been plagued with many problems: a widening cost-revenue gap and increasing reliance on subsidies (more than three-fifths of its budget); service cutbacks; and actual (freeway commuter expresses) or threatened (the San Gabriel Valley routes) takeovers of some of its routes. Its future role may be increasingly focused on the provision of service in the Los Angeles core area and along the major boulevards.

However, the relative decline in the role of SCRTD, now about 80 percent of total transit operating expenditures in the region compared with 90 percent in 1980, has been accompanied by an expansion in a wide array of local transit services (for the general public and for specialized groups, on fixed routes and for demand-responsive travel, subsidized and for-profit). This expansion has been facilitated by Proposition A which made sales tax revenues in Los Angeles County available for transit services after 1980. The funding has assisted service provision, capital projects and user subsidies. By 1988, 86 cities and the unincorporated Los Angeles County area are providing more than 250 different types of service. Although many of these are special-purpose (e.g. for the elderly and the handicapped), there are many general-public services such as shopping center shuttles and the Rose Bowl shuttle (for UCLA football games). Unfortunately, there are insufficient data to develop

performance measures for these local transit services to compare them with conventional transit. However, the numbers served by most services are very small, the subsidy levels are high, and it is unlikely that these services divert much travel to transit and relieve traffic congestion. This study has focused on the local transit services in place rather than on what might develop, on the assumption that the level of public funding has been high enough to stimulate a local response to potential transit service markets.

The conclusions and policy implications that may be drawn from this study are:

1. Based on Los Angeles' experience, the scope for conventional transit services in non-CBD activity centers is very limited. These centers generate minimal traffic flows with each other and with the downtown core. However, their growth has weakened radial corridors to downtown. Their major traffic flows are with their own hinterlands and with very dispersed locations, but the traffic densities are very low. Flows are from many origins to many destinations (no hope for conventional transit) rather than from many origins to few destinations (possibly, some potential for transit) or from few origins to few destinations (real prospects for transit, were it not for the fact that this pattern is not found anywhere among U.S. metropolitan areas). The only viable complement to the automobile in these centers is an expansion in locally-provided, low-capacity paratransit services. Such an expansion will require more subsidies and further policy innovations.

2. Despite regulations favoring transit monopolies and hefty subsidies to SCRTD and for Metro-Rail, a shift to small-scale suppliers throughout the region is underway. Public policy is ambivalent, however, providing public funding for conventional mass transit and for paratransit services simultaneously. A serious risk is that over time Metro-Rail will drain away an increasingly large share of available public subsidies.

3. A sensible transportation policy package for the region might include: a. continued, traditional bus services catering for line-haul demands in the Los Angeles core and along major streets in low-income neighborhoods; b. more deregulation to permit private (non-subsidized) operators to seek out viable paratransit market niches in the region (e.g. allowing the airport shuttle companies to take on non-airport routes); c. promoting more transit operation to replace SCRTD in individual, low-density neighborhoods, with subsidies awarded on a competitive bid basis; d. deregulation of entry and rate-setting for taxis to permit an expansion of the fleet to a level appropriate for the region's population; e. continuing the policy of promoting 'local return' projects to provide specialized paratransit services for the elderly, the handicapped, and other groups in need; f. the rail transit projects are a diversion from the real transportation problems of the dispersed metropolis.

4. The failure to introduce restraints on the automobile (whether in the form of workplace parking limitations or, more sensibly, road congestion pricing) inhibits the development of alternatives, or more precisely complements, to the automobile. However, with respect to commuting, automobile restraints are less likely to result in significantly more transit use than to lead to more ridesharing in the short run and to locational readjustments by firms in the longer run.

The remaining issue is to the degree to which the results for Los Angeles can be applied to other large U.S. metropolitan areas. Non-CBD activity centers have emerged, or are emerging, in other metropolitan areas so that the policentric/dispersed spatial pattern is becoming universal in cities above a threshold size. Of course, the number of centers is often much smaller than in Los Angeles, and this could make a difference. For instance, it might be argued that with fewer centers inter-center flows might be somewhat denser than when diluted over many centers. However, any minor effect of this kind will be more than outweighed by other considerations. First, a smaller number of centers implies more diversified rather than specialized centers, implying more intra-center than inter-center flows. Second, non-CBD activities are unlikely to generate heavy inter-center flows unless they have substantial residential populations, but high land values in these centers squeeze out all but a modest amount of residential land uses. Third, electronic communications are being increasingly substituted for business-related person-flows that might otherwise dominate inter-center flows (e.g. in developing country metropolises). Fourth, the growth of activity centers in itself weakens the downtown radial corridor links that formerly accounted for much of the conventional transport in place. In other metropolitan areas, hinterland and dispersed flows probably dominate the traffic flows into and out of the activity centers as much as in Los Angeles. Hence, the policy implications are, subject to local differences and idiosyncracies, more or less the same.

1. Introduction, overview, and approach

Purpose of the study

Modern American cities have been dispersing for some time. People and jobs, as well as other activities, have been moving away from the CBD, sometimes forming rival clusters, diminishing the importance of the traditional downtown. In the greater Los Angeles metropolitan area, for example, the CBD accounted for only 3 percent of total jobs in 1980; the average for the ten largest U.S. urbanized areas was only 7.4% (Appendix F, Table F.1). The land and travel market interactions which generate such spatial arrangements are not yet well understood. Transit services for such environments are the topic of this research.

Los Angeles as a case study

This case study presumes the Los Angeles area is a prototype of the large, modern, U.S. metropolis. Pisarski's recent study (1987) as well as our own research (Gordon, Kumar, Richardson; 1988) call attention to the fact that the dispersion of jobs and residences is a widespread phenomenon that results in commuting economies as well as shrinking markets for conventional transit. Los Angeles has long been recognized as the city where these trends were first noted. Its development is probably an important leading indicator of U.S. urban development trends.

Other metropolitan areas in the U.S. are exhibiting the same subcentering trends first observed in Los Angeles. For example, 14 centers have been identified in the Washington D.C. area, 7 in Baltimore and 8 in Atlanta; similar patterns can be observed in every sizeable metropolitan area in the country. Moreover, because Los Angeles has more centers than anywhere else (this study identifies 19, but a finer grain of spatial detail would generate more), it is not difficult to find examples of representative types of center similar to those found elsewhere. The Los Angeles case is also particularly relevant to an appraisal of the transit services outside core areas because the availability of local public funding (Proposition A funds) over several years has encouraged development of a wider array of transit and paratransit services than in other metropolitan areas. Furthermore, the budgetary and service delivery problems of the mass transit agency, the Southern California Rapid Transit District (SCRTD), are typical of those experienced by similar agencies in other metropolitan areas, and the success of the airport shuttle services (especially Super Shuttle) mirrors exactly what has happened in other cities where similar services have been introduced. Even if Los Angeles is a little different in terms of its spatial structure, its transportation problems and their solutions are very similar to those in other metropolitan areas.

The research steps discussed below are:

- 1) identify non-CBD activity centers and other study areas;
- 2) understand the relationships between dispersed activity centers and the rest of the greater metropolitan area;
- 3) examine the provision and performance of conventional and para-transit services for the various sub-centers;

4) suggest appropriate transit service and policy innovations.

II. Activity centers and regional traffic flows

Local geography and the activity centers

The first task in this research was to define and identify local activity centers. The main information source for our determination of activity centers was the data on journey-to-work and related characteristics from the 1980 decennial census. The origin-destination matrix for journey-to-work is obtained from the JTPP file for the Los Angeles five-county area.* The data includes O-D matrices for all worktrips as well as for commuting via three separate modes: solo auto driver, share-ride, and transit.

As the census data do not include any information on non-work trips, an O-D matrix for non-work trips was constructed using parameters from the 1976 Urban and Rural Survey, consisting of 7619 home interviews conducted by the Southern California Association of Governments (SCAG) and the Los Angeles Regional Transportation Study (LARTS). The survey updated a 1967 data base. All of the data are compiled at the Analysis Zone (AZ) level; there are 1285 AZs in the Los Angeles five-county area.

Other information was obtained from local planning agencies and transit operators. These sources are identified throughout the text. In addition, we conducted a survey of para-transit operators in Los Angeles county.

In spite of the growing importance of major centers of activity located outside of traditional CBDs, the available literature offers little on how to identify sub-centers (see, for example, Hartwick and Hartwick, 1974; Kim, 1979; Odland, 1978; Ogawa and Fujita, 1980; Wieand, 1984; and McDonald, 1987). Simply defined, an activity center is the location of economic activity exercising significant impact on the metropolitan region. The variables identified by McDonald to define sub-centers include: gross/net employment density; gross/net population density; and employment-population ratio. Yet, centers thus identified do not necessarily exhibit any functional linkages with the metropolitan area and also the method does not distinguish among the characteristics due to different employment types and mixes. McDonald's indices are more likely to define employment centers than activity centers, a flaw because many types of centers (e.g. those incorporating recreational facilities, a suburban shopping mall or a university) generate many more trips than implied by their levels of employment. A more appropriate procedure would identify the interaction potential in terms of traffic flows for each area and to classify places above some threshold of traffic as sub-centers. The computation of interaction potential requires establishing trip generation rates by employment types. Trip generation rates per employee are available from the Institute of Traffic Engineers (ITE, 1983) manual, and are shown in Table II.1. The UTPP employment data were aggregated to a level that allowed utilization of available ITE trip-generation rates.

* Los Angeles County, along with the four counties that surround it (Orange, Riverside, San Bernardino, Ventura) makes up the study area for this research. The five-county area is congruent with the Census Bureau's Los Angeles CMSA.

As expected, the nature of each job influences trip generation rates. For example, according to the ITE source, an employee in the retail sector generates fifteen times as many trips as one in the manufacturing sector.

Using the ITE rates, total trips generated per zone per day were computed. Total trips generated by all workers were divided by zonal acreage. The 1285 AZs were then ranked by total trips generated per gross acre. The distribution of trips-generated-per-acre was standardized. The analysis zones were then classified by standardized trip generation densities (Table 11.2). The fifty-nine AZs in the group with more than 0.8 SDs (trips generated per acre) above the mean accounted for 17.5 % of the area's job locations. These AZs were mapped and nineteen geographic clusters were observed (Table 11.3).

Whereas the Census Bureau's CBD accounted for 3% of the urbanized area's jobs in 1980, our much larger 'core' center accounted for just over 8% of the five-county area's employment. The other centers were much smaller: Westwood-Century City-Beverly Hills accounts for less than 2% of the area's employment, Hollywood has 1%, and the other sixteen centers are below 1%. It should be pointed out that the 82.5% of area employment not accounted for by our nineteen centers is not spread uniformly; the non-center agglomerations are spread out and difficult to characterize. More centers could have been identified, but a natural break in the data point to 19 centers (see geographical units in Appendix C) as being dominant (in an earlier study based on the more limited concept of employment densities only 7 centers stood out, while there was a much larger number (57) of population peaks (Gordon, Richardson and Wong; 1986); again, the distinction between population/employment clusters and activity center is critical). Agglomeration economies have a far greater spatial range than has been recognized in much of the literature.

The sectoral distributions (Table 11.4) of employment highlight the core-area's importance in the finance, insurance, and real estate as well as public administration sectors. Hollywood and Westwood-Century City-Beverly Hills are, of course, more influential in the entertainment sector. Looking at sectoral totals, retail and manufacturing are, as expected, significantly more dispersed (not in centers) than is overall employment.

The nineteen centers along with SCAG's forty-six Regional Statistical Areas (RSAs) gave us sixty-five areas to work with. To make the data on RSAs and centers mutually exclusive, data for the centers were removed from the RSAs, truncating many of them and reducing some to 'donut'-shaped areas.

We will not know until 1990 census results are available the extent to which sub-centering in the region has evolved. How many new nodes (using our approach to the definition of centers) emerged? How many of the nineteen identified places no longer qualify as centers? To what extent have the nineteen centers grown beyond their 1980 boundaries? What proportion of total employment are accounted for by the 1980 vs. the 1990 centers? The answers to questions such as these will command the attention of anyone interested in policentric urban development and its implications. Our approach to an examination of center development since 1980 relied on the Los Angeles Business Journal's 1988 Book of Lists. That compilation reports 1987 rankings for sixty-six types of firms and facilities, reporting the 'top-10' for some, all the way to 'top-100' for others. Unfortunately, many of the lists referred only to Los Angeles

county.

We recorded the addresses of the following: 1. top-100 public companies; 2. top-100 private companies; 3. top-22 banks (this list contained 25 entries but 22 were in L.A. County); 4. top-25 hotels; 5. top-25 shopping centers; 6. top-24 office buildings; 7. top-25 office spaces; 8. top-25 property management companies; 9. top-23 office-and-industrial parks. This information was processed via a geographic information system to match the addresses to our centers. We were interested in the extent to which the 369 major sites and headquarters were associated with the major 1980 centers. Table 11.5 shows the distribution of all nine lists between eight L.A. county centers as well as eighteen non-center study areas in the county. More than two-thirds of the functions were located outside the centers. Banks, office buildings, and property management companies were the only three clustered activities, predominantly in the Los Angeles core area with a minor cluster in the Westwood-Century City-Beverly Hills center.

Traffic and the activity centers

The Los Angeles urbanized area is the most dispersed of the large U.S. metropolises.* In 1980, approximately 9.5 million people and 4.4 million job locations were spread over almost 2,000 square miles. The area is served by about 720 miles of limited access freeways. There were about 1.7 vehicles per household and an average vehicle occupancy for the worktrip of 1.1 (the nation's high AVO for the large urbanized areas was Washington DC's 1.2). As many as 88 percent of worktrips were via private vehicles (5.8 percent by transit and 6 percent by 'other') with 83.4 percent of the private vehicle users driving alone. Worktrip travel times were among the best of the U.S. top-10 urbanized areas (Appendix E; Table E.2) because many industries had chosen to follow the work force to the suburbs. This settlement pattern, in turn, has diminished transit markets and also restricted opportunities for carpooling.

The key information required for an assessment of potential demand for transit and paratransit services in or near activity centers is an estimate of traffic flows throughout the metropolitan region. UTPP data on worktrips and on worktrips via transit were combined with the study's estimates of non-work trips to measure all trips on an origin-destination basis over the regional system. Trips for each of the centers were disaggregated into: internal trips within each center; trips to other parts of the RSA where the center was located (the 'donut'); trips to and from the Los Angeles core; trips to and from the other eighteen centers (disaggregated into centers in its own geographical cluster -- Westside, Eastside, Northside or Southside -- and the remaining centers; and trips to and from non-centers. To simplify the presentation, these trips are given in percentage terms but all the raw numbers -- critical for the measurement of threshold levels of demand for particular types of transit service -- are given in Appendix A. These trips are summarized in 15 tables (Table 11.6.1 to Table 11.6.7.3), One of these tables (Table 11.6.2) shows the traffic flows in and out of the Los Angeles core area.

These tables contain substantial detail on the pattern of traffic flows in 1980 for all trips, for journeys-to-work, and for journeys-to-work by transit in the Los Angeles metropolitan region. Many of these details are interesting in themselves, but from the perspective of the goals of this study a few key findings stand out:

i) Considering the nineteen activity centers as a whole (i.e. including the Los Angeles core area), almost one-third of all types of trip (total, journey-to-work, or journey-to-work via transit) were to internal destinations within each center (Table 11.6.1). Moreover, 53 - 57 percent of trips originating within each center did not leave the RSA in which the center is located (Table 11.6.1). Although a much smaller proportion of arrivals at each center originated within the center (7.5 percent of journeys to work, 12.4 percent of journeys to work by transit, and 13.8 percent of all trips), this was compensated for by higher proportions of all trips from within the 'donuts' so that 43

* The background data in this paragraph refer to the 'urbanized area', a Census Bureau definition that excludes the sparsely settled parts of the five-county area.

percent (journeys to work) to 50 percent (all trips) of center arrivals started in their home RSAs (Table 11.6.1.1). These facts show that a very high proportion of all trips (50 +/- 7 percent) are internal to the centers and their surrounding 'donuts'.

ii) In the absence of data on traffic flows, a primitive ex ante hypothesis might be that there would be strong traffic linkages among the activity centers, and that they might provide a foundation for an inter-center transit service system. The data in Table 11.6.1 show that this idea is totally false. Only a very small proportion of trips (ranging from 3 percent for total trip arrivals to 16 percent for transit journey-to-work departures, but only 6.5 percent of the transit journey-to-work arrivals) are inter-center trips. Moreover, the traffic linkages between the centers and the Los Angeles core are also weak; only 7.5 percent of journeys-to-work leaving the centers, and 10 percent of transit journeys-to-work, are destined for the broadly defined core, 2.7 times larger than downtown in terms of employment. Naturally, the share of trips originating in the core and destined for the centers is miniscule (1 - 2.5 percent). Combined with the results described in (i) above, these findings confirm the argument that center-hinterland (in our terminology, 'donut') flows are much more important than inter-center flows for all types of trip (total, journeys-to-work and journeys-to-work by transit). Moreover, center-hinterland flows are much more dispersed than the traffic corridors that link centers. However, as the journey-to-work matrix in Appendix A shows, all the intercenter traffic densities are very small, typically only a few hundred round-trips to work per day.

iii) A sizeable proportion of all trips, both leaving and arriving at centers, were with non-centers, and hence were highly dispersed (Table 11.6.1).

iv) The vast majority of trips (with the exception of transit journey-to-work trips arriving at centers, where the majority was modest, only 54 percent) neither left nor arrived at centers but took place between dispersed locations (the last column of Table 11.6.1). Less than one in twenty journeys-to-work left any of the 19 centers, and only one in six arrived at any of the centers.

v) Table 11.6.2 shows the traffic flows in and out of the Los Angeles core. Again, a high proportion of trips (both arrivals and departures) are internal to the core and its surrounding 'donut', and only very small proportions of trips (4 - 5 percent of arrivals and 10 - 15 percent of departures) were associated with other centers. However, the Los Angeles core accounts for a large proportion of all the 19 centers' trips, particularly for transit journeys-to-work (more than three-fifths of departures, and more than two-thirds of arrivals). Moreover, more than 30 percent of all the region's transit journeys-to-work pour into the Los Angeles core. This confirms that the bulk of conventional transit worktrips in the Los Angeles metropolitan region is associated with serving the downtown area and its immediate surroundings.

vi) Table 11.6.3 presents the data for the four clusters of activity centers, i.e. totalling 14 centers and excluding the four peripherally located centers (San Bernardino, Ontario, Santa Ana, and Riverside). The peripheral centers have even higher proportions of their traffic flows either within themselves or their 'donuts' (Appendix A), and negligible interactions with other centers. The data for the clusters of centers reinforce the conclusions

revealed above: more internal and hinterland flows than inter-center flows and a high degree of interactions (especially for center arrivals) with dispersed (i.e. non-center) locations. The other obvious point from the data in Table 11.6.3 is that trips either arriving or departing from the cluster centers account for very modest shares of the region's trips once the Los Angeles core is excluded (only 1 out of 5 trips leave the centers, and only 1 out of 10 arrive there). Most of the trips in the region take place between non-center locations, reinforcing the conclusion that the Los Angeles region is essentially a dispersed, even more than a policentric, metropolis.

vii) Tables 11.6.4.1 - 11.6.3 present more detailed information on the traffic flows into and out of each activity center by cluster (14 centers in four clusters). Only two of the centers (both in the Westside cluster: Westwood and Hollywood) account for more than 3 percent of the region's trip origins and only two centers (Westwood and Huntington Park in the Eastside cluster) account for more than 1.5 percent of the region's trip destinations. Most of the centers are not closely linked with other member centers of their cluster; exceptions are the Santa Monica and Mid-Wilshire centers, both on the Westside. Several centers (Glendale, Burbank, USC Medical Center, Long Beach and San Pedro) have stronger links with centers outside their own cluster. But for all centers, inter-center linkages remain weak. The aggregate trip pattern is repeated in the individual cases: most trips are internal, with the immediate hinterland or with non-centers. There are some differences (Santa Monica and Long Beach are dominated by very local flows, while Huntington Park, East Hollywood, UCLA and USC Medical Center have very high shares of dispersed flows, for example), but the picture remains the same.

viii) The journey-to-work data on individual centers (Tables 11.6.4.2, Table 11.6.5.2, Table 11.6.6.2, Table 11.6.7.2) give similar results to the data on total trips. The only differences of note are that these trips in the Westside cluster are destined for other centers in the cluster to a greater degree than elsewhere and that most of the Westside and Eastside cluster centers have relatively high shares of workers commuting to the Los Angeles core.

ix) The journey-to-work transit data for the cluster centers are shown in Tables 11.6.4.3, 11.6.5.3, 11.6.6.3 and 11.6.7.3. They do not indicate much promise for commuting by transit to and from the centers. First, the numbers of journey-to-work trips by transit are very small: only 14,705 departures from the 14 centers and 35,626 arrivals. Second, the Los Angeles core is the major transit destination for many centers (the exceptions are Long Beach, San Pedro, Westwood, Santa Monica, and the Northside centers where most of the transit journeys-to-work are to 'donut' destinations). Third, the dominant transit journey-to-work arrivals in many centers are from their 'donuts' (the exceptions are San Pedro, USC Medical Center, Burbank, and several of the Westside centers which draw transit commuters from non-center locations).

This analysis may now be summarized:

1. Many center trips, roughly about one-half, are either internal to the center or with the immediately surrounding hinterland ('donut'). This generalization even applies to the Los Angeles core area.
2. Inter-center traffic flows, including those with the Los Angeles core, are

relatively small.

3. In fact, the centers have much more interaction with dispersed locations (in non-centers) outside their own 'donut' than with other centers.

4. The peripheral centers outside Los Angeles County have negligible interaction with the other centers of the region.

5. The vast majority of trips in the region (including JTWs) is between dispersed origins and destinations, bypassing the centers (including the Los Angeles core). Los Angeles is better described as a dispersed than a policentric metropolis.

6. JTWs by transit are small, and only the Los Angeles core area features as a major transit destination (31 percent of all JTWs by transit end up in the Los Angeles core); less than 15 percent of the region's transit commuters work in the other 18 centers.

These results demonstrate that the scope for conventional transit services in non-CBD activity centers is very limited if assessed on Los Angeles' experience. The centers generate minimal traffic with each other and with the Los Angeles core area. Traffic flows with their own hinterlands and with dispersed (non-center) locations are much more important, but the traffic densities are too low. The only viable complement for the automobile in the absence of major changes in the regulatory environment is the expansion of locally-provided low-capacity paratransit services. Such an expansion will require more subsidies and further policy innovations.

TABLE 11.1

ITE MANUAL TRIP GENERATION RATES UTILIZED

<u>Sector</u>	<u>24-Hour Trip Generation Rates Per Employee</u>
Manufacturing	2.01
Wholesale	8.21
Entertainment	22.80
FIRE	2.45
Public Adm.	12.00
Service	6.09
Retail	33.20
Transport	16.82

source: ITE Handbook

TABLE 11.2

THE SPATIAL DISTRIBUTION OF EMPLOYMENT: DESTINATION DENSITIES
LOS ANGELES FIVE-COUNTY AREA, 1980

<u>Type of Zone</u>	<u># of Zones</u>	<u># of Workers</u>	<u>% of Workers</u>	<u>% of Area*</u>	<u>Jobs/ SqMi.</u>
1. density of destinations below mean	856	2,142,274	45.6%	91.7%	533
2. density of destinations <1 S.D. above mean	247	1,900,448	40.4%	7.7%	5604
quintiles:	(140)	(985,791)	(21.0)	(4.8)	4648
	(60)	(461,478)	(9.8)	(1.8)	5734
	(22)	(218,375)	(4.6)	(0.6)	8331
	(10)	(69,951)	(1.5)	(0.2)	8849
	(15)**	(164,853)	(3.5)	(0.3)	13290
3. density of destinations >1; <2 S.D.s above mean	30**	381,443	8.1%	0.5%	18780
4. density of destinations >2 S.D.s above mean	14**	275,413	5.9%	0.1%	57944
TOTALS	1147	4,699,578	100.0%	100.0%	

* 4,392 square miles of the five-county area's analysis zones are presumed to be 'urbanized', for our purposes; these are zones with 50 or more jobs.

** The 59 analysis zones with highest employment densities cluster to form 19 'centers'.

sources: Computed from 1980 UTPP data and 1983 ITE trip-generation rates.

TABLE 11.3
THE SPATIAL DISTRIBUTION OF EMPLOYMENT: MAJOR ACTIVITY CENTERS
LOS ANGELES FIVE-COUNTY AREA, 1980

<u>Center</u>	<u># of Workers</u>	<u>Acres</u>	<u>Jobs/ Acre</u>	<u>Est. 24- Hr. Trip Generat. (000s)</u>
1. L.A. Core	373,283	6,737	55.4	4,350
2. Westwood/ Bev. Hills/Cent. City	89,447	2,956	30.3	1,245
3. Hollywood	44,802	1,902	23.6	784
4. Santa Monica	37,255	1,672	22.3	563
5. Pasadena	35,911	1,419	25.3	445
6. Huntington Park	30,429	556	54.7	223
7. UCLA	30,029	607	49.5	374
8. Glendale	25,649	1,006	25.5	340
9. Mid-Wilshire	20,772	964	21.5	306
10. San Pedro	20,413	1,043	19.6	271
11. Santa Ana	18,055	946	19.1	246
12. Long Beach	17,326	731	23.7	270
13. USC Medical/ L.A. County General	16,316	437	37.3	140
14. Riverside	14,166	661	21.4	177
15. Burbank	12,703	707	18.0	206
16. East Hollywood	12,383	418	29.6	155
17. East Los Angeles	10,471	593	17.7	182
18. San Bernardino	7,324	320	22.9	147
19. Ontario	4,974	305	16.3	84
TOTAL	821,708*	23,980		

* 17.5% of the five-county area's total

TABLE 11.4
 THE SPATIAL DISTRIBUTION OF EMPLOYMENT: INDUSTRIAL SECTORS
 BY MAJOR ACTIVITY CENTERS, L.A. FIVE-COUNTY AREA, 1980
 (Activity Centers 1 - 19)

	<u>Industrial Sector</u>								
	<u>Mfg.</u>	<u>Trans.</u>	<u>Whlsl.</u>	<u>Retail</u>	<u>FIRE</u>	<u>Serv.</u>	<u>Entert.</u>	<u>Pub.Ad.</u>	<u>TOTAL</u>
1.	6.38%	11.98%	9.66%	5.41%	15.35%	8.05%	2.04%	19.70%	8.22%
2.	0.47	1.09	1.21	1.79	3.93	3.34	2.66	1.09	1.96
3.	0.57	1.64	0.55	1.02	0.76	0.99	3.21	0.76	1.00
4.	0.36	1.20	0.35	0.89	0.94	1.29	0.24	0.68	0.81
5.	0.24	0.87	0.26	0.67	1.68	1.16	0.11	0.74	0.73
6.	1.61	1.03	2.16	0.20	0.05	0.07	0.02	0.15	0.68
7.	0.05	0.09	0.10	0.52	0.37	1.87	0.30	0.29	0.67
8.	0.84	0.74	0.83	0.53	0.27	0.37	0.33	0.31	0.56
9.	0.10	0.56	0.17	0.48	1.43	0.63	0.29	0.34	0.47
10.	0.39	0.48	0.24	0.37	0.40	0.54	0.36	1.10	0.45
11.	0.08	0.34	0.09	0.34	0.93	0.47	0.04	2.23	0.40
12.	0.16	0.85	0.16	0.38	0.53	0.36	0.12	1.50	0.38
13.	0.04	0.07	0.05	0.11	0.09	0.99	0.08	0.72	0.34
14.	0.11	0.19	0.08	0.23	0.45	0.46	0.04	1.61	0.31
15.	0.09	0.52	0.10	0.16	0.25	0.30	1.58	0.04	0.28
16.	0.02	0.06	0.03	0.22	0.14	0.77	0.09	0.15	0.27
17.	0.34	0.24	0.39	0.36	0.06	0.09	0.03	0.06	0.22
18.	0.05	0.22	0.01	0.27	0.48	0.09	0.06	0.59	0.16
19.	0.04	0.19	0.01	0.13	0.19	0.11	0.02	0.42	0.11
TOT	11.92%	22.36%	16.54%	14.03%	28.32%	19.69%	22.91%	32.47%	18.03%

sources: Computed from 1980 UTPP data; centers defined as above.

TABLE 11.5
SPATIAL DISTRIBUTION OF 369 TOP COMPANIES IN LOS ANGELES COUNTY, 1987

STUDY AREAS	Type of Firm*									Total
	1	2	3	4	5	6	7	8	9	
<u>Centers</u>										
L.A. Core	10%	7%	45%	24%	0%	63%	32%	44%	0%	19%
Santa Monica	1	2	5	0	0	0	0	4	0	1
Westwood/CC/BH	16	2	14	8	4	21	4	12	0	9
Mid-Wilshire	1	2	0	0	0	4	0	0	0	1
Long Beach	0	0	0	4	4	0	4	0	0	1
East L.A.	0	1	0	0	0	0	0	0	0	0
Huntington Pk.	0	1	0	0	0	0	0	0	0	1
Glendale	0	0	0	0	0	0	0	0	4	1
Total w/o LA Core	18	8	18	12	8	25	8	16	4	13
Total Centers	28	15	64	36	8	88	40	60	4	31
<u>Non-Centers</u>										
Agoura	1	1	0	0	0	0	0	0	0	1
Santa Clarita	1	0	0	0	0	0	0	0	4	1
Lancaster	0	1	0	0	0	0	0	0	0	0
S.W. San Fern.	11	9	9	4	16	0	4	4	9	8
Burbank**	3	5	0	8	0	4	4	0	0	3
N.E. San Fern.	0	2	0	0	0	0	0	0	0	1
Santa Monica**	10	5	0	0	0	4	0	4	0	5
West Central**	13	8	5	0	12	0	4	8	0	8
South Bay	8	2	5	44	8	4	32	0	4	9
Palos Verdes**	4	6	0	0	8	0	8	4	35	6
Long Beach**	2	3	5	4	4	0	4	4	0	3
East Central**	5	17	0	0	4	0	0	12	17	8
Norwalk/Whittier	1	10	5	0	20	0	0	0	17	6
L.A. CBD**	0	0	0	0	0	0	0	4	0	0
Glendale**	5	2	5	4	4	0	4	0	0	3
W. San Gabr.**	8	8	0	0	4	0	0	0	0	5
E. San Gabr.	0	6	0	0	12	0	0	0	9	3
Pomona	0	0	5	0	0	0	0	0	0	0
Total Non-Centers	72	85	36	64	92	13	60	40	96	69

* 1. Public Company 2. Private Company 3. Bank
 4. Hotel 5. Shopping Center 6. Office Building
 7. Office Space 8. Property Mgmt.'t. 9. Office & Ind'l. Park

** Truncated SCAG 'Regional Statistical Area'

TABLE 11.6.1

SUMMARY TRAFFIC FLOWS FOR ALL NINETEEN ACTIVITY CENTERS

LEAVING CENTERS:	<u>Destinations:</u>						Share of Area
	Self	'Donut'	LA Core	Centers Cluster	Other	Non-Centers	
ALL TRIPS	32.4%	24.4%	1.7%	5.8%	3.9%	31.8%	37.6%
JTW TRIPS	30.3	22.9	7.5	9.0	3.4	26.9	4.3
TRANSIT JTW	31.7	25.4	10.2	12.2	3.8	16.8	16.2

ARRIVING AT CENTERS:	<u>Origins:</u>						Share of Area
	Self	'Donut'	LA Core	Centers Cluster	Other	Non-Centers	
ALL TRIPS	13.8	36.3	1.8	1.9	1.2	45.0	15.6
JTW TRIPS	7.5	35.8	1.2	2.8	0.9	51.8	17.5
TRANSIT JTW	12.4	45.9	2.6	5.6	0.9	32.6	45.6

TABLE 11.6.2

TRAFFIC FLOWS IN AND OUT OF THE L.A. CORE

	Destinations:						
	Self	'Donut'	Centers Cluster	Other	Non- Centers	Share of: Centers Area	
LEAVING L.A. CORE:							
ALL TRIPS	31.2%	28.6%	6.0%	3.8%	30.3%	42.4%	15.9%
JTW TRIPS	39.4	22.7	9.1	3.8	25.0	38.1	1.6
TRANSIT JTW	44.7	26.2	10.2	4.3	14.6	62.5	10.1

	Origins:						
	Self	'Donut'	Centers Cluster	Other	Non- Centers	Share of: Centers Area	
ARRIVING AT L.A. CORE:							
ALL TRIPS	32.7	30.9	3.2	1.1	32.1	17.3	2.7
JTW TRIPS	8.2	38.1	3.1	0.9	50.0	45.4	7.9
TRANSIT JTW	14.6	49.4	4.3	1.1	30.6	67.6	30.8

TABLE 11.6.3

SUMMARY TRAFFIC FLOWS FOR THE FOUR 'CLUSTERS' OF ACTIVITY CENTERS

Destinations:

LEAVING CENTERS:	<u>Destinations:</u>						Share of Area
	Self	'Donut'	LA Core	Centers Cluster	Other	Non- Centers	
ALL TRIPS	34.4%	18.9%	3.3%	6.0%	4.2%	33.2%	20.0%
JTW TRIPS	25.1	21.6	12.8	9.4	3.4	27.7	2.5
TRANSIT JTW	9.9	23.3	27.9	16.0	3.1	19.9	5.9

Origins:

ARRIVING AT CENTERS:	<u>Origins:</u>						Share of Area
	Self	'Donut'	LA Core	Centers Cluster	Other	Non- Centers	
ALL TRIPS	11.6	29.0	2.6	2.0	1.4	53.4	10.5
JTW TRIPS	7.4	31.2	2.5	2.8	1.0	55.2	8.6
TRANSIT JTW	4.1	37.1	10.2	6.6	1.4	40.6	14.3

TABLE 11.6.4.1
DISTRIBUTION OF TRAFFIC FLOWS BY CLUSTERS OF ACTIVITY CENTERS
(all trips; 1980 estimates)

Westside Cluster

Origin Center:	Destinations:					Shares:		
	Self	'Donut'	LA Core	Centers Cluster	Other	Non- Cntrs	Cntrs	Area
S. Monica	40.5%	22.5%	2.2%	9.4%	2.1%	23.4%	5.8%	2.2%
Hollywood	39.6	10.3	3.7	11.1	6.4	28.8	8.4	3.2
E. Hwd.	39.5	10.1	5.5	7.2	5.7	32.1	2.3	0.9
UCLA	35.0	12.5	2.4	6.6	3.3	40.2	3.1	1.2
Westwood	33.4	20.4	4.4	6.2	3.2	32.5	11.1	4.2
Mid-Wilsh.	36.7	13.6	5.1	10.2	3.3	31.2	3.3	1.2
TOTAL CLUSTER	37.0	16.2	3.8	8.5	4.0	30.6	34.0	12.8

Destination Center:	Origins:					Shares:		
	Self	'Donut'	LA Core	Centers Cluster	Other	Non- Cntrs	Cntrs	Area
S. Monica	20.0%	28.3%	2.8%	3.0%	0.4%	45.4%	5.0%	0.8%
Hollywood	27.4	12.8	3.6	4.3	1.6	50.3	5.2	0.8
E. Hwd.	12.5	13.6	5.0	3.3	1.4	64.4	3.1	0.5
UCLA	13.4	21.5	4.6	4.5	1.2	54.8	3.4	0.5
Westwood	15.1	42.1	2.8	2.3	0.5	37.2	10.5	1.6
Mid-Wilsh.	14.0	20.2	4.5	9.6	0.7	51.0	3.7	0.6
TOTAL CLUSTER	17.4	27.1	3.5	4.0	0.9	47.1	30.9	4.8

Note: Estimate of total daily trips leaving this cluster is 599,469; estimate of total daily trips arriving at this cluster is 1,277,359.

TABLE 11.6.4.2
DISTRIBUTION OF TRAFFIC FLOWS BY CLUSTERS OF ACTIVITY CENTERS
(Journey-to-work; 1980 UTPP data)

Westside Cluster

Origin Center:	Destinations:					Shares:		
	Self	'Donut'	LA Core	Centers Cluster	Other	Non-Cntrs	Cntrs Area	
S. Monica	29.1%	20.3%	9.3%	14.2%	1.8%	25.4%	7.4%	0.3%
Hollywood	18.9	18.9	16.6	12.9	3.2	29.5	11.0	0.5
E. Hwd.	11.4	15.2	22.3	10.8	5.4	34.8	2.9	0.1
UCLA	47.2	6.9	7.4	12.2	1.4	24.8	2.9	0.1
Westwood	34.9	18.3	12.8	8.8	2.3	22.9	13.0	0.6
Mid-Wilsh.	11.5	19.5	18.5	21.6	1.6	27.2	3.9	0.2
TOTAL CLUSTER	26.5	17.9	14.0	12.5	2.5	26.5	41.1	1.8

Destination Center:	Origins:					Shares:		
	Self	'Donut'	LA Core	Centers Cluster	Other	Non-Cntrs	Cntrs Area	
S. Monica	11.8%	41.7%	1.9%	2.5%	0.0%	42.1%	4.5%	0.8%
Hollywood	9.4	22.0	2.7	3.8	1.2	60.9	5.4	1.0
E. Hwd.	5.5	23.0	4.5	3.2	0.9	63.0	1.5	0.3
UCLA	9.1	21.2	2.0	6.8	0.4	60.5	3.7	0.6
Westwood	10.3	27.9	3.4	5.0	0.5	53.0	10.9	1.9
Mid-Wilsh.	4.4	26.3	4.7	4.4	0.7	60.0	2.5	0.4
TOTAL CLUSTER	9.4	27.7	3.0	4.4	0.6	54.8	28.6	5.0

Note: Estimate of daily JTW trips leaving this cluster is 83,502; estimate of daily JTW trips arriving at this cluster is 234,466.

TABLE 11.6.4.3
 DISTRIBUTION OF TRAFFIC FLOWS BY CLUSTERS OF ACTIVITY CENTERS
 (journey-to-work transit; 1980 UTPP data)

Westside Cluster

Origin Center:	Destinations:						Shares:	
	Self	'Donut'	LA Core	Centers Cluster	Other	Non- Cntrs	Cntrs	Area
S. Monica	14.5%	27.4%	17.2%	24.6%	1.3%	15.0%	5.3%	0.8%
Hollywood	7.2	20.2	31.3	18.8	4.0	18.5	12.9	2.1
E. Hwd.	0.0	15.0	45.0	11.6	3.2	25.3	3.1	0.5
UCLA	10.0	4.4	18.9	34.8	4.1	27.8	0.7	0.1
Westwood	20.3	21.3	19.8	18.7	2.9	17.0	3.4	0.5
Mid-Wilsh.	8.0	15.0	38.5	29.3	1.4	7.9	2.6	0.4
TOTAL CLUSTER	9.5	20.2	29.1	20.4	3.0	17.7	27.9	4.5

Destination Center:	Origins:						Shares:	
	Self	'Donut'	LA Core	Centers Cluster	Other	Non- Cntrs	Cntrs	Area
S. Monica	8.7%	43.8%	8.4%	7.3%	0.0%	31.7%	3.1%	1.4%
Hollywood	10.7	33.5	11.4	3.6	1.8	39.0	3.1	1.4
E. Hwd.	0.0	37.0	12.7	5.5	0.0	44.8	1.1	0.5
UCLA	0.6	21.4	6.6	12.6	0.4	58.4	3.7	1.7
Westwood	3.5	37.8	13.8	14.6	0.3	30.1	6.9	3.2
Mid-Wilsh.	3.3	30.0	13.7	6.9	0.4	45.7	2.2	1.0
TOTAL CLUSTER	4.7	34.2	11.2	10.1	0.5	39.4	20.1	9.2

Note: Estimate of daily JTW transit trips leaving this cluster is 11,279;
 estimate of daily JTW transit trips arriving at this cluster is 22,909.

TABLE 11.6.5.1

DISTRIBUTION OF TRAFFIC FLOWS BY CLUSTERS OF ACTIVITY CENTERS
 TOTAL TRIPS LEAVING ACTIVITY CENTERS
 (all trips; 1980 estimates)

Eastside Cluster

Origin Center:	Destinations:						Shares:	
	Self	'Donut'	LA Core	Centers Cluster	Other	Non-Cntrs	Cntrs Area	
USC Med.	24.7%	8.8%	3.6%	1.2%	7.2%	54.5%	1.7% 0.6%	
East LA	37.2	15.9	3.6	4.0	3.5	35.7	1.4 0.5	
Hunt. Pk.	1.4	30.3	1.4	0.4	0.8	65.7	1.8 0.7	
TOTAL CLUSTER	19.8	18.7	2.8	1.7	3.8	53.1	4.8 1.8	

Destination Center:	Origins:						Shares:	
	Self	'Donut'	LA Core	Centers Cluster	Other	Non-Cntrs	Cntrs Area	
USC Med.	6.5%	18.1%	5.6%	0.5%	3.6%	65.7%	2.7% 0.4%	
East LA	6.7	15.8	2.6	0.1	2.1	72.6	3.3 0.5	
Hunt. Pk.	0.1	0.1	1.2	0.2	0.8	97.6	9.7 1.5	
TOTAL CLUSTER	2.7	6.6	2.3	0.2	1.5	86.6	15.4 2.4	

Note: Estimate of total daily trips leaving this cluster is 85,080; estimate of total daily trips arriving at this cluster is 635,065.

TABLE 11.6.5.2

DISTRIBUTION OF TRAFFIC FLOWS BY CLUSTERS OF ACTIVITY CENTERS
(journey-to-work; 1980 UTPP data)

Eastside Cluster

Origin Center:	Destinations:						Shares:	
	Self	'Donut'	LA Core	Centers Cluster	Other	Non-Cntrs	Cntrs Area	
USC Med.	19.7%	16.4%	14.5%	3.2%	7.8%	38.3%	0.9%	0.0%
East LA	11.1	23.1	17.7	3.5	2.4	42.2	1.0	0.0
Hunt. Pk.	68.4	18.4	0.0	0.0	0.0	13.2	0.0	0.0
TOTAL CLUSTER	16.2	20.0	15.9	3.3	4.8	40.0	1.9	0.8

Destination Center:	Origins:						Shares:	
	Self	'Donut'	LA Core	Centers Cluster	Other	Non-Cntrs	Cntrs Area	
USC Med.	2.1%	13.3%	3.1%	0.1%	3.1%	78.3%	2.0%	0.4%
East LA	2.2	28.6	4.2	0.3	2.2	62.6	1.3	0.2
Hunt. Pk.	0.2	30.7	1.4	0.3	0.8	66.7	3.7	0.6
TOTAL CLUSTER	1.1	25.4	2.4	0.2	1.7	69.2	7.0	1.2

Note: Estimate of daily JTW transit trips leaving this cluster is 3,862; estimate of daily JTW trips arriving at this cluster is 57,142.

TABLE 11.6.5.3

DISTRIBUTION OF TRAFFIC FLOWS BY CLUSTERS OF ACTIVITY CENTERS
(journey-to-work transit trips; 1980 UTPP data)

Eastside Cluster

Destinations:

Shares:

Origin Center:	Self	'Donut'	LA Core	Centers		Non- Cntrs	Cntrs Area	
				Cluster	Other		Cntrs	Area
USC Med.	0.0%	4.0%	48.7%	0.0%	6.6%	40.7%	0.6%	0.1%
East LA	6.6	17.1	30.8	0.0	3.6	42.0	0.8	0.1
Hunt. Pk.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL CLUSTER	3.8	11.5	38.4	0.0	4.9	41.4	1.3	0.2

Origins:

Shares:

Destination Center:	Self	'Donut'	LA Core	Centers		Non- Cntrs	Cntrs Area	
				Cluster	Other		Cntrs	Area
USC Med.	0.0%	17.0%	8.9%	0.0%	5.9%	68.2%	1.5%	0.7%
East LA	1.8	52.3	16.4	1.7	1.9	26.0	1.0	0.5
Hunt. Pk.	0.0	53.5	11.5	0.0	1.3	33.7	1.2	0.6
TOTAL CLUSTER	0.5	38.9	11.8	0.4	3.3	45.3	3.8	1.7

Note: Estimate of daily JTW transit trips leaving this cluster is 531; estimate of daily JTW transit trips arriving at this cluster is 4,211.

TABLE 11.6.6.1

DISTRIBUTION OF TRAFFIC FLOWS BY CLUSTERS OF ACTIVITY CENTERS
(total trips; 1980 estimates)

Northside Cluster

Origin Center:	Destinations:					Shares:		
	Self	'Donut'	LA Core	Centers Cluster	Other	Non-Cntrs	Cntrs Area	
Glendale	37.3%	17.7%	3.6%	1.6%	7.5%	32.6%	3.7%	1.4%
Pasadena	33.7	31.8	1.8	1.2	3.5	28.0	4.4	1.6
Burbank	24.2	23.1	2.0	1.8	11.5	37.4	1.5	0.6
TOTAL CLUSTER	33.6	25.0	2.4	1.5	6.3	31.3	9.6	3.6

Destination Center:	Origins:					Shares:		
	Self	'Donut'	LA Core	Centers Cluster	Other	Non-Cntrs	Cntrs Area	
Glendale	14.6%	24.6%	3.4%	0.6%	2.4%	54.3%	4.0%	0.6%
Pasadena	16.8	30.8	1.6	0.5	1.6	48.7	3.7	0.6
Burbank	4.1	69.7	1.0	0.6	5.8	18.9	3.8	0.6
TOTAL CLUSTER	11.9	41.4	2.0	0.5	3.3	40.9	11.6	1.8

Note: Estimate of total daily trips leaving this center is 168,979; estimate of total daily trips arriving at this cluster is 478,261.

TABLE 11.6.6.2

DISTRIBUTION OF TRAFFIC FLOWS BY CLUSTERS OF ACTIVITY CENTERS
(journey-to-work; 1980 UTPP data)

<u>Northside Cluster</u>								
Destinations:							Shares:	
Origin Center:	Self	'Donut'	LA Core	Centers Cluster	Other	Non-Cntrs	Cntrs Area	
Glendale	23.0%	23.4%	9.5%	3.2%	6.7%	34.1%	4.4%	0.2%
Pasadena	31.2	32.0	11.2	0.8	4.1	20.7	5.1	0.2
Burbank	15.8	29.1	10.7	3.9	11.7	28.8	2.0	0.1
TOTAL CLUSTER	25.5	28.2	10.4	2.3	6.4	27.2	11.4	0.5
Origins:							Shares:	
Destination Center:	Self	'Donut'	LA Core	Centers Cluster	Other	Non-Cntrs	Cntrs Area	
Glendale	8.0%	34.9%	1.8%	0.8%	1.3%	53.3%	3.1%	0.6%
Pasadena	9.0	57.8	0.3	0.5	0.7	31.7	4.4	0.8
Burbank	4.9	31.0	0.4	1.2	3.0	59.5	1.6	0.3
TOTAL CLUSTER	7.9	45.3	0.8	0.7	1.3	43.9	9.1	1.6

Note: Estimate of daily JTW trips leaving this cluster is 23,191; estimate of daily JTW trips arriving at this cluster is 74,288.

TABLE 11.6.6.3

DISTRIBUTION OF TRAFFIC FLOWS BY CLUSTERS OF ACTIVITY CENTERS
(journey-to-work transit trips; 1980 UTPP data)

<u>Northside Cluster</u>								
Destinations:							Shares:	
Origin Center:	Self	'Donut'	LA Core	Centers Cluster	Other	Non-Cntrs	Cntrs	Area
Glendale	16.5%	16.9%	29.8%	0.0%	4.3%	32.5%	1.8%	0.3%
Pasadena	17.4	31.9	32.1	0.0	1.7	16.9	2.3	0.4
Burbank	7.7	20.1	10.7	8.3	23.7	30.2	0.4	0.2
TOTAL CLUSTER	16.1	24.8	29.1	0.8	4.8	24.4	4.6	0.7

Origins:								
Destinations:							Shares:	
Destination Center:	Self	'Donut'	LA Core	Centers Cluster	Other	Non-Cntrs	Cntrs	Area
Glendale	8.3%	30.4%	14.8%	0.9%	2.8%	42.7%	1.3%	0.6%
Pasadena	8.2	73.1	0.0	0.0	0.0	18.8	1.8	0.8
Burbank	4.6	28.0	5.3	0.0	16.7	45.4	0.2	0.1
TOTAL CLUSTER	7.9	52.9	6.2	0.4	2.4	30.2	3.3	1.5

Note: Estimate of daily JTW transit trips leaving this cluster is 1,846; estimate of daily JTW transit trips arriving at this cluster is 3,746.

TABLE 11.6.7.1

DISTRIBUTION OF TRAFFIC FLOWS BY CLUSTERS OF ACTIVITY CENTERS
(total trips; 1980 estimates)

Southside Cluster

Origin Center:	Destinations:					Shares:		
	Self	'Donut'	LA Core	Centers Cluster	Other	Non-Cntrs	Cntrs Area	
Long Bch.	33.5%	34.7%	0.4%	1.4%	1.6%	28.3%	2.3%	0.9%
San Pedro	29.8	19.3	2.9	1.6	3.3	43.1	2.5	0.9
TOTAL CLUSTER	31.6	26.8	1.7	1.5	2.5	35.9	4.8	1.8

Destination Centers:	Origins:					Shares:		
	Self	'Donut'	LA Core	Centers Cluster	Other	Non-Cntrs	Cntrs Area	
Long Bch.	7.0%	56.6%	0.5%	0.4%	0.4%	35.1%	4.8%	0.8%
San Pedro	6.8	56.1	1.1	0.3	0.9	34.7	4.6	0.7
TOTAL CLUSTER	6.9	56.4	0.8	0.3	0.6	34.9	9.4	1.5

Note: Estimate of total daily trips leaving this cluster is 84,694; estimate of total daily trips arriving at this cluster is 387,371.

TABLE 11.6.7.2

DISTRIBUTION OF TRAFFIC FLOWS BY CLUSTERS OF ACTIVITY CENTERS
(journey-to-work trips; 1980 UTPP data)Southside Cluster

Origin Center:	Destinations:					Shares:		
	Self	'Donut'	LA Core	Centers Cluster	Other	Non- Cntrs	Cntrs	Area
Long Bch.	13.9%	41.2%	2.4%	1.4%	1.5%	39.6%	1.9%	0.1%
San Pedro	12.5	42.4	7.9	1.4	3.1	32.6	0.5	0.1
TOTAL CLUSTER	13.2	41.8	5.3	1.5	2.3	36.0	4.0	0.2

Destination Centers:	Origins:					Shares:		
	Self	'Donut'	LA Core	Centers Cluster	Other	Non- Cntrs	Cntrs	Area
Long Bch.	3.2%	54.1%	0.1%	0.4%	0.2%	42.1%	2.1%	0.4%
San Pedro	2.6	16.8	4.3	0.3	3.4	72.6	2.5	0.4
TOTAL CLUSTER	2.9	33.9	2.4	0.3	2.0	58.6	4.6	0.8

Note: Estimate of daily JTW trips leaving this cluster is 8,200; estimate of daily JTW trips arriving at this cluster is 37,615.

TABLE 11.6.7.3

DISTRIBUTION OF TRAFFIC FLOWS BY CLUSTERS OF ACTIVITY CENTERS
(journey-to-work transit trips; 1980 UTPP data)

Southside Cluster

Origin Center:	Destinations:					Shares:		
	Self	'Donut'	LA Core	Centers Cluster	Other	Non-Cntrs	Cntrs Area	
Long Bch.	5.9%	58.6%	5.8%	1.3%	0.0%	28.4%	2.0%	0.3%
San Pedro	5.0	65.9	9.1	8.2	0.0	11.8	0.5	0.1
TOTAL CLUSTER	5.7	60.2	6.5	2.8	0.0	24.9	2.6	0.4

Destination Centers:	Origins:					Shares:		
	Self	'Donut'	LA Core	Centers Cluster	Other	Non-Cntrs	Cntrs Area	
Long Bch.	2.5%	80.1%	0.0%	0.9%	0.0%	16.6%	1.7%	0.8%
San Pedro	0.4	6.2	12.4	0.4	5.3	75.3	2.4	1.1
TOTAL CLUSTER	1.3	36.9	7.3	0.6	3.1	50.9	4.2	1.9

Note: Estimate of daily JTW transit trips leaving this cluster is 1,049; estimate of daily JTW transit trips arriving at this cluster is 4,760.

III. State of the area's transit providers

Introduction

Over the past decade, public transit in Los Angeles has undergone many changes, both in the service delivery system (who provides what service and who allocates the funds) and in the transit financing system. In order to understand the current status of transit and transit policy in Los Angeles County, it is necessary to provide some background on its evolution. The changes that have taken place have been directed at the following three objectives: 1) Increase the quantity and variety of transit services in the County, 2) Develop a local funding base for both capital and operating support, and 3) Implement a long-range plan for a regional rail transit system. These changes are particularly interesting because they illustrate a fundamental conflict in policy orientation. On the one hand, policy objectives reflect an emphasis on serving local markets and providing a dispersed set of small, individual services. On the other hand, there is also an emphasis on developing a traditional, core-oriented mass transit system.

History

Transit in Los Angeles County has been dominated by the Southern California Rapid Transit District (SCRTD) since its formation in 1965. State legislation authorized formation of the District, and it was granted sole operating rights throughout the County. SCRTD was also designated the regional transit carrier, and thus had operating authority for all connecting services in the adjacent counties of Orange, Riverside, and San Bernardino. The only exemptions to SCRTD's operating rights were the service areas of the County's 12 pre-existing municipal operators (e.g. Santa Monica, Long Beach, Montebello). These municipal operators retained their operating rights within their own jurisdictions, but were effectively prevented from expanding into any new areas. SCRTD was by far the largest transit operator in the County since its inception, and has operated 85 to 90 percent of all the County's transit ever since.

The California State Transportation Development Act of 1972 authorized the first local source of transit support. The TDA authorized an additional 1/4 cent sales tax on gasoline to be earmarked for public transit in California's urbanized counties. TDA funds were collected by the state and redistributed back to local jurisdictions. This revenue source, together with the rapid expansion of the Federal transit subsidy program, provided the revenue base for the revitalization and expansion of public transit in the county.

Although there was no competition in state or federal operating subsidy allocation, (the split of TDA funds among the 13 transit operators in Los Angeles County was determined in the legislation) there were conflicts over transit service policy among local decision-makers. These conflicts led to the formation of the Los Angeles County Transportation Commission (LACTC) in 1977. The Commission is composed of elected officials from the cities and County of Los Angeles. Duties of LACTC included approval of all short-and long-range transit plans. The purpose of establishing LACTC was to protect local transit interests and to temper the influence of SCRTD. However, LACTC's influence was limited by the lack of any discretionary power over funding decisions.

The situation changed drastically with the passage of Proposition A in 1980. Proposition A authorized an added 1/2 cent sales tax, countywide, to be earmarked for public transit. It allowed for a temporary (3 year) roll-back in SCRTD fares to 50 cents, capital funding for a 150-mile regional rail network, and operating funding for both new and existing transit operations. General provisions of Proposition A were as follows:

- 25% to the 'Local Return Program'
- 35% to a reserve fund for rail construction
- 40% to discretionary uses determined by LACTC.

The Local Return Program returns 25 percent of all revenues collected back to the local jurisdictions. These monies may be spent on any transit-related use, subject to LACTC approval. The discretionary fund is currently split 95/5, with 95 percent used for operating subsidies to SCRTD and the municipal carriers and 5 percent used by LACTC as 'incentive funding' for favored projects.

The consequences of Proposition A are significant. The sales tax has generated a large and growing amount of local funding. In 1982 it generated \$208 million; the total in 1987 was \$336 million. LACTC became the most powerful transportation agency in the County as a result of controlling this major revenue source. Also, the local return program promoted the rapid development and expansion of local transit services.

SCRTD

Though more than one public transit agency operates in the five-county study area, the following section concentrates on services provided by the Southern California Rapid Transit District (SCRTD), which is the major local transit property. This district encompasses mainly the area of Los Angeles county, though a few other small municipal bus companies also operate in the county and despite the fact that a few of the SCRTD routes run into neighboring counties (Table III.1).

SCRTD is the local legally designated 'regional carrier'. Its service area is approximately 2,000 square miles, including approximately eighty cities. It operates about 2,000 buses and recent daily ridership has been as high as 1.46 million (Table III.2 and Figure III.1). The agency has an operating budget of \$507,022,000 for fiscal 1989, of which \$314,330,000 (62%) is covered by subsidies from federal, state, and local government sources. Subsidies have doubled since 1980 (Table III.3 and Figure III.2).

SCRTD has been experiencing problems. Its costs and deficits have been rising faster than passengers or fare-box revenues (Table III.4 and Figure III.3). Allegations of inefficiencies, mismanagement, and corruption have surfaced regularly in the Los Angeles newspapers. Service cutbacks have taken several forms. Some of SCRTD's freeway express services have been taken over by the City of Los Angeles, using its share of the Proposition A (dedicated sales tax) revenues and contracting to private operators. With this approach, costs have been cut and overall ridership has increased by 54 percent in nine months

because a more reliable schedule of departures has been followed (Table III.5). The buses are graffiti-free and patrons have been spared the SCRTD's recent fare increases.

Included in LACTC's duties is the provision of cost-effective services. LACTC has used this provision to justify the replacement of SCRTD service with that of lower-cost private contract providers. Most recently, the Commission has proposed the identification of Transportation zones -- areas that because of low demand or distance from the core are difficult and/or costly to serve by SCRTD. The first transportation zone was established in the San Gabriel Valley area, located in the northeast quadrant of the County. Transit services within the zone are evaluated and redesigned as necessary, and put out to bid. SCRTD has the option of bidding on the service, but their high unit costs prevent them from being competitive. It is estimated that \$4.6 million would be diverted from SCRTD's subsidies to support this new service. Proponents suggest that costs would be reduced and service expanded. The district (and its major employees' union) has brought suit and the formation of the Zone is now stalled.

Informal discussions and studies of similar 'zones' in other parts of Los Angeles county have recently surfaced. These, of course, await resolution of SCRTD's lawsuit. Yet, all of these changes simply represent a slow coming to terms with reality. There is no economic reason for the existence of a major carrier the size of SCRTD. The scale economies are just not there. In fact, the District's problems are evidence of severe scale diseconomies. The comparative success of smaller and more specialized transit providers is to be expected.

Data from the SCRTD's 1986-87 ridership survey were available at the census tract level. It was, therefore, possible to study transit service to the nineteen major activity centers (Table III.6). Somewhat similar data were provided by two of the comparatively larger local municipal bus companies (the Santa Monica Municipal Bus Lines and the Long Beach Public Transit Company). This information was added where the two lines served activity centers.

Approximately 34% of SCRTD's boardings and alightings take place in the nineteen centers. Yet, almost three-quarters of these are in the L.A. Core. The absence of significant transit service in the other centers, in spite of our finding that much traffic to the centers is from the surrounding 'donut', may be surprising. Conventional transit, it appears, is best suited to the area surrounding the CBD and little else.

Trip purpose data are not available for each of the activity centers. SCRTD's tracking studies found that 52% of its boardings are worktrips; 64% of bus riders surveyed in downtown Los Angeles were travelling to or from work.*

While SCRTD and the municipal transit operators have maintained a relatively constant level of operation, local transit services have greatly expanded as a

*1981 Ridership Tracking Study: Mode Choice by Trip Type, by Ronald A. Johnson (1983), SCRTD Market Research.

result of Proposition A. (Appendix E). In 1980, 24 cities had local transit services of some sort, including the cities with municipal fixed-route services. By 1988, 64 of the 86 cities in the County were providing one or more type of local services. FY 1988 local services related expenditures amounted to approximately \$46.2 million, not counting funds given to other existing carriers for added local service. The most recent estimate is that 253 different local services are currently in operation within the cities and county unincorporated area. In fact, there has been so much proliferation of local services that LACTC is using its incentive fund to promote the formation of 'subregional systems.' The subregional systems cross at least one municipal boundary and are jointly provided by two or more municipalities. As of FY 1987-88, 12 subregional systems had been formed. The purpose of establishing subregional systems is to provide coordinated service, to minimize overlapping services, and to design service areas around patterns of travel demand.

The local return program has provided local governments with a significant revenue source for transit-related projects. Funds may be used for transit service development, or program administration. Funds can also be exchanged between jurisdictions, and can be accrued for up to three years. All expenditures are subject to LACTC approval. To date, LACTC has exercised little actual control on these projects. Local return expenditures have increased dramatically over the past five years. In earlier years, fund allocations greatly exceeded actual expenditures. This trend has now been reversed, and expenses for the past two years have been greater than the annual fund allocation of approximately \$85 million. (Figure III.4).

Figure III.5 shows how expenditures have increased between 1985 and 1988, and how expenditures were distributed between categories. Service expenses include local transit operations as well as subsidies contributed to other carriers (e.g. free RTD bus passes). Service expenses were \$32.4 million in 1985 (63% of total) and \$51.5 million (48% of total) in 1988. Capital expenses include vehicle and other equipment acquisition, new facilities, and in a few cases capital reserves for local rail transit projects. Metro-rail expenses are local match contributions to the metro-rail project from the City of Los Angeles. Program expenditures more than doubled between the two comparison years, from \$51.4 million in 1985 to \$107.4 million in 1988.

Local return transit services

One of the major impacts of Proposition A is the proliferation of local transit services. These services are generally limited to the individual cities (in the case of Los Angeles to individual districts within the City). Table III.7 shows how these services have expanded in the past three years. Services are categorized by type. 'General public' includes fixed-route, demand-responsive, commuter or other service available to the general public. 'Elderly and handicapped' includes all services limited to this user group. 'Recreational or special events' includes all transportation services linked with specific programs. Subsidies to 'others' includes all forms of user-side subsidies as well as contributions to existing transit operators for specific services.

Table III.7 also gives the number of cities providing at least one service of the given type. A total of 72 of the 86 cities and Los Angeles County provided at least one type of service in 1985, and 75 cities were providing at least one

type in 1988. Table III.7 indicates that the number of cities providing general public service has remained constant, while other service categories have increased significantly, both in number and dollar terms. Expenditures on elderly and handicapped services have increased by a factor of 4; expenditures on various subsidy programs have increased by a factor of 375. The numbers also suggest that nearly half of the cities provide more than one type of service.

Local transit survey

Because services operated under the local return program are not subject to any reporting requirements, there is little information available on the operating characteristics or performance of these systems. A survey was conducted as part of this research in an effort to obtain basic data on these systems. Surveys were mailed to each of the cities requesting information on type of services provided, service use, and length of service operation. The survey response rate was 71 percent after two follow-up letters and several follow-up telephone calls; a total of 60 valid surveys were received. Of these, 57 cities were providing 136 different local services.

Basic characteristics of the local services are given in Table III.8. Services are categorized into 5 service types: general public fixed-route, general public demand-responsive, elderly and handicapped demand-responsive, recreational, and user subsidy. The user subsidy services are various types of bus pass or taxi pass programs, and not separate operating services. The majority of these are free pass programs for SCRTD bus service. Table III.8 gives both the number of services in each category, and the number identified as having been implemented as a result of the availability of Proposition A funds. The average length of time the service has been in operation reflects the fact that many of these services have been in operation for several years prior to the measure. Table III.8 also shows that service is provided 12 to 13 hours per weekday, with some services operating 24 hours per day. Most services also operate on weekends.

The survey also asked about the types of trips served by the transit service. Table III.9 shows trip purpose as a percent of total responses in each service category. Recreational services are not included because they are single purpose services. Since multiple responses were allowed, the percentages reflect the relative share of each trip type by or purpose. It should be noted that the data are based on the responses of city staff who filled out the questionnaire, and not necessarily on user surveys.

Impact of Proposition A on Transit Services

As stated previously, Proposition A provides a substantial revenue flow for public transit in Los Angeles County. It has generated the development of many new local services, has provided LACTC with funds to operate services directly (through the County allocation), allowed for service expansion without taking funds from existing operators, notably SCRTD, provided a large and growing capital reserve fund, and has provided LACTC with sufficient power to mandate the development of more cost-effective services.

The previous section has shown how Proposition A has generated a very large increase in the number of local services operating within the County. The most

recent (1988) estimate is 250 separate local services currently in operation. This does not include the 12 subregional operations mentioned earlier. There is no information on the effectiveness of these services, and thus whether they are increasing transit use or serving previously unmet travel demands remains to be determined. Discussions with LACTC staff revealed some concern regarding the lack of information on service performance and the coordination problems generated by these services. The subregional services are LACTC's attempt to consolidate some of these services and develop service areas that more closely match travel patterns.

The local return allocation to Los Angeles County is directly under the control of LACTC. The agency has used these funds to provide local bus services, both fixed-route and demand responsive, on a contract basis using private sector providers. LACTC has long been a proponent of contracted services, and has been able to demonstrate their cost-effectiveness. Service contracting is now the norm rather than the exception among local services. All of the subregional systems are contract operations. According to LACTC staff, the vast majority of the local return systems are also contract operations.

The result of these changes is an increase in the total amount of transit service provided, while SCRTD service has remained relatively stable. A rough estimate of the magnitude of this change can be made from transit operating expenditures. In 1980, total transit operating expenditures amounted to about \$317 million, and SCRTD accounted for almost 90 percent of the total. In 1988, total transit expenditures were approximately \$621 million, with SCRTD accounting for a little more than 80 percent of the total. In terms of transit service, then, the trend has been toward individualized local services largely provided through private contractors and away from continued growth of SCRTD services. It would, therefore, appear that the service expansion generated by Proposition A reflects the decentralized pattern of travel flows identified in this research.

Local return program in the activity centers

Although the absence of operational data makes it impossible to examine local transit usage patterns in cities with subcenters, some comparisons of local return fund expenditures can be made. It may be recalled that 14 of the activity centers identified in this research are in Los Angeles County. All or part of 6 of the 14 L.A. County subcenters (as well as the Los Angeles core) are located in the City of Los Angeles. The relative shares of Proposition A FY 1988 expenditures for the City of Los Angeles, other cities with subcenters, and the remainder of cities (including Los Angeles County) are shown in Figure III.6. Los Angeles City has the largest share, 43 percent. Both, Los Angeles and the other cities with subcenters have expense shares slightly greater than population shares, indicating that the subcenter cities generate more sales tax than other cities. The other subcenter cities account for about 12 percent of the County population, and Los Angeles accounts for about 38 percent of the County population.

Table III.10 shows Proposition A expenditures per capita for the three sectors (Los Angeles City, other subcenter cities, and all other local jurisdictions) both for total expenditures and service expenditures. These were calculated for FY 1988, using 1987 updated population estimates. Per capita expenditures

are quite compatible for other subcenter cities and non-subcenter cities. The rates are quite different for Los Angeles. Total per capita expenses are about 50 percent greater than in the other two sectors, while service expenditures are substantially lower. These differences reflect Los Angeles' contribution of \$23.9 million of these funds to Metro-Rail construction. It is interesting to note that the smaller investment in service subsidies could reflect the greater usage of transit in the core and adjacent areas (more use means more fare revenue and less subsidy, all other things equal), rather than a lesser commitment to current transit needs within the city.

The available data suggest that both transit use and local transit funding support are similar between subcenters and nonsubcenters. This is in contrast to the Los Angeles core, which accounts for a disproportionately large share of transit use and transit expenses. The core area is of course the focus of the Metro-Rail system, and thus will continue to receive the greatest share of transit-related capital funding.

This review of transit services in Los Angeles points to several conclusions:

1. The bus monopoly is gradually being broken up, bringing lower costs, better service, and higher ridership levels.

2. Metro-Rail; the proposed light-rail lines and conventional bus services are irrelevant to meeting the travel demands connected with non-CBD activity centers because there is negligible corridor traffic (existing or potential) between the centers, and the dispersed traffic flows must rely either on the automobile or on low-capacity modes.

3. Public, subsidized and private for-profit paratransit services can co-exist side-by-side. There may be some scope for expanding these services, but policy changes would be needed: more deregulation, more competitive bidding to minimize subsidies, and more innovative types of service. In addition, Metro-Rail is likely to drain available transit subsidies away from bus and paratransit, especially when it goes into operation and begins to build up operating losses. Thus, an increasingly smaller segment of the transit market will absorb an increasingly larger share of the transit funds available.

4. Although this type of service is the only alternative to the automobile given the dispersed trip patterns around activity centers, the markets that have developed hitherto are very small, and are likely to remain small in the absence of tough restraints on automobile use. Even so, the evidence from the myriad small-scale transit services in place is that they have had a negligible impact in terms of increasing transit ridership in spite of a heavy expenditure on subsidies.

5. Privately provided but publicly subsidized paratransit services for the specialized in-need groups are effective, but should be subjected to stronger performance evaluation and efficiency criteria.

TABLE III.1

SCRTD SERVICE DATA BY COUNTY, 1986-87

<u>County</u>	<u>Boardings</u>	<u>Alightings</u>
Los Angeles (L.A. City)	1380993 1016116	1380681 1008467)
Orange	2856	3032
Riverside	660	649
San Bernardino	902	1028
Ventura	56	77
System Total	1385467	1385467

source: SCRTD on-board ridership survey, 1986-87.

TABLE III.2

SCRTD BASIC STATISTICS, 1980 - 86

<u>Year*</u>	<u>Passengers (m.)</u>	<u>Vehicle-Service Hrs.</u>	<u>Peak-Vehicles</u>
1979-80	352.7	6200	1914
1980-81	389.2	6865	1948
1981-82	354.6	6733	1898
1982-83	415.9	6762	1869
1983-84	465.6	7063	1992
1985-86	450.4	7066	1945

* Data for FY 1984-85 unavailable.

Source: Transportation Development Act, Annual Reports, State Comptroller's Office.

TABLE III.3

SCRTD SUBSIDIES, 1980 - 86
(millions of current \$)

<u>Year*</u>	<u>Local</u>	<u>of which Prop.A</u>	<u>TDA**</u>	<u>State</u>	<u>Federal</u>	<u>TOTAL</u>
1979-80	83.1	0	82.0	0.2	76.8	160.1
1980-81	107.6	0	106.1	20.0	58.3	185.9
1981-82	98.7	0	92.5	26.3	64.7	164.7
1982-83	207.9	124.6	82.0	14.2	49.7	271.9
1983-84	221.6	140.1	80.2	17.2	50.9	289.2
1985-86	224.5	85.5	188.0	7.4	51.4	283.3

* Data for FY 1984-85 unavailable.

** Transportation Development Act, local assistance.

Source: Transportation Development Act, Annual Reports. State Comptroller's Office

TABLE III.4

SCRTD COSTS AND REVENUES, 1980 - 86
(millions of current \$)

<u>Year*</u>	<u>Operating Cost</u>	<u>Operating Revenue</u>	<u>of which Passgr. Revenue</u>	<u>Deficit</u>
1979-80	281.6	108.5	102.4	178.1
1980-81	351.1	151.6	141.8	199.5
1981-82	398.1	185.5	164.7	212.6
1982-83	427.6	123.6	107.6	304.0
1983-84	463.4	138.8	119.8	324.6
1985-86	535.6	216.1	199.0	319.5

* Data for FY 1984-85 unavailable

Source: Transportation Development Act, Annual Reports. State Comptroller's Office

TABLE III.5

RIDERSHIP ON COMMUTER BUS LINES TAKEN OVER FROM SCRTD
AND CONTRACTED TO PRIVATE OPERATORS BY L.A. CITY
October 1987 - June 1988

<u>Month</u>	<u>Ridership*</u>
October 1987	32,207
November 1987	37,917
December 1987	38,757
January 1988	42,593
February 1988	44,803
March, 1988	51,707
April, 1988	47,167
May, 1988	48,203
June, 1988	49,588

* Includes data for eleven commuter bus lines taken over from SCRTD and the new Encino line, added at the beginning on 1988.

Source: Department of Transportation, City of Los Angeles

TABLE III.6
 CONVENTIONAL TRANSIT SERVICE BY MAJOR ACTIVITY CENTER, 1986-87
 (SCRTD data; SMMBL and LBPTC service added where indicated)

<u>Center</u>	<u>Boardings</u> (and %'s of RTD L.A. County totals)	<u>Alightings</u>	<u>B/ETTG*</u>	<u>A/ETTG</u>
4 Santa Monica	6511 (0.50)	6457 (0.47)	0.0116	0.0326
SMMBL	13465	12891	0.0239	0.0229
Total	19976	19348	0.0355	0.0555
3 Hollywood	30762 (2.23)	28458 (2.06)	0.0135	0.0886
16 E. Hollywood	21710 (1.57)	13726 (1.00)	0.1480	0.0886
7 UCLA	3076 (0.22)	3667 (0.27)	0.0082	0.0098
SMMBL	5861	4462	0.0157	0.0119
Total	8937	8129	0.0239	0.0217
2 Westwood/BH/CC	16783 (1.22)	16769 (1.21)	0.0135	0.0135
9 Mid-wilshire	11147 (0.81)	10594 (0.77)	0.0364	0.0345
1 LA Core	345674 (25.03)	344812 (24.97)	0.0795	0.0793
SMMBL	441	468	0.0001	0.0001
Total	346115	345280	0.0796	0.0794
12 Long Beach	5482 (0.40)	6627 (0.48)	0.0203	0.0245
LBPTC	13056	13034	0.0484	0.0483
Total	18538	19661	0.0687	0.0728
13 USC Medical	4309 (0.31)	3804 (0.28)	0.0308	0.0272
17 East LA	3184 (0.23)	3227 (0.23)	0.0175	0.0177
6 Huntington Pk.	2840 (0.21)	2864 (0.21)	0.0127	0.0128
8 Glendale	6834 (0.49)	6051 (0.44)	0.0201	0.0178
5 Pasadena	12613 (0.91)	10600 (0.77)	0.0283	0.0238
18 San Bernardino	132 (0.01)	159 (0.01)	0.0009	0.0011
15 Burbank	643 (0.05)	699 (0.05)	0.0031	0.0034
10 San Pedro	1079 (0.08)	1617 (0.12)	0.0040	0.0060
19 Ontario	76 (0.00)	99 (0.00)	0.0009	0.0012
11 Santa Ana **	3563 (-)	4687 (-)		
14 Riverside	418 (0.04)	376 (0.03)	0.0024	0.0021

* ETTG: estimated (24-hour) total trips generated (table II.1)

TABLE III.7
 LOCAL RETURN SERVICE EXPENDITURE BY TYPE
 1984-85 vs. 1987-1988

Service Type	1984-1985		1987-1988	
	#Cities	Expenses	#Cities	Expenses
General Public	46	\$25.6	46	\$23.3
E & H	38	5.4	52	20.8
Rec/Special	32	1.2	51	2.3
Subsidy	10	.1	41	5.2
TOTAL		\$33.3		\$51.6

TABLE 111.8

CHARACTERISTICS OF LOCAL SERVICES

	GP-FR	GP-DRT	E & H	REC	SUB
Number	17	22	46	31	15
Number due to Prop A	11	16	30	27	15
Time in operation					
Mean (yrs.)	11.9	5.7	7.5	4.5	2.8
Median (yrs.)	3.2	4.7	5.5	4.0	2.5
Range (yrs.)	12-55*	2-16.5	1-16.5	.3-26	1-7
Service hrs/weekday					
Mean	13.3	13.3	12.4	N/A	N/A
Range	4-24	4-24	6-24	N/A	N/A
Service hrs/week					
Mean	78	75	76	N/A	N/A

TABLE III.9

TRIP PURPOSE BY PARATRANSIT SERVICE TYPE

PURPOSE	GP-FR	GP-DRT	E & H	SUB
Medical/dental	15%	60%	95%	45%
Shopping	77	80	88	64
Social/recreational	69	50	44	36
Work	54	55	23	36
School	69	70	26	55
Other	23	75	28	9

TABLE III.10

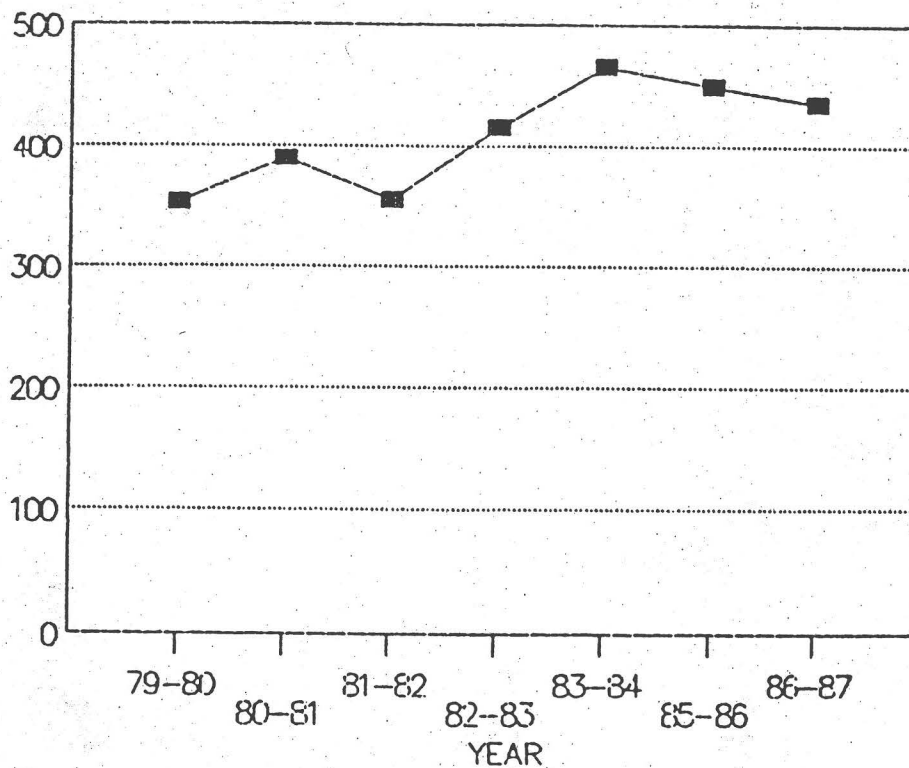
PROPOSITION A EXPENDITURES PER CAPITA, FY 1988

	Service Expenditure per Capita	Total Expenditure per Capita
Los Angeles	\$5.03	\$15.39
Other Subcenters	6.98	10.49
Others	6.37	10.82

RTD RIDERSHIP TREND

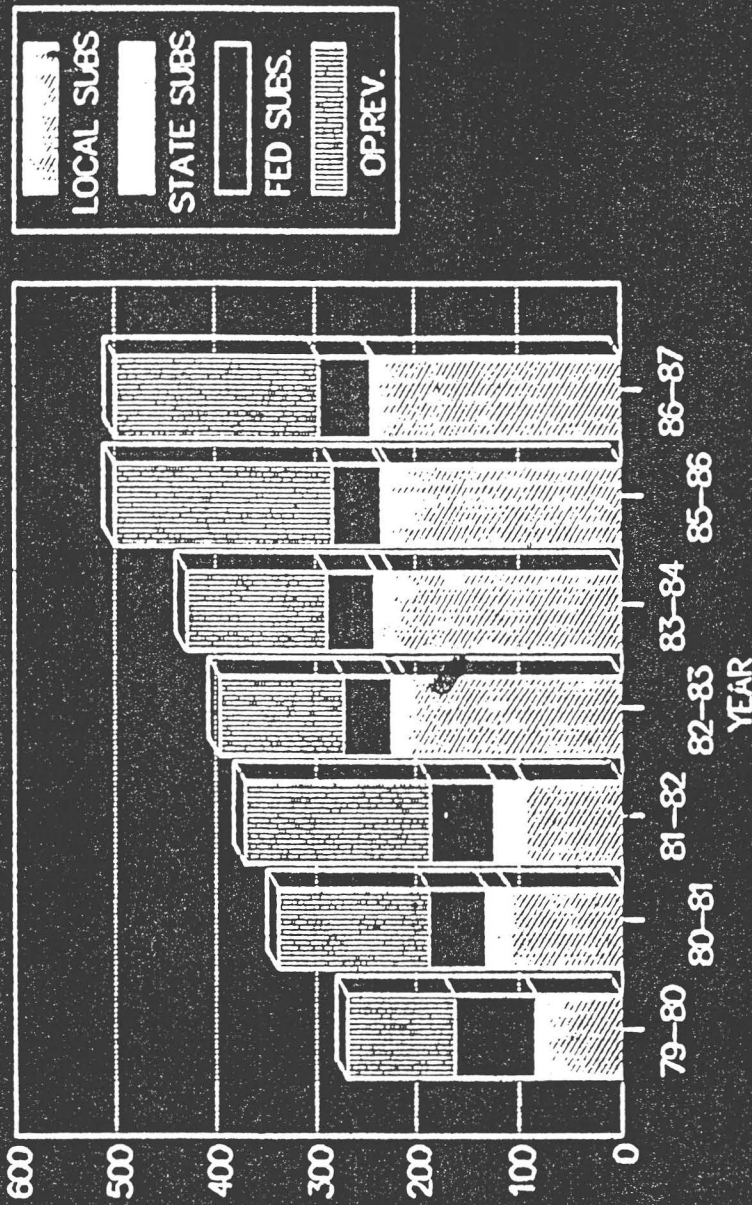
1979-1986

MILLIONS



RTD REVENUE SOURCES 1979-1986

Figure III.2



MILLIONS

RTD REVENUE AND COST

1979-1986

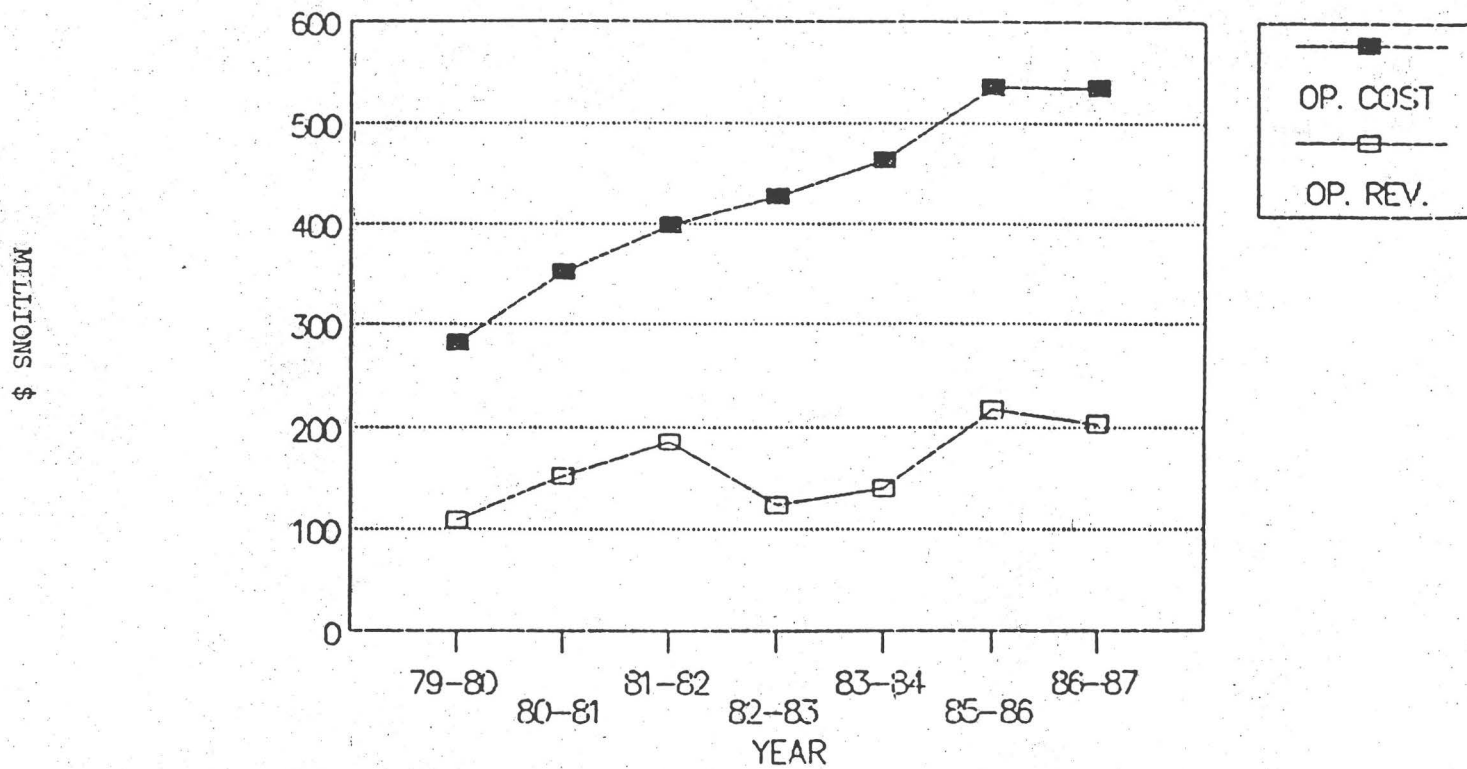
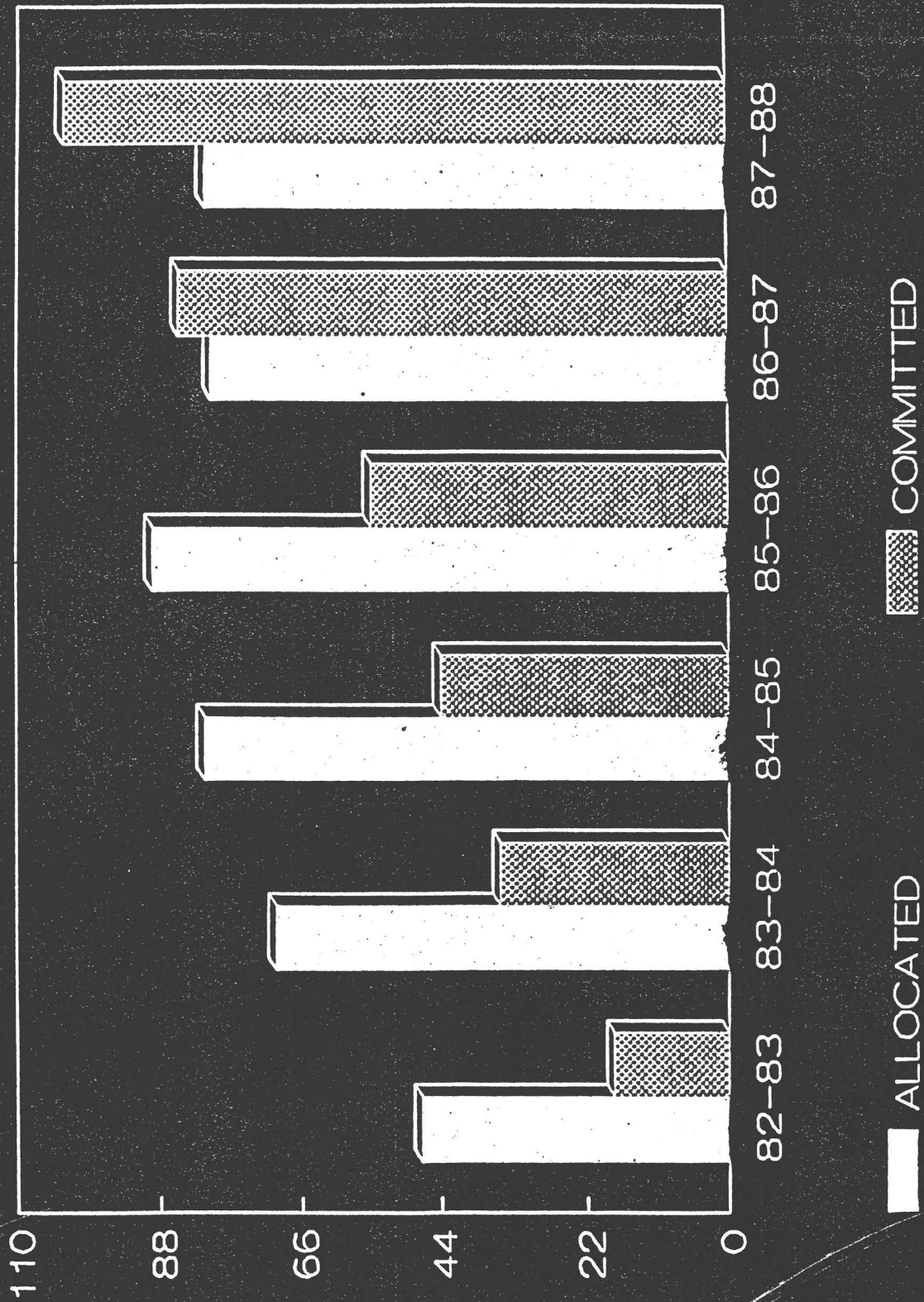


Figure III.4

TOTAL
ALLOCATED VS COMMITTED



(MILLIONS)

LOCAL RETURN PROGRAM

FY84-85 VS FY 87-88

DOLLARS
(MILLIONS)

55

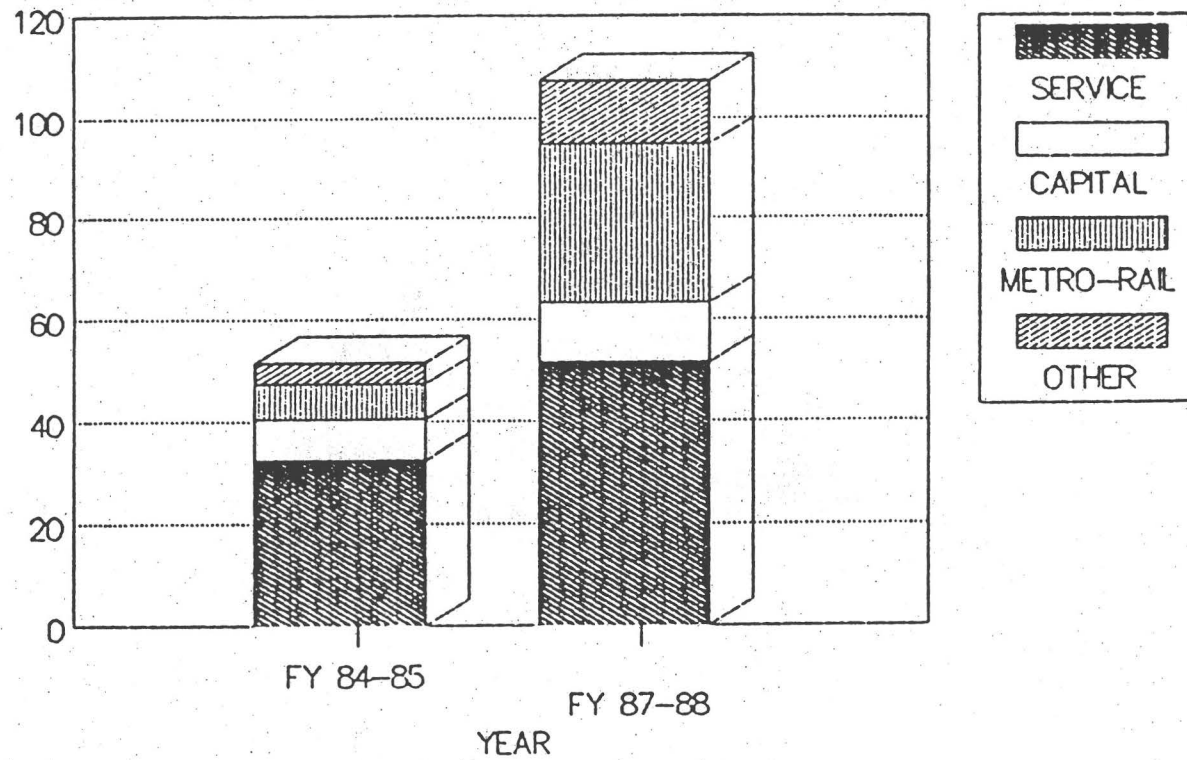
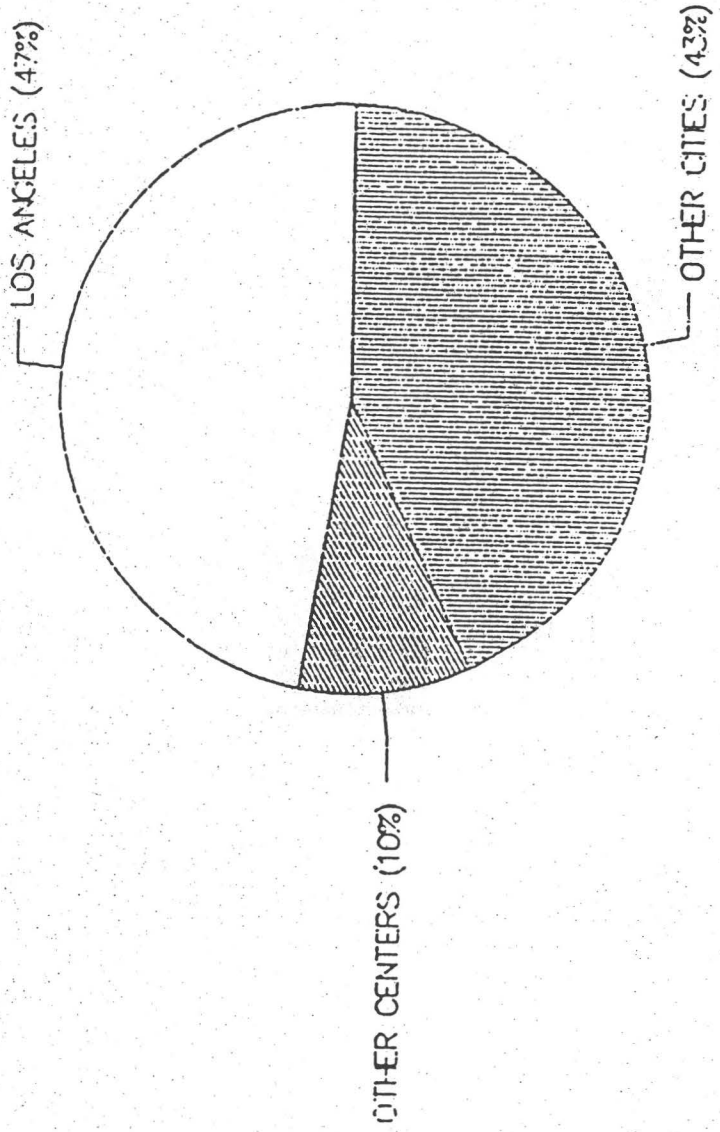


Figure III.5

LOCAL RETURN PROGRAM
FY 87-88 BUDGET BY SECTOR

Figure III.6



IV. Public transportation in sub-centers: two case studies

This chapter presents results of two case studies conducted in order to survey the array of transportation services provided in subcenters. Our analysis has shown that conventional mass transit plays a minor role in subcenter travel patterns, and suggests that more localized, flexible transit options may be more appropriate. In order to evaluate the further viability of alternative forms of public transportation, we have conducted two studies. The first is a comprehensive survey of transportation services being provided in two of our identified subcenters; the cities of Glendale and Pasadena. The second is a survey of local subsidized transit services within Los Angeles county. The local transit survey was discussed in chapter III.

Purpose of the case studies

The purpose of the case studies is to determine the types of transit services that have emerged in subcenters and that can provide guidance for future subcenter--based transportation planning. Los Angeles county provides a particularly rich resource for such a study not only because of the rapid growth and development of subcenters, but also because of the availability of local transit subsidy funding. Local funding has encouraged the development of innovative transit alternatives. In addition, the economic vitality of the area has created market opportunities for private, unsubsidized transportation services as well. The case studies provide information on all forms of 'for-hire' transportation services. 'Mass transportation' is defined in the broadest terms so as to encompass both subsidized and for-profit activities. By examining the entire spectrum of public transportation services, we can gain a better understanding of the transportation market in urban subcenters. The case studies thus encompass regular transit services, locally funded paratransit services, services provided by PUC-licensed carriers, and ridesharing services.

The case study cities

Pasadena and Glendale are similar in many respects. They are among the region's oldest cities: Pasadena was incorporated in 1886; Glendale was incorporated in 1906. Pasadena emerged as an early affluent suburb of Los Angeles, and by 1920 had a population of over 45,000. Only 7 miles from downtown Los Angeles, the Arroyo Seco Parkway (built initially as a bicycle path), provides easy access to the city. Glendale remained a small city until postwar years, when economic and population growth promoted rapid suburban residential growth throughout the region. Table IV.1 gives selected population characteristics for the two cities. They are of comparable size. Pasadena is slightly less affluent, with a lower median income and more households below the poverty level. Pasadena is also more ethnically mixed, with a relatively high proportion of non-white population. Economic characteristics are somewhat different (see Table IV.2). Glendale has more employment than Pasadena, but also has more resident workers. Thus the ratio of jobs to resident workers is higher for Pasadena. Given the large number of jobs available in Pasadena, we find that a smaller proportion of residents work outside the city. Both cities have substantial retail sales activity, with total annual sales close to \$1 billion. Both cities have experienced steady growth in recent years, and both have undergone substantial redevelopment. Glendale used redevelopment funds to help finance the Glendale Galleria, now the city's major retail center. Pasadena

has redeveloped major portions of the central city. Commercial/office development is occurring in both cities, and both are also experiencing growing traffic problems as a result of this growth.

Data

Case study data were gathered from a variety of sources. Informal interviews were conducted with city staff members to identify services operating within the area. Information on locally funded services was provided by LACTC as well as the cities and services provided. Ridesharing information was gathered from local TSM consultants. Data on private, for-hire services were obtained via telephone interviews with carriers licensed by the California Public Utilities Commission.

Public transportation: Glendale

The city of Glendale provides to its citizens, through contracts with private transportation providers, the following services:

A fixed-route shopping shuttle that brings shoppers from residential areas to the downtown commercial district. Known as the 'BeeLine Shuttle', this service provides rides to about 95,000 passengers per year, operating two mini-buses on weekdays between 9am and 6pm and four mini-buses between 11am and 2pm. The shuttle is operated by a private contractor using city-owned vehicles purchased with Prop. A funding. The fare is quite nominal at \$0.25 per ride. Bulk sales are encouraged; 200 or more tickets are sold at \$0.10 each. These sales are to local retailers who are encouraged to give them away to customers. The purpose of the services is to reduce downtown traffic, particularly around mid-day. The shuttle has been operating for about three years.

A senior citizen/handicapped dial-a-ride service, which carries approximately 36,000 passengers per year. The service is operated by Pacific Busing, Inc., a local provider specializing in dial-a-ride services. The service charges no fare; rather, a \$0.75 donation is requested. Participants in the local senior citizens nutritional meals program are charged a donation of \$0.10. The dial-a-ride service has also been operating for about three years.

A senior citizen recreational transit service, a cooperative program with the city's Parks and Recreation Department. Using the BeeLine Shuttle vehicles, the service provides transportation for 10-12 trips per year to various destinations. With fares depending on the destination.

An SCRTD bus subsidy program. This is another senior program. It allows senior citizens to purchase RTD monthly passes offering unlimited ridership for \$4.00. Regular purchase price of these passes is \$7.00.

All of these services are subsidized with Prop A funding. The FY 87-88 budget allocation for these programs is presented below:

Shopping shuttle	\$287,000
Elderly and handicapped DAR	459,000

Recreational transit	5,000
RTD bus pass subsidy	162,000
TOTAL	\$913,000

In addition to these local services, Glendale is served by 9 SCRTD buslines that provide transit connections to adjacent areas. Glendale's daily boardings on these lines are about 17,500, or 5.25 million annual passengers.

Public transportation: Pasadena

The City of Pasadena provides the following services:

Senior citizen/handicapped dial-a-ride. This service is provided by 2 private contractors. Chair-There North, Inc., is the primary contractor; it provides the dispatching service, and operates up to 6 dedicated vans. Babien Transportation Company provides additional shared-ride taxi service on an as-needed basis at a flat rate of \$4.50 per trip. A recent performance audit estimates that the van service average total cost is \$7.05 per trip. The service is heavily subsidized; price per rider is \$.50. It operates 7 days per week, from 7am to 9pm on weekdays and 9am to 5pm on weekends. Ridership is estimated at 250-300 trips per weekday and 100 trips per weekend day. Annual ridership for FY 87-88 is estimated to be 76,237. The DAR service has been in operation since 1985.

Recreational transportation for the elderly, handicapped, youth and economically disadvantaged. This service is provided on a contract basis and administered by the Community and Recreation Service Department. Free transportation is provided for recreational field trips sponsored by the department. This program has been operating for about 3 years.

A homeless ticket/token program provides RTD bus tickets and tokens to homeless people actively seeking employment, making medical appointments, etc. This service provides about 10,000 trips/year. Union Station/The Depot, a homeless assistance program in Pasadena, manages this program.

Rose Bowl Shuttle provides shuttle service between the Rose Bowl and a downtown Pasadena parking lot for UCLA football games. The shuttle has been operated by the SCRTD; however, the city is considering using lower cost private charter operators in the future.

Other Prop A funded activities

Pasadena transportation demand management program

This is the only Prop A funded program of its type in Los Angeles county. The program began in 1983 in an attempt to manage traffic impacts of the city's rapidly growing employment base. It has resulted in the passage of a 'trip reduction ordinance' in 1986 that provides for reduced parking requirements for new developments in exchange for the development and implementation of TDM programs. Although the ordinance allows parking requirements to be reduced by up

to 19 percent, discussions with city staff revealed that it has not yet been used.

The goal of the City's TDM program is a 10 percent reduction in peak-period vehicles in the central Business District in 3 years compared to traffic that would exist without the program. A TDM program for city employees, including personalized matching service, possible parking fees, and city-sponsored on-site child care (currently under study), is the core of the program. Formation of transportation management associations among the downtown area employers, as well as efforts to implement the trip reduction ordinances are also part of the program.

Light-rail transit and local trolley service. Pasadena is reserving 20 percent of its Prop A funding for capital projects. Two projects are currently being planned. The first is a light-rail transit line that would extend a planned regional line into central Pasadena. The second is a local trolley shuttle service for the city's major shopping and commercial areas. A transportation center proposal is also being considered as part of the city's overall transit plan.

All of the above programs are funded by Prop A. The total FY 87-88 Pasadena budget was \$1,632,000, and it was allocated as follows:

Transit operations:

Elderly and handicapped DAR	\$699,000
Recreational transit	25,000
Bus token program	18,000
TSM-ridesharing	147,000
Subtotal	889,000

Capital expenditures:

Bus facilities	542,000
Planning:	
LRT study	150,000
Needs assessment	51,000

TOTAL \$1,632,000

It may be noted that this is a budget for committed funds, and does not necessarily reflect total Prop A funds received. Since the inception of Prop A,

Pasadena has received about \$7.3 million, of which \$3.8 million is being held in reserve.

Other public transportation

In addition to these Prop A-funded services, the Pasadena School District also subsidizes SCRTD services for students. About 3,000 students in the incorporated area use the SCRTD, for which the school district pays \$12 per month per student. Subsidies for students in the adjacent unincorporated areas are split between the school district (\$4) and the county (\$8). Pasadena is also served by 10 SCRTD routes that link Pasadena and the adjacent areas. Ridership in 1986 is estimated at 23,000 daily boardings, or about 6.9 million annual passengers.

Private transportation

A variety of for-profit services are provided in Glendale and Pasadena. Due to data limitations, it is not possible to provide any estimates of the quantity or usage of these services in the two cities. The services are as follows:

Taxi service is provided by two major taxi companies (Yellow cab, Checker cab), as well as a number of small independent operators.

Limousine service. Four limousine services are headquartered in the two cities. These provide airport service, special event service, and corporate transportation services.

Airport/hotel shuttles. Shuttle service is provided by the major Southern California carriers (Super Shuttle, Lux Livery Service, Inc., Airport Service, Inc.) as well as several locally based operators that provide connections to Burbank and LAX.

Special services including transportation for the physically handicapped, and ambulance services are provided by local operators. Some of these also provide the contracted local public dial-a-ride service.

Charter service is provided by small local operators as well as major carriers. These include weekend tours, weekday tours, church activities, etc.

Commuter services. There are no privately sponsored commuter transit services operating at this time. However, such services are being considered by the City of Pasadena as part of the TDM program.

Ridesharing programs for the two cities

In addition to the City of Pasadena's program, Glendale and Pasadena are served by Commuter Computer, a private, non-profit corporation that provides ridesharing assistance throughout the greater Los Angeles metropolitan area. As of 1987, Commuter Computer served 62 clients in the Pasadena/Glendale areas, each employing 100 or more people. Commuter Computer's main task is providing computerized matching for prospective carpoolers and vanpoolers. They also provide marketing services, assist with development of employer transportation programs, and with formation of third party vanpools. Commuter Computer

conducts surveys of client employees, and thus can provide information on journey to work travel. Table III.3 gives modal split data collected by Commuter Computer. The first column applies to workers who live in Glendale/Pasadena; the second column applies to those who work in Glendale/Pasadena. Note that the survey data is collected from client companies, and is not representative of the general population of the two cities. It is also worth noting that the modal split data is quite consistent with the regional average, and suggests that subcenter commuters in contrast to CBD commuters, do not use transit or carpool in larger numbers than non-subcenter commuters. A survey of 4 major Commuter Computer clients in Glendale/Pasadena provides additional information on these commuters. Table IV.4 gives journey to work data for each of the 4 firms, and for the average among all Commuter Computer firms in the Los Angeles metropolitan area. Again, work trip travel characteristics are quite similar to the regional average, with the exception of paid parking. None of the Pasadena/Glendale firms charge employees for parking, compared to the regional average proportion of 39%. However, the regional average is probably skewed by the large number of downtown Los Angeles firms in the data sample. Table IV.4 also shows that car availability for the work trip is almost universal; thus some of the use of alternate modes is choice-based.

The case study surveys show that a variety of transportation services are available in Glendale and Pasadena. The availability of local transit subsidies has enabled both cities to expand local services, experiment with various service options, and invest in transit-related capital improvements. These funds have been used to enhance mobility, rather than solve traffic problems. The resulting service expansion has focused on the disadvantaged: primarily the elderly and handicapped and secondarily the poor. Although neither city regularly collects ridership data, city representatives claim that ridership on the E & H services has grown consistently. Despite the expansion of these services, however, actual usage is quite small. For example, the Pasadena E & H service carries 250-300 daily passengers, compared to the 23,000 daily boardings on the SCRTD.

Efforts to develop service options to reduce perceived traffic problems have been less successful. Pasadena operated a 'shoppers shuttle' in the downtown area to reduce mid-day congestion, but abandoned it because of its failure to attract riders. The Glendale shuttle is apparently more successful, (although estimated ridership is a modest 350-400 trips per day) in part because the area is not as well served by regular route public transit. However, local traffic problems have not been affected. Neither city has developed transit service aimed at area commuters, nor are any of the transit pass subsidy programs available to commuters.

Both cities have experienced increasing traffic problems due to rapid growth of commercial activities. Their response has been planning for traditional (rail-based) mass transit for the long term. The Pasadena ridesharing program is already well underway; Glendale is still developing a program. As discussed above, the Pasadena program is aimed at decreasing the proportion of drive-alone commuters (e.g. the trip generation rate of commercial and industrial activities). So far, the program has focused on providing incentives such as personalized carpool matching, and on-site childcare services, rather than on imposing constraints on auto use either directly (via parking restrictions or parking fees) or indirectly (via developers fees or land use constraints) to

accomplish trip reduction goals.

Because both cities are fully developed, rights-of-way for major road widenings are not available. Moreover, road improvements are not viewed as appropriate long-term solutions. Rather, both cities are actively studying rail transit options in the belief that rail transit will succeed where bus transit has so far failed, namely in attracting area commuters out of their cars. Both cities are evaluating options for connections with the planned Los Angeles regional rail transit system, as well as for local circulation systems. The cities anticipate that local Prop A funds will be available to subsidize the operating costs of these new systems.

The limited data available in these case studies also indicate that commuter travel behavior is quite typical of the region as a whole. Commute patterns in these two subcenters do not have any of the characteristics of the CBD commute. Worktrips are not unusually long in travel time or distance; transit use and carpooling are not unusually high. These characteristics, together with the actual experiences of these two cities, provide additional evidence that transportation problems in the subcenters require innovative solutions.

TABLE IV.1

1980 POPULATION CHARACTERISTICS OF THE CASE STUDY CITIES

	<u>Glendale</u>	<u>Pasadena</u>
Total Population	139,060	118,550
Number of Households	59,339	47,056
Number of Housing Units	61,653	49,497
Percent Owner Occupied	43%	46%
Percent Vacant	3.7%	5.4%
Median Family Income	\$21,778	\$20,848
Percent Households Below Poverty Level	8.0%	10.7%
Ethnic Distribution		
White	88%	64%
Black	<1	21
Asian	6	5
Other	9	10

source: 1980 Census

TABLE IV.2
1980 ECONOMIC CHARACTERISTICS

	<u>Glendale</u>	<u>Pasadena</u>
Employed Workers	69,532	55,985
Jobs/Resident Workers	0.933	1.421
Percent Resident Workers Employed Outside City	65%	56%
Taxable Retail Sales	\$958.3M	\$832.5M

sources: 1980 Census, City of Pasadena and City of Glendale financial records

TABLE IV.3

MODAL SPLIT FOR GLENDALE/PASADENA WORKERS

<u>Modes</u>	<u>Workers with Residence in Glendale/Pasadena</u>	<u>Workers with Jobs in Glendale/Pasadena</u>
Drive alone	78.8%	82.2%
Carpool	9.6	8.8
Vanpool/buspool	1.1	0.6
Public transit	5.4	3.7
Walk	3.9	3.1
Other	1.2	1.6

source: Commuter Computer, Inc.

TABLE IV.4

COMMUTER TRAVEL CHARACTERISTICS,
COMMUTER COMPUTER CLIENT FIRMS

	F i r m				Regional Average
	A	B	C	D	
Worktrip distance (mi.)	16.5	18.5	14.9	11.1	16.4
Worktrip time (mins.)	34	28	30	24	32
Travel mode					
Drive alone	85%	89%	64%	86%	72%
Carpool/vanpool	12	9	31	2	17
Bus	3	0	5	4	8
Other					
Employee Pays Parking					
YES	0%	0%	0%	0%	39%
NO	100	100	100	100	
Car available for worktrip					
YES	97%	97%	97%	92%	98%
NO	3	3	3	8	2

source: Commuter Computer, Inc.

V. Conclusions and policy implications

Transportation economists have questioned the role of conventional transit services in modern decentralized metropolitan areas for some time. The counterargument has been that the consolidation of individual transit operators into a single region-wide 'super agency' would yield economies of scale with respect to coordinated planning and management and increase the capacity to attract transit subsidies. However, econometricians have challenged this idea by showing that few scale economies exist. Moreover, the history of transit in the past twenty-five years is not reassuring to the metropolitan consolidation protagonists. The Los Angeles experience shows a shift in favor of small-scale transit and paratransit operations in spite of legislated monopolies and huge subsidies to large agencies.

The current situation in the Los Angeles metropolitan region is very fluid. The system of bus service provision is becoming more rational with actual and proposed local takeovers of some SCRTD routes. The approval of Proposition A in Los Angeles County in 1980 significantly increased resources for both conventional transit and paratransit. Slight modifications in the regulatory climate have created new opportunities, of which the extremely successful airport van shuttles are the most conspicuous example. On the other hand, the availability of Proposition A, other local and Federal resources for rail transit is a step in the other direction. These ambiguities in metropolitan transportation policy have not yet been resolved.

However, in the Los Angeles metropolitan region and other large policentric/dispersed metropolitan areas in the U.S., the future market for transit operations will be small-scale. The growth of non-CBD activity centers will not enlarge this market, but it will open up some new opportunities for paratransit policy innovations. But ubiquitous automobile ownership and the difficulty of introducing restraints on automobile use to control negative externalities will make any transit inroads an uphill struggle.

This study suggests several transit and paratransit policy implications:

1. Conventional bus services will continue to be required in the Los Angeles core area, with its lower incomes and moderate rather than lower densities, and along major streets.
2. Deregulation could be extended to permit more non-subsidized services to be introduced. Entry barriers should be limited to safety standards only. Obvious possibilities include allowing the highly successful airport shuttle services to serve other origins and destinations and deregulating entry and rates in the taxi industry. Evidence from elsewhere suggests that deregulation leads to the emergence of new modes and operators to exploit market niches.
3. Low-overhead, low-capacity and highly localized (i.e. 'transit zone') operations should be encouraged to replace SCRTD bus service in low-density neighborhoods, with public subsidies awarded to interested private operators on a competitive bid basis.

4. LACTC's 'local return' projects have led to a substantial growth of specialized transit services for the elderly, the handicapped, children and other specialized markets. Because of local control, these services are highly responsive to local conditions, but subsidies are very heavy and these services will remain essentially social services.

5. The major problem with Los Angeles' current transport policy mix is the support for various rail transit projects, strongly backed by Los Angeles City and some of the politicians in the non-CBD activity center cities who mistakenly believe in the future of inter-center mass transit, in spite of the clear evidence that the vast majority of trips are dispersed in terms of both origins and destinations (more than 85 percent of trip arrivals are at dispersed locations, and more than 62 percent of trip departures are from such locations). An embryonic system which fails to attract viable ridership will result in pressure for a comprehensive system. Resources diverted to rail will abort other much more cost-effective transit and paratransit services.

APPENDIX A

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TABLE A.1

DISTRIBUTION OF TRAFFIC FLOWS BY CLUSTERS OF ACTIVITY CENTERS: ARRIVING AT CENTERS
(all trips; 1980 UTPP estimates)

SURCENTER NAME	FROM SELF	FROM DOWNT	FROM LA CORE	FROM CLUSTER CENTERS	FROM OTHER CENTERS	FROM ALL OTHERS	TOTAL	SHARE OF	SHARE OF	
								TOTAL	STUDY AREA TOTAL	
WESTSIDE OF L.A. CORE	SANTA MONICA CTR	41208 20.02%	58216 28.28%	5819 2.83%	6259 3.04%	822 0.40%	93516 45.43%	205840 100.00%	4.98%	0.78%
	HOLLYWOOD CTR	59131 27.38%	27675 12.82%	7695 3.56%	9291 4.30%	3551 1.64%	108597 50.29%	215940 100.00%	5.23%	0.82%
	EAST HOLLYWOOD CTR	15922 12.47%	17378 13.61%	6322 4.95%	4156 3.26%	1724 1.35%	82166 64.36%	127668 100.00%	3.09%	0.46%
	UCLA CTR	19096 13.40%	30625 21.48%	6561 4.60%	6468 4.54%	1658 1.16%	78147 54.82%	142555 100.00%	3.45%	0.54%
	WESTWOOD/BH/CC CTR	65223 15.06%	181946 42.06%	11937 2.76%	9878 2.28%	2323 0.54%	161064 37.25%	432371 100.00%	10.47%	1.64%
	MID-WILSHIRE CTR	21390 13.98%	30871 20.18%	6891 4.50%	14653 9.58%	1130 0.74%	78050 51.02%	152985 100.00%	3.70%	0.58%
	I. SUBTOTAL	221970 17.38%	346711 27.14%	45225 3.54%	50705 3.97%	11208 0.88%	601540 47.09%	1277359 100.00%	30.93%	4.84%
EASTSIDE OF L.A. CORE	USC MEDICAL CTR	7321 6.51%	20416 18.14%	6314 5.61%	529 0.47%	4054 3.60%	73686 65.66%	112520 100.00%	2.72%	0.43%
	EAST LOS ANGELES CTR	9127 5.73%	21413 15.80%	3569 2.63%	148 0.11%	2862 2.11%	98439 72.62%	135558 100.00%	3.28%	0.51%
	HUNTINGTON PARK CTR	429 0.11%	429 0.11%	4850 1.25%	682 0.18%	2884 0.75%	377713 97.60%	386987 100.00%	9.37%	1.47%
	II. SUBTOTAL	16877 2.66%	42258 6.65%	14733 2.32%	1359 0.21%	9800 1.54%	550038 86.61%	635065 100.00%	15.38%	2.41%
SUM OF SUBTOTAL (I + II)	238847 12.49%	388969 20.34%	59958 3.14%	52064 2.72%	21008 1.10%	1151578 60.22%	1912424 100.00%	46.30%	7.25%	
NORTHSIDE OF L.A. CORE	GLENDALE CTR	24388 14.60%	41159 24.64%	5747 3.44%	916 0.55%	4063 2.43%	90754 54.33%	167027 100.00%	4.04%	0.63%
	PASADENA CTR	25940 16.85%	47368 30.78%	2380 1.55%	732 0.48%	2490 1.62%	75005 48.73%	153915 100.00%	3.73%	0.58%
	BUREBANK CTR	6419 4.08%	109618 69.68%	1599 1.02%	875 0.56%	9059 5.76%	29749 18.91%	157319 100.00%	3.81%	0.60%
	III. SUBTOTAL	56747 11.87%	198145 41.43%	9726 2.03%	2523 0.53%	15612 3.26%	195508 40.88%	478261 100.00%	11.58%	1.81%
SUM OF SUBTOTAL (I + II + III)	295594 12.36%	587114 24.56%	69684 2.91%	54587 2.28%	36620 1.53%	1347086 56.35%	2390685 100.00%	57.88%	9.06%	
SOUTHSIDE OF L.A. CORE	LONG BEACH CTR	13855 7.60%	112054 56.62%	1043 0.53%	705 0.36%	754 0.38%	69491 35.11%	197903 100.00%	4.79%	0.75%
	SAN PEDRO CTR	12915 6.82%	106370 56.14%	2162 1.14%	593 0.31%	1719 0.91%	65709 34.68%	189468 100.00%	4.59%	0.72%
	IV. SUBTOTAL	26771 6.91%	218424 56.39%	3205 0.83%	1298 0.34%	2473 0.64%	135200 34.30%	387371 100.00%	9.38%	1.47%
SUM OF SUBTOTAL (I + II + III + IV)	322365 11.60%	805538 29.00%	72889 2.62%	55885 2.01%	39093 1.41%	1482286 53.36%	2778056 100.00%	67.26%	10.53%	

TABLE A.1 Contd.

LL OTHER SUBCENTERS	SAN BERNARDINO CTR	897 0.57%	139049 88.39%	284 0.18%	21 0.01%	278 0.18%	16790 10.67%	157319 100.00%	3.81%	0.60%
	ONTARIO CTR	1897 2.68%	26662 37.66%	202 0.29%	100 0.14%	268 0.38%	41667 58.86%	70796 100.00%	1.71%	0.27%
	SANTA ANA CTR	8858 2.95%	225043 74.93%	230 0.08%	20 0.01%	371 0.12%	65833 21.92%	300355 100.00%	7.27%	1.14%
	RIVERSIDE CTR	4200 3.87%	81193 74.85%	136 0.13%	31 0.03%	215 0.20%	22696 20.92%	108471 100.00%	2.63%	0.41%
	V. SUBTOTAL	15852 2.49%	471947 74.10%	852 0.13%	172 0.03%	1132 0.18%	146986 23.08%	636941 100.00%	15.42%	2.41%
SUM OF SUBCENTERS (I + II + III + IV + V)		338217 9.90%	1277485 37.41%	73741 2.16%	56057 1.64%	40225 1.18%	1629272 47.71%	3414997 100.00%	82.68%	12.94%
L.A. CORE	LOS ANGELES CORE	233781 32.68%	221012 30.89%	0 0.00%	22741 3.18%	7942 1.11%	229931 32.14%	715407 100.00%	17.32%	2.71%
	GRAND TOTAL SUBCENTERS & L.A. CORE	571998 13.85%	1498497 36.28%	73741 1.79%	78798 1.91%	48167 1.17%	1859203 45.01%	4130404 100.00%	100.00%	15.65%
									TOTAL=26394583	

TABLE A.2

DISTRIBUTION OF TRAFFIC FLOWS BY CLUSTERS OF ACTIVITY CENTERS: LEAVING CENTERS
(all trips; 1980 UTPP estimates)

SUBCENTER NAME	TO SELF	TO DONUT	TO LA CORE	TO CLUSTER CENTERS	TO OTHER CENTERS	TO ALL OTHERS	TOTAL	SHARE OF TOTAL	SHARE OF STUDY AREA TOTAL	
EASTSIDE OF L.A. CORE	SANTA MONICA CTR	41208 40.46%	22908 22.49%	2205 2.16%	9583 9.41%	2139 2.10%	23815 23.38%	101858 100.00%	5.77%	2.17%
	HOLLYWOOD CTR	59131 39.65%	15348 10.29%	5572 3.74%	16568 11.11%	9503 6.37%	42996 28.83%	149118 100.00%	8.45%	3.18%
	EAST HOLLYWOOD CTR	15922 39.53%	4068 10.10%	2204 5.47%	2880 7.15%	2285 5.67%	12917 32.07%	40276 100.00%	2.28%	0.86%
	UCLA CTR	19096 34.98%	6819 12.49%	1312 2.40%	3609 6.61%	1807 3.31%	21954 40.21%	54597 100.00%	3.09%	1.16%
	WESTWOOD/RH/CC CTR	65223 33.38%	39892 20.42%	8493 4.35%	12151 6.22%	6185 3.17%	63449 32.47%	195393 100.00%	11.07%	4.16%
	MID-WILSHIRE CTR	21390 36.74%	7897 13.56%	2955 5.08%	5912 10.15%	1899 3.26%	18169 31.21%	58222 100.00%	3.30%	1.24%
I. SUBTOTAL	221972 37.03%	96933 16.17%	22741 3.79%	50703 8.46%	23818 3.97%	183302 30.58%	599469 100.00%	33.96%	12.76%	
EASTSIDE OF L.A. CORE	USC MEDICAL CTR	7321 24.74%	2608 8.81%	1064 3.60%	358 1.21%	2123 7.18%	16113 54.46%	29587 100.00%	1.68%	0.63%
	EAST LOS ANGELES CTR	9127 37.24%	3905 15.93%	873 3.56%	992 4.05%	863 3.52%	8746 35.69%	24506 100.00%	1.39%	0.52%
	HUNTINGTON PARK CTR	429 1.38%	9396 30.32%	429 1.38%	124 0.40%	257 0.83%	20350 65.68%	30985 100.00%	1.76%	0.66%
II. SUBTOTAL	16878 19.84%	15909 18.70%	2366 2.78%	1474 1.73%	3243 3.81%	45210 53.14%	85080 100.00%	4.82%	1.81%	
SUM OF SUBTOTAL (I + II)	238849 34.89%	112842 16.48%	25107 3.67%	52177 7.62%	27061 3.95%	228511 33.38%	684549 100.00%	38.78%	14.58%	
NORTHSIDE OF L.A. CORE	GLENDALE CTR	24388 37.30%	11565 17.69%	2091 3.20%	1076 1.65%	4930 7.54%	21335 32.63%	65385 100.00%	3.70%	1.39%
	PASADENA CTR	25940 33.66%	24479 31.76%	1396 1.81%	977 1.27%	2706 3.51%	21573 27.99%	77071 100.00%	4.37%	1.64%
	BURBANK CTR	6419 24.20%	6124 23.09%	534 2.01%	470 1.77%	3059 11.53%	9915 37.39%	26521 100.00%	1.50%	0.56%
III. SUBTOTAL	56748 33.58%	42168 24.95%	4021 2.38%	2523 1.49%	10695 6.33%	52824 31.26%	168979 100.00%	9.57%	3.60%	
SUM OF SUBTOTAL (I + II + III)	295597 34.63%	155010 18.16%	29128 3.41%	54700 6.41%	37756 4.42%	281335 32.96%	853528 100.00%	48.36%	18.17%	
SOUTHSIDE OF L.A. CORE	LONG BEACH CTR	13856 33.52%	14322 34.65%	173 0.42%	593 1.43%	662 1.60%	11728 28.37%	41334 100.00%	2.34%	0.88%
	SAN PEDRO CTR	12915 29.79%	8349 19.26%	1268 2.92%	705 1.63%	1437 3.31%	18685 43.09%	43359 100.00%	2.46%	0.92%
IV. SUBTOTAL	26771 31.61%	22671 26.77%	1441 1.70%	1298 1.53%	2099 2.48%	30413 35.91%	84694 100.00%	4.80%	1.80%	
SUM OF SUBTOTAL (I + II + III + IV)	322369 34.36%	177682 18.94%	30569 3.26%	55999 5.97%	39855 4.25%	311748 33.23%	938222 100.00%	53.16%	19.98%	

TABLE A.2 Contd.

ALL OTHER SUBCENTERS	SAN BERNARDINO CTR	897 10.15%	6128 69.37%	10 0.11%	66 0.75%	4 0.05%	1729 19.57%	8834 100.00%	0.50%	0.19%
	ONTARIO CTR	1897 24.52%	4180 54.02%	20 0.26%	21 0.27%	35 0.45%	1585 20.48%	7738 100.00%	0.44%	0.16%
	SANTA ANA CTR	8858 21.46%	15865 38.43%	56 0.14%	110 0.27%	348 0.84%	16048 38.87%	41285 100.00%	2.34%	0.88%
	RIVERSIDE CTR	4200 20.07%	12279 58.67%	28 0.13%	42 0.20%	40 0.19%	4339 20.73%	20928 100.00%	1.19%	0.45%
	V. SUBTOTAL	15853 20.12%	38454 48.81%	114 0.14%	239 0.30%	427 0.54%	23702 30.08%	78788 100.00%	4.46%	1.68%
SUM OF SUBCENTERS (I + II + III + IV + V)		338221 33.26%	216135 21.25%	30683 3.02%	56238 5.53%	40282 3.96%	335450 32.98%	1017010 100.00%	57.62%	21.66%
L.A. CORE	LOS ANGELES CORE	233781 31.25%	213744 28.58%	0 0.00%	45225 6.05%	28516 3.81%	226732 30.31%	747998 100.00%	42.38%	15.93%
GRAND TOTAL SUBCENTERS & L.A. CORE		572002 32.41%	429879 24.36%	30683 1.74%	101463 5.75%	68798 3.90%	562182 31.85%	1765008 100.00%	100.00%	37.58% TOTAL=4696392

TABLE A.3

DISTRIBUTION OF TRAFFIC FLOWS BY CLUSTERS OF ACTIVITY CENTERS: ARRIVING AT CENTERS
(journey-to-work; 1980 UTPP data)

SUBCENTER NAME	FROM SELF	FROM DONUT	FROM LA CORE	FROM CLUSTER CENTERS	FROM OTHER CENTERS	FROM ALL OTHERS	TOTAL	SHARE OF TOTAL	SHARE OF STUDY AREA TOTAL	
EASTSIDE OF L.A. CORE	SANTA MONICA CTR	4405 11.84%	15524 41.72%	695 1.87%	915 2.46%	15 0.04%	15675 42.13%	37206 100.00%	4.53%	0.79%
	HOLLYWOOD CTR	4205 9.40%	9846 22.01%	1219 2.72%	1685 3.77%	516 1.15%	27264 60.95%	44735 100.00%	5.45%	0.95%
	EAST HOLLYWOOD CTR	681 5.50%	2842 22.97%	556 4.49%	395 3.19%	107 0.86%	7790 62.97%	12371 100.00%	1.51%	0.26%
	UCLA CTR	2741 9.13%	6372 21.23%	584 1.95%	2035 6.78%	113 0.38%	18165 60.53%	30010 100.00%	3.66%	0.64%
	WESTWOOD/BH/CC CTR	9201 10.29%	24916 27.87%	3020 3.38%	4487 5.02%	423 0.47%	47341 52.96%	89388 100.00%	10.89%	1.90%
	MIDWILSHIRE CTR	922 4.44%	5456 26.29%	971 4.68%	918 4.42%	139 0.67%	12350 59.50%	20756 100.00%	2.53%	0.44%
I. SUBTOTAL	22155 9.45%	64956 27.70%	7045 3.00%	10435 4.45%	1305 0.56%	128585 54.84%	234466 100.00%	28.56%	4.99%	
EASTSIDE OF L.A. CORE	USC MEDICAL CTR	346 2.12%	2174 13.33%	511 3.13%	9 0.06%	499 3.06%	12769 78.30%	16308 100.00%	1.99%	0.35%
	EAST LOS ANGELES CTR	226 2.16%	2990 28.62%	435 4.16%	29 0.28%	228 2.18%	6540 62.60%	10448 100.00%	1.27%	0.22%
	HUNTINGTON PARK CTR	52 0.17%	9338 30.73%	412 1.36%	90 0.30%	237 0.78%	20257 66.67%	30386 100.00%	3.70%	0.65%
	II. SUBTOTAL	624 1.09%	14502 25.38%	1358 2.38%	128 0.22%	964 1.69%	39566 69.24%	57142 100.00%	6.96%	1.22%
SUM OF SUBTOTAL (I + II)	22779 7.81%	79458 27.25%	8403 2.88%	10563 3.62%	2269 0.78%	168151 57.66%	291608 100.00%	35.52%	6.21%	
NORTHSIDE OF L.A. CORE	GLENDALE CTR	2038 7.95%	8944 34.88%	464 1.81%	208 0.81%	334 1.30%	13656 53.25%	25644 100.00%	3.12%	0.55%
	PASADENA CTR	3244 9.02%	20796 57.84%	98 0.27%	168 0.47%	252 0.70%	11396 31.70%	35954 100.00%	4.38%	0.77%
	BURBANK CTR	625 4.93%	3935 31.01%	51 0.40%	152 1.20%	374 2.95%	7553 59.52%	12690 100.00%	1.55%	0.27%
	III. SUBTOTAL	5907 7.95%	33675 45.33%	613 0.83%	528 0.71%	960 1.29%	32605 43.89%	74288 100.00%	9.05%	1.58%
SUM OF SUBTOTAL (I + II + III)	28686 7.84%	113133 30.92%	9016 2.46%	11091 3.03%	3229 0.88%	200756 54.87%	365896 100.00%	44.57%	7.79%	
SOUTHSIDE OF L.A. CORE	LONG BEACH CTR	547 3.17%	9335 54.13%	11 0.06%	62 0.36%	42 0.24%	7258 42.09%	17244 100.00%	2.10%	0.37%
	SAN PEDRO CTR	534 2.62%	3416 16.77%	884 4.34%	57 0.28%	697 3.42%	14783 72.57%	20371 100.00%	2.48%	0.43%
	IV. SUBTOTAL	1081 2.87%	12751 33.90%	895 2.38%	119 0.32%	739 1.96%	22041 58.60%	37615 100.00%	4.58%	0.80%
SUM OF SUBTOTAL (I + II + III + IV)	29767 7.38%	125884 31.20%	9911 2.46%	11210 2.78%	3968 0.98%	222797 55.21%	403511 100.00%	49.16%	8.59%	

TABLE A.3 Contd.

ALL OTHER SUBCENTERS	SAN BERNARDINO CTR	14 0.19%	5640 77.31%	0 0.00%	0 0.00%	0 0.00%	1641 22.49%	7295 100.00%	0.89%	0.16%
	ONTARIO CTR	82 1.66%	3752 75.78%	0 0.00%	0 0.00%	0 0.00%	1117 22.56%	4951 100.00%	0.60%	0.11%
	SANTA ANA CTR	742 4.11%	6597 36.53%	24 0.13%	0 0.00%	29 0.16%	10669 59.07%	18061 100.00%	2.20%	0.38%
	RIVERSIDE CTR	335 2.39%	9970 71.15%	26 0.19%	0 0.00%	0 0.00%	3681 26.27%	14012 100.00%	1.71%	0.30%
	V. SUBTOTAL	1173 1.43%	25959 31.68%	50 0.06%	0 0.00%	29 0.04%	17108 20.88%	44319 54.09%	5.40%	0.94%
	SUM OF ALL SUBCENTERS (I + II + III + IV + V)	30940 6.91%	151843 33.91%	9961 2.22%	11210 2.50%	3997 0.89%	239905 53.57%	447830 100.00%	54.56%	9.54%
	LOS ANGELES CORE	30483 8.17%	141991 38.06%	0 0.00%	11717 3.14%	3522 0.94%	185332 49.68%	373045 100.00%	45.44%	7.94%
	GRAND TOTAL SUBCENTERS & L.A. CORE	61423 7.48%	293834 35.80%	9961 1.21%	22927 2.79%	7519 0.92%	425237 51.80%	820875 100.00%	100.00%	17.48%
										TOTAL=4696392

TABLE A. 4

DISTRIBUTION OF TRAFFIC FLOWS BY CLUSTERS OF ACTIVITY CENTERS: LEAVING CENTERS
(journey-to-work; 1980 UTPP data)

		TO SELF	TO DOWNTOWN	TO LA CORE	TO CLUSTER CENTERS	TO OTHER CENTERS OF AREAS	TO THE REST	TOTAL	SHARE OF TOTAL	SHARE OF STUDY AREA TOTAL
WESTSIDE OF L.A. CORE	SANTA MONICA CTR	4405 29.11%	3066 20.26%	1407 9.30%	2153 14.23%	265 1.75%	3835 25.35%	15131 100.00%	7.45%	0.32%
	HOLLYWOOD CTR	4205 18.91%	4199 18.86%	3702 16.64%	2873 12.92%	710 3.19%	6553 29.46%	22242 100.00%	10.96%	0.47%
	EAST HOLLYWOOD CTR	681 11.45%	906 15.23%	1328 22.32%	641 10.77%	323 5.43%	2071 34.81%	5950 100.00%	2.93%	0.13%
	UCLA CTR	2741 47.24%	401 6.91%	429 7.39%	709 12.22%	83 1.43%	1439 24.80%	5802 100.00%	2.86%	0.12%
	WESTWOOD/BH/CC CTR	9201 34.89%	4830 18.31%	3369 12.77%	2327 8.82%	612 2.32%	6033 22.88%	26372 100.00%	12.99%	0.56%
	MID-WILSHIRE CTR	922 11.52%	1563 19.53%	1482 18.51%	1732 21.64%	129 1.61%	2177 27.20%	8005 100.00%	3.94%	0.17%
I. SUBTOTAL		22155 26.53%	14965 17.92%	11717 14.03%	10435 12.50%	2122 2.54%	22108 26.48%	83502 100.00%	41.14%	1.78%
EASTSIDE OF L.A. CORE	USC MEDICAL CTR	346 19.73%	288 16.42%	255 14.54%	57 3.25%	136 7.75%	672 38.31%	1754 100.00%	0.86%	0.04%
	EAST LOS ANGELES CTR	226 11.12%	469 23.08%	360 17.72%	71 3.49%	48 2.36%	858 42.22%	2032 100.00%	1.00%	0.04%
	HUNTINGTON PARK CTR	52 68.42%	14 18.42%	0 0.00%	0 0.00%	0 0.00%	10 13.16%	76 100.00%	0.04%	0.00%
	II. SUBTOTAL		624 16.16%	771 19.96%	615 15.92%	128 3.31%	184 4.76%	1540 39.88%	3862 100.00%	1.90%
SUM OF SUBTOTAL (I + II)		22779 26.07%	15736 18.01%	12332 14.12%	10563 12.09%	2306 2.64%	23648 27.07%	87364 100.00%	43.04%	1.86%
NORTHSIDE OF L.A. CORE	GLENDALE CTR	2038 23.01%	2077 23.45%	845 9.54%	286 3.23%	593 6.70%	3018 34.07%	8857 100.00%	4.36%	0.19%
	PASADENA CTR	3244 31.24%	3322 31.99%	1156 11.13%	87 0.84%	425 4.09%	2150 20.70%	10384 100.00%	5.12%	0.22%
	BURBANK CTR	625 15.82%	1149 29.09%	422 10.68%	155 3.92%	463 11.72%	1136 28.76%	3950 100.00%	1.95%	0.08%
	III. SUBTOTAL		5907 25.47%	6548 28.24%	2423 10.45%	528 2.28%	1481 6.39%	6304 27.18%	23191 100.00%	11.43%
SUM OF SUBTOTAL (I + II + III)		28686 25.95%	22284 20.16%	14755 13.35%	11091 10.03%	3787 3.43%	29952 27.09%	110555 100.00%	54.47%	2.35%
SOUTHSIDE OF L.A. CORE	LONG BEACH CTR	547 13.91%	1620 41.19%	93 2.36%	57 1.45%	60 1.53%	1556 39.56%	3933 100.00%	1.94%	0.08%
	SAN PEDRO CTR	534 12.51%	1807 42.35%	339 7.94%	62 1.45%	132 3.09%	1393 32.65%	4267 100.00%	0.52%	0.09%
	IV. SUBTOTAL		1081 13.18%	3427 41.79%	432 5.27%	119 1.45%	192 2.34%	2949 35.96%	8200 100.00%	4.04%
SUM OF SUBTOTAL (I + II + III + IV)		29767 25.07%	25711 21.65%	15187 12.79%	11210 9.44%	3979 3.35%	32901 27.70%	118755 100.00%	58.51%	2.53%

TABLE A.4 Contd.

ALL OTHER SUBCENTERS	SAN BERNARDINO CTR	14 8.70%	129 80.12%	10 6.21%	0 0.00%	0 0.00%	8 4.97%	161 100.00%	0.08%	0.00%
	ONTARIO CTR	82 13.29%	360 58.35%	19 3.08%	0 0.00%	16 2.59%	140 22.69%	617 100.00%	0.30%	0.01%
	SANTA ANA CTR	742 15.55%	1894 39.68%	23 0.48%	0 0.00%	37 0.78%	2077 43.52%	4773 100.00%	2.35%	0.10%
	RIVERSIDE CTR	335 25.09%	853 63.90%	0 0.00%	0 0.00%	0 0.00%	147 11.01%	1335 100.00%	0.66%	0.03%
	V. SUBTOTAL	1173 17.03%	3236 46.99%	52 0.76%	0 0.00%	53 0.77%	2372 34.45%	6886 100.00%	3.39%	0.15%
SUM OF SUBTOTAL (I + II + III + IV + V)		30940 24.63%	28947 23.04%	15239 12.13%	11210 8.92%	4032 3.21%	35273 28.07%	125641 100.00%	61.90%	2.68%
L.A. CORE	LOS ANGELES CORE	30483 39.42%	17531 22.67%	0 0.00%	7045 9.11%	2905 3.76%	19350 25.02%	77325 100.00%	38.10%	1.65%
GRAND TOTAL SUBCENTERS & L.A. CORE		61423 30.26%	46478 22.90%	15239 7.51%	18255 8.99%	6937 3.42%	54623 26.91%	202966 100.00%	100.00%	4.32%
									TOTAL=4696392	

TABLE A.5
DISTRIBUTION OF TRAFFIC FLOWS BY CLUSTERS OF ACTIVITY CENTERS: ARRIVING AT CENTERS
(journey-to-work transit; 1980 UTPP data)

		FROM SELF	FROM DONUT	FROM LA CORE	FROM CLUSTER CENTERS	FROM OTHER CENTERS	FROM ALL OTHERS	TOTAL	SHARE OF TOTAL	SHARE OF STUDY AREA TOTAL
EASTSIDE OF L.A. CORE	SANTA MONICA CTR	308 8.70%	1552 43.85%	299 8.45%	258 7.29%	0 0.00%	1122 31.70%	3539 100.00%	3.11%	1.42%
	HOLLYWOOD CTR	378 10.72%	1182 33.52%	402 11.40%	127 3.60%	63 1.79%	1374 38.97%	3526 100.00%	3.09%	1.41%
	EAST HOLLYWOOD CTR	0 0.00%	455 36.99%	156 12.68%	68 5.53%	0 0.00%	551 44.80%	1230 100.00%	1.08%	0.49%
	UCLA CTR	27 0.65%	892 21.45%	274 6.59%	523 12.58%	15 0.36%	2427 58.37%	4158 100.00%	3.65%	1.66%
	WESTWOOD/BH/CC CTR	276 3.49%	2990 37.83%	1087 13.75%	1151 14.56%	24 0.30%	2376 30.06%	7904 100.00%	6.94%	3.16%
	MID-WILSHIRE CTR	83 3.26%	764 30.00%	350 13.74%	175 6.87%	11 0.43%	1164 45.70%	2547 100.00%	2.24%	1.02%
I. SUBTOTAL		1072 4.68%	7837 34.21%	2569 11.21%	2302 10.05%	113 0.49%	9016 39.36%	22909 100.00%	20.11%	9.17%
EASTSIDE OF L.A. CORE	USC MEDICAL CTR	0 0.00%	283 16.96%	148 8.87%	0 0.00%	99 5.93%	1139 68.24%	1669 100.00%	1.46%	0.67%
	EAST LOS ANGELES CTR	20 1.75%	598 52.32%	187 16.36%	19 1.66%	22 1.92%	297 25.98%	1143 100.00%	1.00%	0.46%
	HUNTINGTON PARK CTR	0 0.00%	747 53.47%	161 11.52%	0 0.00%	18 1.29%	471 33.72%	1397 100.00%	1.23%	0.56%
	II. SUBTOTAL		20 0.48%	1629 38.68%	496 11.78%	19 0.45%	139 3.30%	1908 45.31%	4211 100.00%	3.70%
SUM OF SUBTOTAL (I + II)		1092 4.03%	9465 34.90%	3065 11.30%	2321 8.56%	252 0.93%	10924 40.28%	27120 100.00%	23.80%	10.85%
NORTHSIDE OF L.A. CORE	GLENDALE CTR	122 8.30%	447 30.43%	218 14.84%	14 0.95%	41 2.79%	627 42.68%	1469 100.00%	1.29%	0.59%
	PASADENA CTR	163 8.18%	1456 73.06%	0 0.00%	0 0.00%	0 0.00%	374 18.77%	1993 100.00%	1.75%	0.80%
	BURBANK CTR	13 4.61%	79 28.01%	15 5.32%	0 0.00%	47 16.67%	128 45.39%	282 100.00%	0.25%	0.11%
	III. SUBTOTAL		298 7.96%	1983 52.94%	233 6.22%	14 0.37%	88 2.35%	1130 30.16%	3746 100.00%	3.29%
SUM OF SUBTOTAL (I + II + III)		1390 4.50%	11448 37.09%	3298 10.68%	2335 7.57%	340 1.10%	12054 39.05%	30866 100.00%	27.09%	12.35%
SOUTHSIDE OF L.A. CORE	LONG BEACH CTR	49 2.47%	1587 80.07%	0 0.00%	18 0.91%	0 0.00%	328 16.55%	1982 100.00%	1.74%	0.79%
	SAN PEDRO CTR	11 0.40%	171 6.16%	345 12.42%	11 0.40%	147 5.29%	2093 75.34%	2778 100.00%	2.44%	1.11%
	IV. SUBTOTAL		60 1.26%	1758 36.93%	345 7.25%	29 0.61%	147 3.09%	2421 50.86%	4760 100.00%	4.18%
SUM OF SUBTOTAL (I + II + III + IV)		1450 4.07%	13206 37.07%	3643 10.23%	2364 6.64%	487 1.37%	14475 40.63%	35626 100.00%	31.27%	14.26%

TABLE A.5 Contd.

ALL OTHER
SUBCENTERS

SAN BERNARDINO CTR	0	169	0	0	0	8	177	0.16%	0.07%
	0.00%	95.48%	0.00%	0.00%	0.00%	4.52%	100.00%		
ONTARIO CTR	0	38	0	0	0	0	38	0.03%	0.02%
	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	100.00%		
SANTA ANA CTR	52	264	0	0	0	325	641	0.56%	0.26%
	8.11%	41.19%	0.00%	0.00%	0.00%	50.70%	100.00%		
RIVERSIDE CTR	20	299	0	0	0	57	376	0.33%	0.15%
	5.32%	79.52%	0.00%	0.00%	0.00%	15.16%	100.00%		
V. SUBTOTAL	72	772	0	0	0	391	1235	1.08%	0.49%
	5.04%	62.54%	0.00%	0.00%	0.00%	31.62%	100.00%		
SUM OF SUBTOTAL (I + II + III + IV + V)	1522	13979	3643	2364	487	14865	36861	32.35%	14.75%
	4.13%	37.92%	9.88%	6.41%	1.32%	40.33%	100.00%		
L.A. CORE									
57. LOS ANGELES CORE	11279	38087	0	3287	829	23586	77068	67.65%	30.85%
	14.64%	49.42%	0.00%	4.27%	1.08%	30.60%	100.00%		
GRAND TOTAL SUBCENTERS & L.A. CORE	12801	52066	3643	5651	1316	38451	113929	100.00%	45.60%
	12.35%	45.93%	2.57%	5.59%	0.94%	32.61%	100.00%		TOTAL=249840

TABLE A.6

DISTRIBUTION OF TRAFFIC FLOWS BY CLUSTERS OF ACTIVITY CENTERS: LEAVING CENTERS
(journey-to-work transit; 1980 UTPP data)

SUBCENTER NAME	TO SELF	TO DONUT	TO LA CORE	TO CLUSTER CENTERS	TO OTHER CENTERS	TO ALL OTHERS	TOTAL	SHARE OF TOTAL	SHARE OF STUDY AREA TOTAL
EASTSIDE OF L.A. CORE									
SANTA MONICA CTR	308 14.48%	583 27.41%	366 17.21%	524 24.64%	28 1.32%	318 14.95%	2127 100.00%	5.27%	0.85%
HOLLYWOOD CTR	378 7.25%	1050 20.15%	1629 31.26%	977 18.75%	211 4.05%	966 18.54%	5211 100.00%	12.90%	2.09%
EAST HOLLYWOOD CTR	0 0.00%	190 14.97%	571 45.00%	147 11.58%	40 3.15%	321 25.30%	1269 100.00%	3.14%	0.51%
UCLA CTR	27 10.00%	12 4.44%	51 18.89%	94 34.81%	11 4.07%	75 27.78%	270 100.00%	0.67%	0.11%
WESTWOOD/BH/CC CTR	276 20.26%	290 21.29%	270 19.82%	255 18.72%	39 2.86%	232 17.03%	1362 100.00%	3.37%	0.55%
MID-WILSHIRE CTR	83 7.98%	156 15.00%	400 38.46%	305 29.33%	14 1.35%	82 7.88%	1040 100.00%	2.57%	0.42%
I. SUBTOTAL	1072 9.50%	2281 20.22%	3287 29.14%	2302 20.41%	343 3.04%	1994 17.68%	11279 100.00%	27.93%	4.51%
EASTSIDE OF L.A. CORE									
USC MEDICAL CTR	0 0.00%	9 3.98%	110 48.67%	0 0.00%	15 6.54%	92 40.71%	226 100.00%	0.56%	0.09%
EAST LOS ANGELES CTR	20 6.56%	52 17.05%	94 30.82%	0 0.00%	11 3.61%	128 41.97%	305 100.00%	0.76%	0.12%
HUNTINGTON PARK CTR	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0.00%	0.00%
II. SUBTOTAL	20 3.77%	61 11.49%	204 38.42%	0 0.00%	26 4.90%	220 41.43%	531 100.00%	1.31%	0.21%
SUM OF SUBTOTAL (I + II)	1092 9.25%	2342 19.83%	3491 29.56%	2302 19.49%	369 3.12%	2214 18.75%	11810 100.00%	29.24%	4.73%
NORTHSIDE OF L.A. CORE									
GLENDALE CTR	122 16.51%	125 16.91%	220 29.77%	0 0.00%	32 4.33%	240 32.48%	739 100.00%	1.83%	0.30%
PASADENA CTR	163 17.38%	299 31.88%	301 32.09%	0 0.00%	16 1.71%	159 16.95%	938 100.00%	2.32%	0.38%
BURBANK CTR	13 7.69%	34 20.12%	17 10.06%	14 8.28%	40 23.67%	51 30.18%	169 100.00%	0.42%	0.07%
III. SUBTOTAL	298 16.14%	458 24.81%	538 29.14%	14 0.76%	88 4.77%	450 24.38%	1846 100.00%	4.57%	0.74%
SUM OF SUBTOTAL (I + II + III)	1390 10.18%	2800 20.50%	4029 29.50%	2316 16.96%	457 3.35%	2664 19.51%	13656 100.00%	33.81%	5.47%
SOUTHSIDE OF L.A. CORE									
LONG BEACH CTR	49 5.91%	486 58.62%	48 5.79%	11 1.33%	0 0.00%	235 28.35%	829 100.00%	2.05%	0.33%
SAN PEDRO CTR	11 5.00%	145 65.91%	20 9.09%	18 8.18%	0 0.00%	26 11.82%	220 100.00%	0.54%	0.09%
IV. SUBTOTAL	60 5.72%	631 60.15%	68 6.48%	29 2.75%	0 0.00%	261 24.88%	1049 100.00%	2.60%	0.42%
SUM OF SUBTOTAL (I + II + III + IV)	1450 9.86%	3431 23.33%	4097 27.86%	2345 15.95%	457 3.11%	2925 19.89%	14705 100.00%	36.41%	5.89%

TABLE A.6 Contd.

ALL OTHER
SUBCENTERS

SAN BERNARDINO CTR	0 0.00%	10 100.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	10 100.00%	0.02%	0.00%
ONTARIO CTR	0 0.00%	0 0.00%	19 100.00%	0 0.00%	0 0.00%	0 0.00%	19 100.00%	0.05%	0.01%
SANTA ANA CTR	52 13.40%	170 43.81%	0 0.00%	0 0.00%	0 0.00%	166 42.78%	388 100.00%	0.96%	0.16%
RIVERSIDE CTR	20 54.05%	17 45.95%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	37 100.00%	0.09%	0.01%
V. SUBTOTAL	72 15.86%	197 43.39%	19 4.19%	0 0.00%	0 0.00%	166 36.56%	454 100.00%	1.12%	0.18%
SUM OF SUBTOTAL (I + II + III + IV + V)	1522 10.04%	3628 23.93%	4116 27.15%	2345 15.47%	457 3.01%	3091 20.39%	15159 100.00%	37.53%	6.07%
L.A. CORE	11279 44.70%	6620 26.24%	0 0.00%	2568 10.18%	1074 4.26%	3689 14.62%	25230 100.00%	62.47%	10.10%
GRAND TOTAL SUBCENTERS & L.A. CORE	12801 31.69%	10248 25.37%	4116 10.19%	4913 12.16%	1531 3.79%	6780 16.79%	40389 100.00%	100.00%	16.17%
									TOTAL=249840

APPENDIX B

TABLE B.1

ESTIMATED TOTAL TRIPS
ACTIVITY CENTERS ONLY

ORIGIN \ DESTINATION	1	2	3	4	5	6	7	8	9	10	11
1. L. A. CORE	233781	11937	7695	5819	2380	4850	6561	5747	6891	2162	230
2. WESTWOOD/CC/RH CTR	8493	65223	3295	2340	754	1004	1752	917	3725	462	58
3. HOLLYWOOD CTR	5572	3846	59131	1756	490	239	1706	997	7423	319	58
4. SANTA MONICA CTR	2205	1880	2935	41028	174	105	1564	134	2604	157	15
5. PASADENA CTR	1396	356	262	163	25940	141	375	582	175	73	26
6. HUNTINGTON PARK CTR	429	30	77	13	20	429	3	23	2	1	0
7. UCLA CTR	1312	1046	702	1222	239	175	19096	342	521	158	21
8. GLENDALE CTR	2091	947	672	178	596	346	587	24388	366	68	14
9. MID-WILSHIRE CTR	2955	2499	1503	624	157	220	724	291	21390	201	27
10. SAN PEDRO CTR	1268	257	248	103	66	173	69	51	117	12915	31
11. SANTA ANA CTR	56	9	24	18	15	28	22	9	15	37	8858
12. LONG BEACH CTR	173	30	25	25	34	235	20	20	25	593	69
13. USC MED. CTR	1064	205	274	111	234	174	333	355	162	85	43
14. RIVERSIDE CTR	28	1	1	1	1	3	1	2	4	2	10
15. BUREAK CTR	534	320	1918	146	136	25	141	334	178	28	7
16. EAST HOLLYWOOD CTR	2204	607	854	317	228	186	722	811	380	94	17
17. EAST L. A. CTR	873	167	48	56	61	506	106	110	84	33	10
18. SAN BERNARDINO CTR	10	0	1	1	0	0	0	0	1	0	1
19. ONTARIO CTR	20	1	1	1	17	4	1	1	1	1	9
SUM OF ACTIVITY CENTERS	264464	89361	79666	53928	31542	8845	33783	35114	44064	17389	9504
SHARE OF TOTAL	36.97%	20.72%	36.89%	26.20%	20.49%	2.29%	23.70%	21.02%	28.80%	9.18%	3.16%
STUDY AREA TOTAL	715407	431371	215940	205840	153915	386987	142555	167027	152985	189468	300355

12	13	14	15	16	17	18	19	CENTER SHARE OF TOTAL	AREA TOTAL	
1043	6314	136	1599	6322	3569	284	202	42133	5.63%	747998
174	811	55	799	1039	1066	24	61	12052	6.17%	195393
140	787	35	6130	1837	186	80	42	13950	9.36%	145118
57	150	15	1091	600	181	45	15	46003	45.16%	101858
47	471	6	395	401	170	6	34	27999	36.33%	77071
49	45	0	7	31	79	0	1	585	1.89%	30985
22	334	4	264	118	203	17	28	22134	40.54%	54597
36	601	19	480	705	358	19	14	27199	41.60%	65385
45	275	20	357	562	243	36	27	23974	41.18%	58222
705	98	13	49	83	45	5	23	14347	33.09%	43359
74	46	28	8	15	28	8	74	9150	22.16%	41285
13856	32	20	13	25	69	7	13	14929	36.12%	41334
31	7312	6	64	203	184	11	6	8846	29.90%	29587
3	2	4200	4	1	14	10	22	4229	20.21%	20928
13	69	10	6419	157	37	3	7	1087	4.10%	26521
29	377	5	243	15922	258	20	17	3166	7.86%	40276
33	484	9	29	102	9127	5	10	1494	6.10%	24506
0	0	4	0	0	1	897	4	7	0.08%	8834
1	1	9	1	1	3	3	1897	46	0.59%	7738
16358	18209	4594	17952	28124	15821	1480	2497	273330	15.49%	1764995
8.27%	16.18%	4.24%	9.67%	22.03%	11.67%	0.94%	3.53%	12.90%		6.65%
197903	112520	108471	185719	127668	135558	157319	70796	2118026	8.02%	26394583

TABLE B.2

JOURNEY TO WORK, 1980 UTPF
ACTIVITY CENTERS ONLY

ORIGIN \ DESTINATION	1	2	3	4	5	6	7	8	9	10	11
1. LOS ANGELES CORE	30483	3020	1219	695	98	412	584	464	971	884	24
2. WESTWOOD/BAH/CC CTR	3369	9201	804	477	75	27	569	43	462	204	0
3. HOLLYWOOD CTR	3702	1739	4205	260	49	76	351	116	267	197	16
4. SANTA MONICA CTR	1407	686	193	4405	40	12	919	10	93	90	0
5. PASADENA CTR	1156	139	71	0	3244	18	14	65	18	35	0
6. HUNTINGTON PARK CTR	0	0	0	0	0	52	0	0	0	0	0
7. UCLA CTR	429	431	52	128	0	0	2741	12	70	0	13
8. GLENDALE CTR	845	122	230	21	156	20	31	2038	13	32	0
9. MIDWILSHIRE CTR	1482	1159	358	29	15	0	152	27	922	35	0
10. SAN PEDRO CTR	339	8	32	0	0	0	24	0	37	534	0
11. SANTA ANA CTR	23	0	0	0	0	0	0	0	0	0	742
12. LONG BEACH CTR	93	0	0	0	0	48	0	0	0	57	0
13. USC MED. CTR	255	8	10	0	37	28	35	13	11	22	0
14. RIVERSIDE CTR	0	0	0	0	0	0	0	0	0	0	0
15. BURBANK CTR	422	118	173	0	12	7	9	143	49	18	0
16. EAST HOLLYWOOD CTR	1328	272	276	21	20	29	44	104	26	64	0
17. EAST LOS ANGELES CTR	360	28	0	0	0	62	0	9	11	0	0
18. SAN BERNARDINO CTR	10	0	0	0	0	0	0	0	0	0	0
19. ONTARIO CTR	19	0	0	0	16	0	0	0	0	0	0
SUM OF ACTIVITY CENTERS	45722	17131	7625	6036	3762	791	5473	3044	2950	2172	795
SHARE OF TOTAL	12.26%	19.16%	17.04%	16.22%	10.46%	2.60%	18.24%	11.87%	14.21%	10.66%	4.40%
STUDY AREA TOTAL	373045	89388	44735	37206	35954	30386	30010	25644	20756	20371	18061

12	13	14	15	16	17	18	19	CENTER SHARE OF TOTAL	AREA TOTAL	
11	511	26	51	556	435	0	0	40444	52.30%	77325
10	51	0	141	15	61	0	0	15509	58.81%	26372
0	126	0	107	256	23	0	0	11490	51.66%	22242
12	47	0	44	62	10	0	0	8230	54.39%	15131
9	73	0	22	20	28	0	0	4912	47.30%	10384
0	0	0	0	0	0	0	0	52	68.42%	76
0	0	0	30	28	28	0	0	3962	68.29%	5802
0	44	0	130	57	23	0	0	3762	42.47%	8857
0	13	0	27	34	12	0	0	4265	53.28%	8005
62	31	0	0	0	0	0	0	1067	25.01%	4267
0	37	0	0	0	0	0	0	802	16.80%	4773
547	12	0	0	0	0	0	0	757	19.25%	3933
0	346	0	0	0	29	0	0	794	45.27%	1754
0	0	335	0	0	0	0	0	335	25.09%	1335
0	8	0	625	30	19	0	0	1633	41.34%	3950
0	57	0	25	681	24	0	0	2973	49.97%	5950
0	9	0	0	0	226	0	0	705	34.69%	2032
0	0	0	0	0	0	14	0	24	14.91%	161
0	0	0	0	0	0	0	82	117	18.96%	617
651	1365	361	1202	1739	918	14	82	101833	50.17%	202966
3.78%	8.37%	2.58%	9.47%	14.06%	8.79%	0.19%	1.66%	12.41%		4.32%
17244	16308	14012	12690	12371	10448	7295	4951	820875	17.48%	4696392

TABLE B.3

MODE SPLITS --- PUBLIC TRANSIT ---
 JOURNEYS TO WORK, 1980 UTPP
 ACTIVITY CENTERS ONLY

ORIGIN \ DESTINATION	57	55	52	51	63	61	54	62	56	66	68
1. LOS ANGELES CORE	11279	1087	402	299	0	161	274	218	350	345	0
2. WESTWOOD/84/CC CTR	270	276	40	110	0	0	68	0	37	39	0
3. HOLLYWOOD CTR	1623	591	378	83	0	18	161	13	104	61	0
4. SANTA MONICA CTR	366	177	33	308	0	0	267	0	34	18	0
5. PASADENA CTR	301	24	5	0	162	0	0	0	0	0	0
6. HUNTINGTON PARK CTR	0	0	0	0	0	0	0	0	0	0	0
7. UCLA CTR	51	52	0	42	0	0	27	0	0	0	0
8. GLENDALE CTR	220	0	18	0	0	0	0	122	0	15	0
9. MIDWILSHIRE CTR	400	209	29	23	0	0	27	14	83	0	0
10. SAN PEDRO CTR	20	0	0	0	0	0	0	0	0	11	0
11. SANTA ANA CTR	0	0	0	0	0	0	0	0	0	0	52
12. LONG BEACH CTR	48	0	0	0	0	0	0	0	0	11	0
13. USC MED. CTR	110	0	0	0	0	0	15	0	0	0	0
14. RIVERSIDE CTR	0	0	0	0	0	0	0	0	0	0	0
15. BURBANK CTR	17	0	40	0	0	0	0	14	0	0	0
16. EAST HOLLYWOOD CTR	571	122	25	0	0	0	0	14	0	14	0
17. EAST LOS ANGELES CTR	94	0	0	0	0	0	0	0	11	0	0
18. SAN BERNARDINO CTR	0	0	0	0	0	0	0	0	0	0	0
19. ONTARIO CTR	19	0	0	0	0	0	0	0	0	0	0
SUM OF ACTIVITY CENTERS	1516	461	85	374	162	0	336	136	117	55	52
SHARE OF TOTAL	1.97%	5.83%	2.41%	10.55%	8.14%	0.00%	8.09%	9.28%	4.61%	1.96%	8.11%
STUDY AREA TOTAL	77068	7904	3526	3539	1993	1397	4158	1469	2547	2778	641

58	59	69	55	53	60	64	67	CENTER SHARE OF TOTAL	AREA TOTAL	
0	148	0	15	156	187	0	0	1795	7.11%	25230
0	0	0	0	0	0	0	0	254	18.63%	1362
0	83	0	24	38	12	0	0	524	10.06%	5211
0	0	0	0	13	10	0	0	627	29.48%	2127
0	16	0	0	0	0	0	0	178	19.00%	938
0	0	0	0	0	0	0	0	0	0.00%	0
0	0	0	11	0	0	0	0	70	25.79%	270
0	0	0	0	0	0	0	0	137	18.58%	739
0	0	0	0	17	0	0	0	147	14.16%	1040
18	0	0	0	0	0	0	0	29	13.00%	220
0	0	0	0	0	0	0	0	52	13.40%	388
49	0	0	0	0	0	0	0	60	7.25%	829
0	0	0	0	0	19	0	0	15	6.65%	226
0	0	20	0	0	0	0	0	20	54.09%	37
0	0	0	13	0	0	0	0	14	8.48%	169
0	0	0	12	0	0	0	0	28	2.18%	1269
0	0	0	0	0	20	0	0	11	3.60%	305
0	0	0	0	0	0	0	0	0	0.00%	10
0	0	0	0	0	0	0	0	0	0.00%	19
67	16	20	11	30	29	0	0	1336	19.60%	6815
3.39%	0.96%	5.35%	3.94%	2.44%	2.55%	0.00%	0.00%	5.92%		2.73%
1982	1669	376	262	1230	1143	177	38	22547	3.02%	249840

APPENDIX C

TABLE C.1

ACTIVITY CENTERS AND THEIR CORRESPONDING GEOGRAPHIC UNITS

Id#	Area Name	RSA (as used by SCAG)	AZ1	AZ2	Census Tract		
51	Santa Monica Center	16	16011	320	701501*	701502*	701601*
		16	16013	322	701602*	701701*	701802*
		16	16014	323	7019		
52	Hollywood Center	17	17013	350	1902	190301	190302
		17	17014	351	1906*	1907	1908*
		17	17015	352	1909	191901	
		17	17016	353			
		17	17017	354			
53	East Hollywood Center	17	17019	356	191201 1953*	191202 1913*	
54	UCLA Center	17	17022	359	265301	265302	
55	Westwood/ Beverly Hills/ Century City	17	17026	363	2149*	2657	2671
		17	17027	364	7004*	7005*	7008*
		17	17040	376	700902	7010	
		17	17043	378			
56	Midwilshire Center	17	17031	368	2145	2151	2163*
		17	17048	383			
57	L.A. Core	17	17035	373	1977	204502*	2061
		17	17058	393	2062	2063	2064
		17	17059	394	2071	2072	2073
		17	17070	405	2074	2075	2076
		21	21001	553	2077	2078	2079
		21	21007	558	2088	2089	2091
		21	21009	559	2092	2093	2094
		21	21011	560	2095	2096	2097
		21	21019-20	568	2111*	2112*	2113
		21	21021-22	569	2114	2118	2119
		21	21008	572	2121	2122	2123
		23	23002	701	2124	2125	2132*
		23	23003	702	2133*	2134	2241
		23	23004	703	2245	2246*	2261*
		23	23005	704	2262*	2263*	2311*
		23	23009	707			
23	23010	708					
23	23011	709					
23	23012	710					

		23	23016	713			
		23	23018	714			
		23	23020	715			
		23	23021	716			
		23	23022	717			
		23	23023	718			
		23	23025	720			
		23	23026	721			
		23	23027	722			
		24	24034	751			
58	Long Beach Center	20	20035	548	5759 5762	5760	5761
59	USC Med. Center	21	21004	555	2031	2033	
60	East L.A.	21	21026	573	2051*		
61	Huntington Park	21	21041	588	5325*	533101*	5332*
62	Glendale	24	24009	727	3016	3023	3024
		24	24013	731			
63	Pasadena Center	25	25016	781	4619	4622	4635
		25	25019	785	4636		
64	San Bernardino Center	29		963	57		
65	Burbank Center	13	13029	274	3116*		
66	San Pedro Center	19	19035	510	2962* (2969)*	2965*	2966*
67	Ontario Center	28	28026	921	14*		
68	Santa Ana	42	42028	1181	74401*		
69	Riverside Center	46		1242	303*		
Total				59 AZs		103 Census Tracts	

* = Newly Added Census Tracts.

APPENDIX D

Table E.2

Paratransit Cities in Los Angeles County

Service Area	Prop A		Months in Operation	hrs/wk	FY 05-86		FY 05-86		FY 85-86		FY 85-86	
	Center? (1=YES)	Funded? Yes No			Annual Op Costs	Revenue from Fares	Revenue from Prop A	Annual Total Rev	Uncommitted Funds (\$)	% Uncomm Funds	% Used	
AGOURA HILLS		1	29	60				193475		127075	65.7	100
ALHAMBRA		1	60					814771		-124959	-15.3	
ARCADIA		1	1	151	95.5	664711	119253	476963	629868	2379	0.5	
ARTEZIA		1	156					157232		147112	93.6	
AVALON								30686		16620	54.2	
AZUSA								361441		52811	14.6	
BALDWIN PARK		1	84	45				548697		111041	20.2	5
BELL								279101		51406	18.4	
BELL GARDENS		1	56					921301		45853	5.0	
BELLFLOWER		1	60	48				539653		45762	8.5	75
BEVERLY HILLS	1	1	56					372510		115210	30.9	
BRADBURY								9656		9656	100.0	
BURBANK	1	1	42					1102039		634634	57.6	
CARSON		1	111	45				1010024		-272714	-27.0	100
CERRITOS		1	96	168				655306		-144064	-22.0	15
CLAREMONT		1	144	80	212823	24658		376221	208144	149342	39.7	100
COMMERCE		1	120	40	1342354			113751	1234743	-449417	-395.1	
COMPTON								982488		612488	62.3	
COVINA		1	26	168				472374		285420	60.4	75
CUDAHY								202103		100904	49.9	
CULVER CITY		1	168	42.5	3540231	929964		434041	3187367	248074	57.2	100
DOWNY		1	144	65.5	353236	5972		969370	964198	485291	50.1	30
DUARTE								214500		28500	13.3	
EL MONTE								1007600		-459592	-45.6	
EL SEGUNDO		1	48	60				166669		98869	59.3	
GARDENA					5370913	976971		459109	4920551	2292	0.5	
GLENDALE	1	1	36	50				1085324		1115324	59.2	5
GLENDOORA		1	126	53.2	139504	5847		385248	139504	1253	0.3	70
GLENDOORA		1	60									60
HAWAIIAN GARDENS								124162		70552	56.8	
HAWTHORNE		1	60	58.7				647728		-194012	-30.0	20
HERMOSA BEACH		1	12	168	362361	8755		199532	2434	-15262	-7.6	90
HIDDEN HILLS								0		0		
HUNTINGTON PARK	1	1	60	84				475141		-44759	-9.4	
INDUSTRY								7528		7528	100.0	

Table E.2

Paratransit: Cities in Los Angeles County

Service Area	Prop A		Months In Operation	hrs/wk	FY 85-86 Annual Op Costs	FY 85-86 Revenue from Fares	FY 85-86 Revenue from Prop A	FY 85-86 Annual Total Rev	FY 85-86 Uncommitted Funds (\$)	FY 85-86 % Uncomm Funds	FY 85-86 % Used	
	Center? (1=YES)	Funded? Yes No										
INGLEWOOD							1023343		146236	14.3		
IRVINDALE							11451		-36549	-319.2		
LA CANADA/FLINTRIDGE							245368		223968	91.3		
LA HABRA HEIGHTS							56976		-123024	-215.9		
LA MIRADA		1	1	156	67.5	438076	26581	452922	362481	178372	39.4	45
LA PUENTE	1		30		45			381382		248482	65.2	70
LA VERNE		1	1	120	62			301057		152017	50.5	100
LAKESWOOD	1		144		50.5			719393		-154951	-21.5	10
LANCASTER								618779		326279	52.7	
LAWDALE	1		18					273004		-53770	-19.7	
LOMITA		1	1	120	168			184950		131350	71.0	100
LONG BEACH	1	1	1	146		24677812	6554153	3910228	23144726	647228	16.6	
LOS ANGELES	1	1	48		50	2728707	105576	37396245	2835611	22860758	61.1	15
LYNWOOD						139953	4522	607504	130365	1504	0.2	
MANHATTEN BEACH	1		144		35	943456	2652	361841	362823	-508524	-162.6	
MAYWOOD	1		24		45			234086		119606	50.9	33
MONROVIA	1		56					326281		43206	13.2	
MONTEBELLO		1	1	120	18	5350505	1292177	567570	4867049	26426	4.7	65
MONTEREY PARK	1		120					566171		282208	49.8	
NORWALK	1		144			3017223	242920	824298	2598739	250968	30.4	100
PALMDALE	1		15					223807		208807	93.3	
PALOS VERDES EST.								154664		51257	33.1	
PARAMOUNT								379551		-100708	-26.5	
PASADENA	1	1	36		86			1513279		1012408	66.9	40
PICO RIVERA		1	48					673511		295478	43.9	
POMONA VALLEY		1	156				90777	1156417	1581605	420859	36.4	
RANCHO PALOS VERDES						572251	78105	618536	568722	265380	42.9	
REDONDO BEACH		1	1	198	168	175613	10396	745047	175613	366745	49.2	47
ROLLING HILLS								21131		21131	100.0	
ROLLING HILLS EST.								73708		14046	19.1	
ROSEHEAD	1		67		71			434108		-812677	-187.2	
SAN DIMAS								314588		180362	57.3	
SAN FERNANDO	1		36		64			182138		-96242	-52.8	
SAN GABRIEL	1		48					303185		255520	84.3	
SAN MARINO								151870		-48130	-31.7	

Table E.2

Paratransit Cities in Los Angeles County

Service Area	Prop A			hrs/wk	FY 85-86 Annual Op Costs	FY 85-86 Revenue from Fares	FY 85-86 Revenue from Prop A	FY 85-86 Annual Total Rev	FY 85-86 Uncommitted Funds (\$)	FY 85-86 % Uncomm Funds	FY 85-86 % Used	
	Center? (1=YES)	Funded? Yes No	Months In Operation									
SANTA FE SPRINGS		1	120	45			142246		9346	6.6		
SANTA MONICA					13641167	5657549	889491	11821892	384107	43.2		
SIERRA MADRE	1		38				128184		34946	27.3		
SIGNAL HILL	1		72	106.5			85404		38651	45.3	0	
SOUTH EL MONTE		1	120	45			190263		-47316	-23.9	80	
SOUTH GATE		1	168	58			714498		-293297	-41.0	85	
SOUTH PASADENA							296813		-323450	-109.0		
TEMPLE CITY	1		60	62			293684		-41566	-14.2	75	
TORRANCE		1	113	51	5703597	1024428	1322198	5146240	108420	8.2	8	
VERNON												
WALNUT	1		13				204950		-78316	-38.2		
WEST COVINA	1		48	50			850508		527564	62.0	0	
WEST HOLLYWOOD							435697		-80428	-18.5		
WESTLAKE VILLAGE	1		29	144			76698		7158	9.3	50	
WHITTIER							877407		110932	12.6		
UNINCORPORATED	1		60	45	5279565	111305	11356221	11865059	4599021	40.5	20	
Total	6	38 18	2437 2303	2867.9	74654058	17672561	90477273	76740534	34532415	736.9051	1788	
Minimum Value	1.0	1.0	12.0	84.0	18.0	139504.0	2652.0	0.0	2434.0	-812677.0	-395.1	0.0
Maximum Value	1.0	1.0	156.0	198.0	163.0	24677012.0	6554153.0	37396245.0	23144726.0	22860758.0	100.0	100.0
Mean	1.0	1.0	62.5	135.5	73.5	3732702.9	833628.1	1077110.4	3654692.1	411100.2	8.9	54.2
Standard Deviation	0.0	0.0	41.0	26.7	42.0	5776681.9	1792331.4	4189218.8	5525390.0	2528212.0	80.9	35.3

A P P E N D I X E

TABLE E.1

THE LIMITED ROLE OF CBDs IN THE TEN LARGEST U.S. URBANIZED AREAS (1980)

	total area jobs (000's) (1)	core-city CBD jobs* (000's) (2)	all CBD jobs* (000's) (3)	(2) / (1)	(3) / (1)	(2) / (3)
N.Y.	6,627.5	537.7	664.9	0.081	0.100	0.809
L.A.	4,366.3	129.8	183.6	0.030	0.042	0.707
Chicago	2,989.9	279.1	289.6	0.093	0.097	0.963
Phila.	1,689.4	172.6	206.4	0.102	0.122	0.837
S.F.	1,536.9	168.0	225.4	0.109	0.147	0.745
Detroit	1,498.8	76.7	83.8	0.051	0.056	0.915
D.C.	1,415.6	124.5	124.5	0.088	---	---
Boston	1,270.7	85.8	106.6	0.068	0.084	0.805
Dallas	1,228.8	78.3	102.2	0.064	0.083	0.767
Houston	1,200.0	102.9	109.1	0.086	0.091	0.944
TOTAL	23,838.8	1,755.5	2,096.1	0.074	0.088	0.838

* Central Business District jobs held by residents of all SMSAs of the corresponding SCSA; for Dallas and Washington, D.C.: all CBD jobs held by SMSA residents.

Sources: computed from U.S. Census of Population (1980) Journey to Work: Metropolitan Commuting Flows, Table 3; and U.S. Department of Transportation (1985) Demographic Change and Recent Worktrip Travel Trends, Volume I -- Final Report Table C2.

TABLE E.2

WORKTRIP TRAVEL TIME DISTRIBUTIONS
TEN LARGEST U.S. URBANIZED AREAS (1980)

one-way trip (minutes)

	less than 10	10-19	20-29	30-44	45 and more	apprx. md.	mean	mean 45+
N.Y.	10.0%	23.7%	16.2%	20.3%	29.8%	30.0	32.3	62.6
L.A.	11.5%	31.0%	22.1%	21.6%	13.7%	23.4	24.1	57.0
Chicago	11.2%	24.7%	18.4%	23.3%	22.5%	27.7	28.3	58.0
Phila.	12.3%	27.5%	20.0%	21.9%	18.3%	25.1	26.0	57.2
S.F.	11.0%	30.1%	20.7%	21.8%	16.4%	24.3	25.2	56.5
Detroit	11.7%	30.2%	25.1%	22.5%	10.4%	23.3	22.9	54.4
D.C.	8.4%	22.9%	21.6%	26.7%	20.3%	28.7	28.1	55.5
Boston	14.7%	30.9%	19.9%	21.1%	13.4%	22.0	23.1	55.2
Dallas	11.9%	31.3%	24.9%	22.3%	9.7%	22.7	22.4	55.3
Houston	10.3%	26.0%	21.0%	25.6%	17.2%	26.5	26.2	55.9

Source: computed from U.S. Department of Transportation (1985) Transportation Planning Data for Urbanized Areas Based on the 1980 Census Chapters 1 and 2.

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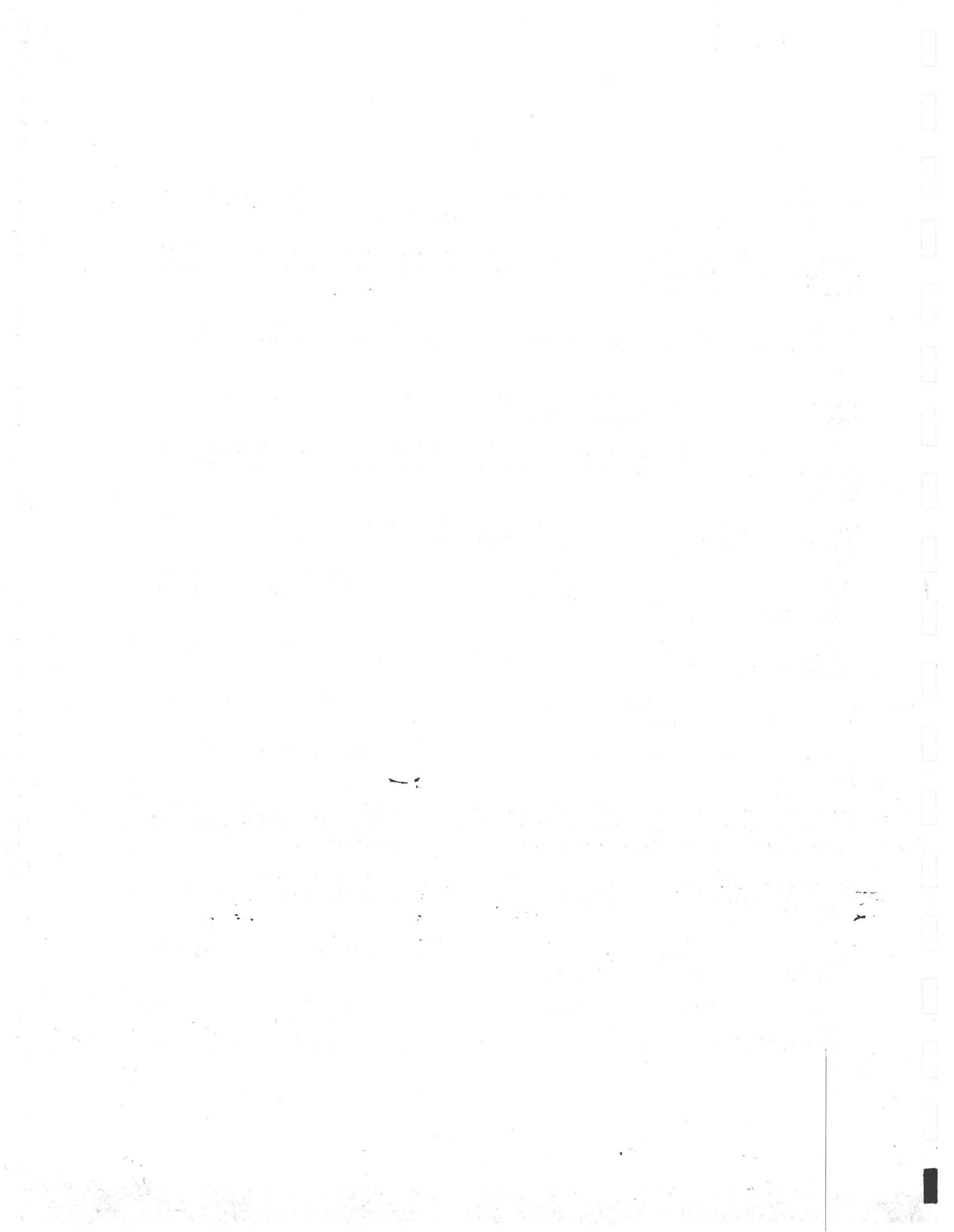
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