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BACKGROUND AND OBJECTIVES

Three years have elapsed since Market Research conducted comprehensive on-board surveys of RTD weekday ridership in May and September of 1978. These two surveys of riders on a sample of forty randomly-selected bus lines provided benchmark data for eighteen demographic and system-wide transit-use variables. The results of the 1978 surveys pointed out which market segments were using public transit and helped to illuminate riders' trip needs.

Many changes in fares and service levels have occurred since 1978, however. During the last three years RTD has raised fares annually. Between May, 1978 and May, 1981, RTD base fare increased 62.5%, from 40 cents to 65 cents, and transfers which were 10 cents in 1978 cost 20 cents by May, 1981. In July, 1981 RTD raised the base fare again to $0.85, with a 15 cents transfer fee. The net result is that a cash-paying rider boarding more than one bus after July, 1981 would pay twice the fare required for the same trip in May, 1978. During that same period, the price of a monthly pass increased between 83% and 89%, and new express charges are now levied on riders using student, senior citizen or handicapped passes on express lines. Due to cutbacks in Federal subsidies, fares could increase again in 1982.

Since 1978, RTD has also introduced extensive service changes. New lines have been introduced, old lines eliminated. Lines have been re-routed or re-numbered. New equipment has replaced worn-out old buses. Between the second quarter of 1978 and the second quarter of 1981, the number of buses in service during peak hours increased 13%, while vehicle hours and vehicle miles increased 5% and 3% respectively. Tables A-I through A-VI in the Appendix provide data on service levels since 1976.

The main purpose of the 1981 survey of weekday ridership is to document changes which have occurred in the market for public transit and in transit use patterns since 1978. This report explores the demographic and trip-related characteristics of riders on a sample of fifty lines before the July 1981 fare increase. A follow-up survey of bus rider households will explore short-term shifts in transit use patterns by various market segments after that fare increase.

In order to select the sample lines for this survey, Market Research stratified all 226 RTD lines into eight categories of service, as shown in Table 1. Lines to be included in this sample were randomly selected from three categories - local lines, local lines providing some express service during peak hours and local lines providing day-long express service over a portion of their routes. The 156 lines in these three categories represent only 69% of all RTD lines, but account for at least 94% of the weekday boardings. Together they constitute what could be called RTD's "regular-service" lines. The categorization of all RTD lines by type is shown in Table A-VII through A-XIV in the Appendix.

The regular service lines selected to be surveyed are shown by categories in Table A-XV. The 43 local lines surveyed account for nearly 23% of the boardings in that category; the 3 local lines with peak hour express service account for over 53% of the category boardings; the 4 local lines with day-long express service account for 27% of boardings in the category. Overall, the 50 sample lines account for about 25% of all weekday boardings on 226 RTD lines.

Subsequent reports will profile ridership characteristics on peak-hour express lines and on subscription lines. (Market Research issued a report on Park and Ride Lines in February, 1981).

TABLE 1
BOARDINGS BY TYPE OF LINE
(Ranked by boardings per bus hour)

Type of Line	Number of Lines	Total Number of Boardings	Number of Riders Per Bus Hour		
			Median	Low	High
Local	124	965,813+	37.6	10.3	110.6
Local with Peak Hour Express	8	159,679	58.3	20.1	94.9
Local with Day Long Express	24	90,535	25.4	12.5	44.3
SubTotal	156	1,216,027+			
Park & Ride	9	8,240	33.1	27.8	48.5
Express--Peak Hour Only	17	7,923	13.6	8.2	25.5
Subscription	10	1,217	NA	NA	NA
Local--Peak Hour Only (Beep)	11	417	NA	NA	NA
Special Services	23	NA	NA	NA	NA
Total	226	1,233,824	--	-	-

MAJOR FINDINGS

1. Type of Fare

Riders using cash, ticket or transfer fares account for 48% of the Regular-Service boardings, a decline of 14 percentage points since 1978. The regular monthly pass accounts for 23% of Regular-Service boardings, up 11 percentage points. Fare mix varies widely by bus line.

Fare mix varies by time of day. The proportion of cash boardings is lowest during morning peak hours, highest during base periods. Proportionate use of regular, express and student passes is highest during the morning peak period. The proportion of college/vocational pass boardings is highest during the afternoon base period. The proportion of senior citizen pass boardings is highest during the morning base period, extremely low during evening hours.

Type of fare varies by residence sector. Residents of the Long Beach, Mid-Cities and East Central Sectors are more likely than other riders to pay cash fares. Residents of downtown Los Angeles, West Los Angeles and South Central Sectors are least likely to use cash.

Type of fare varies by rider age. The median age of cash riders is 26.1 years. Regular monthly pass users' average age is 29.9, and express pass users average 33.1. The average student pass user is 14 and the average college/vocational pass user is 24.7. The median age of handicapped pass users is 39.5 and of senior citizen pass users 67.7.

Men are somewhat more likely than women to pay cash fares.

The largest proportion of cash riders is found among Latinos. The largest proportion of regular monthly pass users is also found among Latinos. The smallest proportion of cash riders is found among the Asian/Pacific Islander group.

Type of fare used varies by household income. The lowest median household income, under $6,000, is reported by handicapped and senior citizen pass users. The highest incomes, $15,000 and up were reported by riders using express passes.

Nearly 63% of the cash riders use the bus five or more days a week. Up to 6.5% of the cash riders say they do not know where to buy a pass, and another 7.1% say there is no conveniently-located outlet at which they can buy a pass.

2. Frequency of Bus Use

The average RTD Regular-Service patron rides the bus 4.9 days per week. Cash riders average 4.3 days of bus use. Regular pass users average 5.7 days.

Frequency of bus use varies with rider age. Senior citizens use the bus least often - 4.6 days on average. The most frequent riders are 40 to 49 years old. They ride an average of 5.2 days a week.

Frequency of bus use varies by ethnic group. Latinos and Asian/Pacific Islanders are the most frequent bus riders; they ride 5.1 days per week. Whites are the least frequent riders, averaging 4.8 days a week.

3. Boardings Per Linked Trip

Nearly 45% of RTD Regular-Service patrons ride just one bus to complete their one-way linked trips from origin to destination; 39% ride two buses. Only 16% must ride three or more buses. The average is 1.8 buses per linked trip.

Regular monthly pass users are most likely to ride two buses for a linked trip; 49% ride two buses. Over 22% ride three or more buses.

The number of buses ridden on a linked trip varies by time of day.

Variation in the number of buses ridden on one-way linked trips can be seen by ethnic group. White riders take an average of 1.6 buses, Blacks and Asian/Pacific Islanders take 1.8 and Latinos take 1.9 buses to complete their trips.

The number of buses ridden to complete a linked trip tends to decline as household income goes up.

4. Daily and Monthly Boardings

On average, weekday Regular-Service riders make 3.3 boardings on a typical weekday, 1.7 boardings on a Saturday and 1.3 boardings on a Sunday.

Overall, weekday Regular-Service riders average 85 boardings per month.

Levels of boarding activity vary by bus line.

Boarding activity varies by type of fare. Express pass users and cash riders make relatively few boardings - 74 to 77 per

month. Handicapped pass users tend to make the most boardings - 108 per month. Users of the RTD regular monthly pass also make an above-average number of boardings, 98 per month. The level of boardings made by college/vocational pass riders is also relatively high, about 95 a month.

Boardings vary by rider's residence location. Riders from the San Gabriel Valley, South Bay and Long Beach Sector tend to make the fewest boardings in a month - 76 to 78. Riders from downtown or East Los Angeles tend to make the most boardings - about 98 per month. Boarding activity levels also vary by sub-sector within sector.

A relationship was found between boarding activity and the ratio of cars per person in household. Riders with no car average 93 boardings a month. Those riders from households with .75 or more cars per person average 74 boardings. A relationship was found between annual household income and boardings. As income increases, boarding levels tend to decline. Low-income riders average 86 to 93 boardings a month. High-income riders average 72 to 80 boardings.

Boarding activity varies by age. Riders under 19 years old and senior citizens tend to make fewer boardings than other riders - only 78 to 80 boardings, as opposed to 87 to 90.

Black riders tend to make more boardings per month than riders in other groups. Blacks make 91 boardings a month, followed by Latinos who make 86. Whites and Asian/Pacific Islanders average only 80 boardings a month.

5. Linked Trip Origins and Destinations

The West Los Angeles Sector serves as origin or destination for 48% of all linked trips made on Regular-Service lines on weekdays. Up to 22% of all linked trips are made entirely within the boundaries of the West Los Angeles Sector.

Three other sectors - South Central LA, the CBD and the San Fernando Valley - serve as major trip generators. Each of these sectors is origin or destination for 22% to 25% of all linked trips made on Regular-Service lines.

Together, these four sectors - West LA, South Central, CBD and San Fernando Valley - serve as origin or destination for 76% of all linked trips on Regular-Service line.

Within each sector, a limited number of sub-sectors serve as primary trip generators:

> Of the eighteen sub-sectors in the West Los Angeles sector, Hollywood serves as origin or destination for 27% of all trips beginning or ending in the sector.

The Crenshaw sub-sector accounts for 42% of South Central sector trip origins and destinations.

In the San Fernando Valley, Van Nuys serves as origin or destination for 34% of the linked trips.

Hawthorne is the primary trip generator in the South Bay sector, accounting for nearly a quarter of all trip origins and destinations.

Of all linked trips beginning or ending in the San Gabriel Valley, over 37% begin or end in the Pomona Valley.

Th Glendale/Eagle Rock sub-sector accounts for 35% of the trips beginning or ending in the North Central Sector.

The East Los Angeles/Boyle Heights sub-sector accounts for 92% of the linked trips to or from the East LA Sector.

Up to 86% of the linked trips to or from the East Central sector are generated by the Vernon/Huntington Park/Bell/ Maywood sub-sector.

The primary trip generator in the Mid-Cities sector is the Downey sub-sector, accounting for 36% of the linked trips.

6. Trip Purpose

About half the RTD Regular-Service riders are traveling on work trips, 21% are on school trips.

Trip purpose mix varies by bus line.

Trip purpose varies by type of fare. Up to 80% of regular and express pass users are on work trips. Over 73% of student pass users are on school trips, as are 70% of college/vocational pass users.

Only about 22% of senior citizen and handicapped pass users are on work trips; up to 40% of their trips are for shopping and 20% are for social/recreational purposes.

The mix of trip purposes varies by time of day. During peak hours, up to 66% of the riders are on work trips. The next highest proportion of work trips occurs during evening hours - 55% of travel after 6:30 PM is to or from work.

The largest proportions of school trips are found during he morning peak and afternoon base periods. Travel to or from school accounts for over 11% of the trips after 6:30 PM.

Trip purpose varies by sector. Only 42% to 46% of the trips by residents of the San Gabriel or San Fernando Valleys are work trips. From 61% to 72% of the trips by residents of the East Los Angeles, downtown and East Central Sectors are work trips.

Rider age has an effect on trip purpose. The proportion of school trips is highest among riders under 19 years old. Among riders over 19 the proportion traveling to or from work rises with age to a peak of 77% among riders between 40 and 49 years old, and declines thereafter. Only 35% of senior citizens use the bus for work trips.

Trip purpose variation by gender also exists. A larger proportion of women ride the bus on shopping trips. More men use the bus on social/recreational trips.

Latinos make the largest proportion of work trips by bus, 62.7%, and the smallest proportion of school trips by bus, only 16.1%.

Household income has an effect on trip purpose. The proportion of work trips tends to rise as income rises up to $20,000. Work trips then decline in proportion among riders with household incomes above $20,000. The opposite pattern prevails for school trips. The proportion of school trips declines as income rises to the $20,000 level. After $20,000, school trips increase in proportion. Shopping and medical trips decline in proportion as income rises. Social/ recreational trips decline as income rises to the $25,000 level. Above $25,000, the proportion of social/recreational trips increases to its highest point.

7. Mode of Access

At least 90% of Regular-Service riders access the RTD system on foot.

As household income rises, riders are less likely to access the RTD system on foot and more likely to access by car.

8. Rider Attitudes About RTD Service

Overall, 76% of RTD Regular-Service riders have an opinion of RTD service that is "somewhat favorable" or "very favorable".

Satisfaction with RTD service varies by bus line.

Levels of rider satisfaction with RTD service vary by residence sector. The most favorable ratings come from riders in the Mid-Cities, Long Beach, San Gabriel Valley, East Central and East Los Angeles Sectors.

Level of satisfaction tends to increase as riders get older.

Latinos and Asian/Pacific Islanders register the highest satisfaction levels, Blacks register the lowest.

Satisfaction with RTD service tends to decrease as income increases.

9. Rider Age

The median age of RTD Regular-Service riders has increased to 27.4, still two and a half years below the median age of the general population. The largest bloc of RTD regular service riders is the 19 to 29 year old group - 38% of riders. The next largest group is riders under 19. Together, these two groups comprise 59% of the riders.

Median rider age varies dramatically by bus line - from 18.4 to 32.4 years old.

Median rider age varies by time of day - highest during morning peak, lowest during afternoon base period. Riders under 19 years old ride most during morning peak and afternoon base periods. Senior citizens ride most during base periods.

Median rider age varies by residence sector - youngest riders in the South Bay, oldest in Mid-Cities and West Los Angeles Sectors.

White riders tend to be older than minority riders - 32 years old versus about 27.

10. Rider Gender

Although women still comprise a majority, their proportion of RTD Regular-Service ridership has declined to 54% from 58% in 1978. About 66% of the new riders since 1978 have been men.

Gender mix varies by bus line - from 71% male to 76% female.

Male riders are in the majority during peak periods and during the evening.

Gender mix tends to vary by residence sector.

11. Ethnic Background

The proportion of minority riders on the RTD system is greater than their proportion in the county population. Up to 63% of RTD Regular-Service riders are members of a minority; minorities comprise 48% of Los Angeles County population.

Ethnic composition of ridership varies by bus line and by residence sector.

The proportions of White riders using transit drops to its lowest point during evening hours.

12. Household Income

The median household income reported by RTD Regular-Service riders is $11,066, about half the level of the average effective buying income among Los Angeles County residents. Although Regular-Service riders as a group tend to have below-average household incomes, there is evidence that more affluent riders have begun to ride RTD buses during the last three years.

As household size increases, rider median income moves closer to poverty levels. The median income of rider households with six or more residents actually falls below poverty levels.

Median household income of Regular-Service riders varies by time of day. It is highest among riders during morning peak hours, lowest during the afternoon base period.

Income varies by residence location, the poorest riders live in downtown Los Angeles, East Los Angeles, and the north Central and South Central Sectors.

Income varies by ethnic background. The poorest riders are Latinos. The most affluent are Whites and Asians.

Household income varies by age of the rider. The poorest age group is composed of senior citizens. Their median income is only 56% as high as the overall median income of riders.

13. Number of Cars

At least one third of the riders on Regular-Service lines live in households that do not own a car.

The proportion of riders from households without cars varies by bus line, by residence location, by rider age and ethnic background and by household income.

Riders living in the West Los Angeles and Downtown sectors are most likely to have no car in the household. Those from the South Bay sector are least likely to have no car. Within sectors, however, there is wide variation in the proportion of no-car households in different sub-sectors.

Riders under 19 years of age are least likely to reside in households that have no car (only 13% are in this category). Senior citizens are most likely to be entirely without a car Fifty-six percent of the riders over 62 years old reported having no car.

There is a strong relationship between annual household income and car ownership. Among riders in the lowest income group, 57% have no car in the household. Among riders in the highest income group, only 7% have no car.

The average number of cars per household and the average number of cars per person in the household also tend to vary by bus line, residence sector, age, ethnic background and household income.

White riders own the largest number of cars per person in the household (.43). Latino and Indian riders own the smallest number (.31 per person).

The relationship between household income and car ownership is seen in the steady increase in the ratio of cars per person in household - from .21 cars per person in low-income households to .60 cars per person in high-income households.

14. Household Size

The median household size among Regular-Service riders is 3.6 persons.

Household size varies by residence sector. The smallest households are in the West Los Angeles and downtown sectors. The largest households are in the East Los Angeles Sector.

Household size varies by ethnic group. Latinos have the largest households, Whites the smallest.

Median household size tends to be larger among income groups earning more than $20,000.

DEMOGRAPHIC CHARACTERISTICS OF REGULAR-SERVICE WEEKDAY RIDERS

Age of Riders

The analysis of rider age has produced eight main findings:

1) There may be a gradual aging of the RTD rider population. The median age of riders on RTD regular-service lines is now 27.4 as shown in Table 2. The 1978 surveys of regular-service lines indicated a median age of 26. The difference in median rider age can be explained partly by the fact that the two surveys were conducted somewhat differently. The 1981 survey sampled riders over a full day, whereas the 1978 survey was limited to eight hours on each line. Variation found in rider age distribution by time of day would indicate that a sample conducted over less than a full service day could contain a significant bias in favor of younger age groups.

On the other hand, there has been a gradual aging of the U.S. population as birth rates have declined and products of the post-war baby boom have matured. The Census Bureau points out, for example, that the percentage of California population over 65 years of age grew from 9.7% in 1969 to 10.2% in 1980.

RTD must continue to monitor age distribution of its ridership. If average RTD ridership is indeed growing older, this trend could portend changes in terms of trip needs, fare mix, rider attitudes and other important areas.

2) RTD regular-service riders tend to be younger than the general population. The 1980 census showed that the median age of California residents is 29.9, a full two and a half years older than the average RTD rider.

3) The distribution of riders by age tends to vary widely by bus line. The median rider age on the 50 sample lines ranges from a low of 18.4 up to 32.4. Seven of the lines carry riders whose median age is less than 19. Four of the lines carry riders who average over 30 years old.

4) The following table shows how weekdays have been segmented for analytical purposes.

Definition of Time Periods

Time Period	Hours
Pre-AM Peak	Midnight to 5:59 AM
AM Peak	6:00 AM to 8:29 AM
Morning Base	8:30 AM to 11:59 AM
Afternoon Base	Noon to 3:29 PM
PM Peak	3:30 PM to 6:29 PM
Evening	6:30 PM to 11:59 PM

Table 3 shows that rider age also tends to vary by time of day. Riders on the bus during the morning peak tend to be somewhat older than average, with a median age of 28.6. The lowest median age is found among riders during the afternoon base period. During this period, when many younger students return home from school, the median age is 26.1. Ridership by the under-19 age group is highest during this period - 28%. During the morning base period, the PM peak and the evening period, ridership by the under-19 group falls to below average levels.

Precisely the opposite patterns occur among riders in the 19 to 29 age group. This group constitutes the largest single bloc of riders during all periods of the day, but the proportion of riders in this age group is above average during the AM base, PM peak and evening periods and below average during the AM peak and afternoon base.

A pattern can be seen among senior citizens also. Overall they constitute 8.5% of the weekday riders, but during the AM and PM base periods they account for 11.6% and 10.4% of the riders, respectively. Riding by senior citizens drops off throughout the day, until they account for only about 4% of the riders during the evening hours.

5) Average rider age can vary significantly by geographic area. Table 4 shows the age distribution of riders according to the location of their residence. High concentrations of senior citizen riders are found in the Mid-Cities and West Los Angeles sectors, resulting in an above-average median rider age of over 28. The youngest median age occurs among South Bay riders who average 24.3 years old. The rider populations from South Bay, San Fernando Valley and North Central sectors each have a large contingent of riders under 19 years old. The size of this young rider group ranges from 30% to 34% of the riders in each of these sectors.

6) Table 5 shows that there are only slight differences in age distribution by gender, resulting in a median age among male riders of 27.1 and among female riders of 27.5.

7) Greater variation in age is seen by ethnic group. The youngest riders are American Indians at 18.9 years old. Latino and Black riders average 26.5 and 27.0 years of age respectively. The oldest group of riders is the White riders, who average 32.1 years old. Table 6 provides a breakdown of rider age by ethnic background.

8) Average age tends to decline as household income goes up. The median age of riders from households earning less than $10,000 is 28.8. Among riders from households with annual incomes between $10,000 and $25,000, the average age ranges from 27.5 to 27.9. The lowest median age, 26.1, is found among riders from high income households earning over $25,000. Table 7 provides more detail.

TABLE 2
AGE OF RIDERS
BY BUS LINE

Bus Line	Under 19	19-29	30-39	40-49	50-61	62 or Older	Total	Median	Number of Respondents
12	30.9%	29.4%	19.1%%	9.8%	7.7%	3.1%	100.00%	26.1	194
18	55.2	28.4	10.4	6.0	-	-	100.00	18.4	67
29	17.4	44.3	14.1	8.1	8.1	8.1	100.10	27.1	149
32	9.7	55.9	18.3	4.3	10.8	1.1	100.10	26.9	93
44	12.4	40.0	18.1	8.9	7.6	13.0	100.00	29.3	315
47	8.6	48.4	17.2	8.6	9.7	7.5	100.00	28.4	93
73	53.2	22.6	8.1	6.5	6.5	3.2	100.10	18.6	62
81	31.1	24.2	16.3	7.9	8.9	11.6	100.00	27.6	190
86	11.0	37.2	22.1	12.2	11.0	6.4	99.90	30.8	172
88	20.9	35.7	14.8	7.0	10.0	11.7	100.10	28.0	230
89	19.6	26.8	14.9	8.9	11.5	18.3	100.00	32.4	235
91	8.8	44.5	21.4	11.0	6.6	7.7	100.00	28.1	182
96	47.8	26.1	8.7	8.7	-	8.7	100.00	19.9	23
114	47.6	30.9	9.9	3.0	4.3	4.3	100.00	19.9	233
152	36.2	36.2	11.2	2.6	9.5	4.3	100.00	23.2	116
155	35.7	35.7	10.7	7.1	3.6	7.1	99.90	23.4	28
156	40.4	33.1	12.5	2.9	8.8	2.2	99.90	22.2	136
157	42.1	33.6	10.5	5.9	4.6	3.3	100.00	21.6	152
160	50.0	19.2	13.5	5.8	1.9	9.6	100.00	18.9	52
164	15.2	39.4	17.2	6.1	14.1	8.1	100.10	28.7	99
165	35.4	36.6	12.2	4.9	4.9	6.1	100.10	23.4	82
166	23.8	44.1	9.8	8.4	7.7	6.3	100.10	25.5	143
168	52.9	22.4	9.4	8.2	5.9	1.2	100.00	18.7	85
169	34.9	37.1	8.6	5.4	5.9	8.1	100.00	23.5	186
175	35.8	30.3	16.5	2.8	5.5	9.2	100.10	24.2	109
210	20.6	40.7	19.4	5.9	5.5	7.9	100.00	26.9	253
354	53.6	26.8	10.7	3.6	3.6	1.8	100.10	18.6	56
424	25.6	44.4	13.3	5.6	6.7	4.4	100.00	25.0	90
425	25.5	35.8	14.2	6.6	9.9	8.0	100.00	26.5	212
431	29.8	26.6	15.3	5.6	6.5	16.1	99.90	27.4	124
435	41.0	33.1	11.2	2.8	4.5	7.3	99.90	22.0	178
451	36.8	34.7	10.5	3.2	8.4	6.3	99.90	23.2	95
452	52.5	30.0	5.0	5.0	2.5	5.0	100.00	18.7	40
453	40.6	15.6	12.5	-	9.4	21.9	100.00	25.6	32
454	53.8	30.8	5.1	3.8	2.6	3.8	99.90	18.5	78
484	12.5	48.4	15.6	7.8	7.8	7.8	99.90	27.5	64
488	10.1	38.5	16.2	12.2	13.5	9.5	100.00	30.9	148
813	12.5	33.3	18.1	12.5	13.9	9.7	100.20	32.3	72
821	29.5	31.8	6.8	11.4	6.8	13.6	99.90	26.1	44
822	13.4	41.8	9.0	11.9	14.9	9.0	100.00	28.6	67
826	9.3	43.4	16.3	14.0	14.0	3.1	100.10	29.3	129
831	39.7	22.4	10.3	10.3	5.2	12.1	100.00	24.1	58
840	25.9	38.9	17.6	7.4	4.6	5.6	100.00	25.8	108
844	46.1	35.5	4.6	5.3	5.3	3.3	100.10	20.2	152
846	25.5	41.8	11.4	8.2	6.4	6.8	100.10	25.4	220
861	18.8	44.9	9.1	9.7	6.8	10.8	100.10	26.6	176
867	24.2	38.5	9.9	4.4	12.1	11.0	100.10	26.4	91
869	49.0	19.3	10.9	6.8	9.4	4.7	100.10	19.6	192
871	18.8	36.5	12.7	9.6	12.7	9.6	99.90	28.4	197
872	33.9	25.4	8.5	5.1	13.6	13.6	100.10	26.0	59
OVERALL	21.4%	37.6%	16.2%	8.4%	7.9%	8.5%	100.00%	27.4	6361

Response Rate: 48.9%

TABLE 3
AGE OF RIDERS
BY TIME OF DAY

Time Period	Under 19	19 to 29	30 to 39	40 to 49	50 to 61	62 or Older	Total	Median Age	Number of Respondents
AM Peak	24.1%	29.6%	19.4%	11.8%	7.8%	7.2%	99.9%	28.6	1074
AM Base	16.0	41.3	17.9	5.7	7.5	11.6	100.0	28.1	1136
PM Base	28.0	34.1	13.9	7.1	6.6	10.4	100.1	26.1	1906
PM Peak	17.6	40.5	15.9	10.8	8.5	6.7	100.0	27.8	1825
Evening	18.8	42.5	18.1	5.9	10.7	3.9	99.9	27.1	419
OVERALL	21.4%	37.6%	16.2%	8.4%	7.9%	8.5%	100.0%	27.4	6360

Response Rate: 48.9%

TABLE 4
AGE OF RIDERS
BY RESIDENCE SECTOR

Residence Sector	Under 19	19 to 29	30 to 39	40 to 49	50 to 61	62 or older	Total	Median Age	Number of Respondents
San Fernando Valley	31.6%	31.5%	16.7%	6.3%	7.5%	6.3%	99.9%	25.4	825
North Central	30.2	27.2	20.8	10.5	5.1	6.2	100.0	27.0	171
San Gabriel Valley	21.1	40.3	13.9	10.1	8.7	5.9	100.0	26.9	540
West Los Angeles	14.8	40.7	18.6	8.3	6.6	10.9	99.9	28.5	724
South Central	24.8	41.3	15.2	9.7	4.0	5.0	100.0	25.7	535
East Central	15.1	53.3	13.8	11.3	5.8	.7	100.0	26.2	120
East Los Angeles	17.3	44.8	14.6	8.0	13.4	2.0	100.1	27.0	118
Mid-Cities	17.6	39.2	17.4	9.5	6.2	10.2	100.1	28.1	162
South Bay	34.1	32.7	15.0	5.6	5.8	6.9	100.1	24.3	458
Downtown L.A.	17.6	42.9	16.8	8.1	9.1	5.5	100.0	27.3	42
Long Beach	4.5	58.0	5.4	14.5	8.3	9.3	100.0	27.6	58
North L.A. County	-	-	-	-	-	-	-	-	4 *
Orange County	-	-	-	-	-	-	-	-	13 *
San Bernardino County	-	-	-	-	-	-	-	-	11 *
Ventura County	-	-	-	-	-	-	-	-	1 *
OVERALL	21.4%	37.6%	16.2%	8.4%	7.9%	8.5%	100.0%	27.4	3782
Response Rate:	29.1%								

*Sample size too small to allow valid statistical comparison.

TABLE 5

RIDER AGE BY GENDER

Gender	Under 19	19 to 29	30 to 39	40 to 49	50 to 61	62 or Older	Total	Median Age	Number of Respondents
Male	19.5%	41.6	17.1	7.5	7.1	7.2	100.0	27.1	2761
Female	23.5%	34.3	15.6	9.0	8.8	8.8	100.0	27.5	3515
OVERALL	21.4%	37.6	16.2	8.4	7.9	8.5	100.0	27.4	6276

Response Rate: 48.3%

TABLE 6

RIDER AGE

BY ETHNIC BACKGROUND

Ethnic Background	Under 19	19 to 29	30 to 39	40 to 49	50 to 61	62 and Older	Total	Median Age	Number of Respondents
White	18.2%	28.4%	16.0%	8.8%	11.8%	16.8%	100.0%	32.1	2500
Black	27.7	41.1	14.5	7.0	5.1	4.7	100.1	27.0	1582
Latino	19.2	45.2	19.1	9.0	5.4	2.1	100.0	26.5	1612
Asian or Pacific Islander	17.1	38.5	18.8	9.9	10.9	4.7	99.9	29.2	369
Indian	50.4	26.6	10.8	7.2	2.3	2.6	99.9	18.9	77
Other	23.3	44.7	8.8	6.8	13.2	3.2	100.0	25.6	52
OVERALL	21.4%	37.6%	16.2%	8.4%	7.9%	8.5%	100.0%	27.4	6192

Response Rate: 47.6%

TABLE 7
RIDER AGE
BY ANNUAL HOUSEHOLD INCOME

Annual Household Income	Under 19	19 to 29	30 to 39	40 to 49	50 to 61	62 or Older	Total	Median Age	Number of Respondents
Under $5,000	11.7%	43.1%	14.3%	9.4%	8.1%	13.5%	100.1%	28.8	866
$5000-$9999	14.1	40.3	18.8	10.0	5.7	11.1	100.0	28.8	738
$10000-$14999	13.8	44.8	22.7	7.7	7.0	4.0	100.0	27.9	694
$15000-$19999	13.9	45.1	18.6	12.8	7.5	2.1	100.0	27.8	467
$20000-$24999	24.1	33.4	21.0	10.1	6.8	4.6	100.0	27.5	409
$25000 or More	26.5	36.6	18.5	9.0	5.8	3.6	100.0	26.1	708
OVERALL	21.4%	37.6%	16.2%	8.4%	7.9%	8.5%	100.0%	27.4	3882
MEDIAN INCOME	$14119	$11076	$12149	$11485	$11124	$6250	$11066		

Response Rate: 29.9%

Rider Gender

Since the 1980 Survey of Weekend Ridership, surveyors who distribute on-board questionnaires have been providing data on three observable variables - rider gender, ethnic group and boarding point - whenever a rider refuses to answer a questionnaire. As a result, the "response rate" to the rider gender question is nearly 90%.

Previous surveys have indicated that women are in the majority among RTD riders. The 1981 survey of regular-service weekday lines confirms that this phenomenon still prevails, but to a lesser extent. In May, 1978 over 58% of the riders were women. In May, 1981 the percentage of women declined to 53.5% as shown in Table 8. This change represents a significant shift in the gender mix of RTD customers.

Between May, 1978 and May, 1981 the average number of weekday boardings increased 25%, from 1,090,000 to 1,360,000. The gender mix figures derived from the on-board surveys conducted in 1978 and 1981 suggest that 66% of RTD's new riders are men and that the average one-way linked transit trip consists of 2.1 boardings. If we assume that most riders complete a round trip during the course of a day, we find that the increase of 270,000 daily boardings would represent a net increase of about 64,000 new bus riders. Over 42,000 of these new riders would be men and 22,000 women.

$$\frac{(270{,}000)\ \text{additional boardings}}{\dfrac{(2.1)\ \text{boardings per one-way trip}}{2\ \text{one-way trips}}} = 64{,}286 \times .66\ \text{men} = 42{,}429\ \text{net increase in male ridership}$$

The gender mix of riders varies by bus line. As many as 71% of the riders on the 29 line, for example, are men--considerably above the 46.5% average system-wide proportion of male riders. On the other hand, only 24.1% of the riders on the 354 line are male.

Rider gender mix also tends to vary by time of day, as shown in Table 9. Male riders are in the majority during the AM peak and AM base periods, as well as during the evening hours. There are more women than men on the bus during the afternoon base and peak periods.

Variation in gender mix is also apparent by geographic area. Table 10 shows that the proportion of male riders ranges from a low of 29% among riders from the North Central Sector to over 62% among riders who live in downtown Los Angeles. Male riders from the Mid-Cities and West Los Angeles sectors also tend to be in the majority by a slight margin.

TABLE 8
RIDER GENDER
BY BUS LINE

Bus Line	Male	Female	Total	Number of Respondents
12	61.7%	38.3%	100.00%	426
18	44.2	55.8	100.00	86
29	71.0	29.0	100.00	599
32	41.9	58.1	100.00	222
44	45.2	54.8	100.00	535
47	57.3	42.7	100.00	253
73	49.5	50.5	100.00	91
81	50.2	49.8	100.00	279
86	40.6	59.4	100.00	411
88	53.7	46.3	100.00	244
89	41.3	58.7	100.00	511
91	53.5	46.5	100.00	258
96	40.0	60.0	100.00	40
114	36.7	63.3	100.00	379
152	48.1	51.9	100.00	270
155	58.0	42.0	100.00	50
156	41.7	58.3	100.00	163
157	43.7	56.3	100.00	300
160	41.9	58.1	100.00	155
164	37.1	62.9	100.00	175
165	40.5	59.5	100.00	153
166	43.3	56.7	100.00	157
168	58.1	41.9	100.00	93
169	45.2	54.8	100.00	303
175	40.6	59.4	100.00	128
210	49.3	50.7	100.00	450
354	24.1	75.9	100.00	87
424	44.2	55.8	100.00	217
425	38.3	61.7	100.00	478
431	42.9	57.1	100.00	259
435	39.3	60.7	100.00	328
451	37.9	62.1	100.00	140
452	51.6	48.4	100.00	64
453	31.7	68.3	100.00	63
454	34.3	65.7	100.00	99
484	52.7	47.3	100.00	239
488	41.5	58.5	100.00	277
813	41.9	58.1	100.00	86
821	36.8	63.2	100.00	68
822	49.4	50.6	100.00	87
826	47.0	53.0	100.00	151
831	52.1	47.9	100.00	146
840	53.1	46.9	100.00	196
844	44.6	55.4	100.00	202
846	47.7	52.3	100.00	323
861	35.4	64.6	100.00	229
867	50.9	49.1	100.00	171
869	43.3	56.7	100.00	263
871	47.3	52.7	100.00	421
872	33.3	66.7	100.00	105
OVERALL	46.5%	53.5%	100.00	11430

Response Rate: 87.9%

TABLE 9
RIDER GENDER
BY TIME OF DAY

Time Period	Male	Female	Total	Number of Respondents
AM Peak	56.2%	43.8%	100.0%	1960
AM Base	58.3	41.7	100.0	2499
PM Base	48.8	51.2	100.0	3461
PM Peak	46.0	54.0	100.0	2843
Evening	60.5	39.5	100.0	666
OVERALL	46.5%	53.5%	100.0%	11429

Response Rate: 87.9%

TABLE 10
RIDER GENDER
BY RESIDENCE SECTOR

Residence Sector	Male	Female	Total	Number of Respondents
San Fernando Valley	43.9%	56.1%	100.0%	892
North Central	29.0	71.0	100.0	186
San Gabriel Valley	46.9	53.1	100.0	576
West Los Angeles	51.8	48.2	100.0	774
South Central	37.1	62.9	100.0	580
East Central	39.7	60.3	100.0	127
East Los Angeles	44.7	55.3	100.0	128
Mid-Cities	50.2	49.8	100.0	175
South Bay	37.6	62.4	100.0	491
Downtown L.A.	62.1	37.9	100.0	43
Long Beach	46.5	53.5	100.0	63
North L.A. County	-	-	-	4 *
Orange County	-	-	-	14 *
San Bernardino County	-	-	-	10 *
Ventura County	-	-	-	1 *
OVERALL	46.5%	53.5%	100.0%	4064
Response Rate:	31.3%			

*Sample size too small to allow valid statistical comparison

Ethnic Background

The ethnic composition of the Los Angeles area has changed dramatically during the last thirty years. In 1950, 86.3% of Los Angeles County residents were White; Blacks and Latinos each comprised less than 7% of the population. The 1980 census results demonstrate the extent of the shift away from an Anglo majority. Today only 53% of the county's residents are White, 28% Latino, 13% Black and 6% Asian. The following table shows the ethnic breakdown of the five-county Southern California area.

SOUTHLAND COUNTIES BY RACE

	1980 Pop.	Anglo	Black	Latino	Asian	Indian
Los Angeles	7,477,657	53%	13%	28%	6%	1%
Orange	1,931,570	79	1	15	4	1
Ventura	529,899	73	2	21	3	1
San Bernardino	893,157	73	5	19	2	1
Riverside	663,923	74	5	19	1	1
Total	11,496,206	61%	9%	24%	5%	1%

The ethnic composition of RTD ridership, shown in Table 11, differs significantly from that of the county population. Minority riders predominate to a greater extent than their representation in the general population would suggest. Less than 37% of RTD riders are White, over 30% are Latino and nearly 26% are Black. Asian and Pacific Islanders and American Indians are the only groups whose representation among RTD riders is identical to their representation among the general population.

The ethnic composition of riders varies by line, reflecting the area served by the line and the type of service provided. For example, the 354 line, which serves the South Central sector has virtually no White riders, whereas the San Fernando Valley's 164 line serves a clientele which is 67% White.

Table 12 demonstrates the wide variations in ethnic mix that exist in different sectors. White riders are in the majority among San Fernando Valley and Long Beach sector residents. Blacks comprise over 61% of the riders living in South Central Los Angeles and Latinos account for 63% of the riders from the East Central sector and for over 84% of the riders from East Los Angeles. Latinos are also in the majority among riders residing in the downtown sector.

Time of day also has an effect on the ethnic composition of RTD ridership. Table 13 shows, for example, that White ridership drops to its lowest level during evening hours after 6:30 PM, when only 19% of the riders are White. The proportion of Black and Latino riders rise to their highest levels in the evening, up to 34.3% and 39.1%, respectively.

TABLE 11
ETHNIC BACKGROUND
BY BUS LINE

Bus Line	White	Black	Latino	Asian or Pac. Islan.	Amer. Indian	Other	Total	No. of Respondents
12	7.1%	50.1%	35.9%	6.4%	-	.5%	100.00%	421
18	1.2	80.0	14.1	2.4	2.4	-	100.10	85
29	5.8	39.4	53.0	.8	.3	.7	100.00	606
32	5.9	13.6	79.1	1.4	-	-	100.00	220
44	26.0	30.7	29.5	11.2	1.0	1.6	100.00	511
47	16.5	15.0	61.2	6.9	.4	-	100.00	260
73	4.4	82.2	5.6	3.3	2.2	2.2	99.90	90
81	64.1	9.2	19.8	5.1	1.5	.4	100.10	273
86	51.1	7.0	31.1	10.3	-	.5	100.00	399
88	50.4	17.5	25.4	5.4	.4	.8	99.90	240
89	60.0	20.1	14.9	3.4	.2	1.4	100.00	503
91	46.7	16.7	31.5	3.9	.8	.4	100.00	257
96	9.8	61.0	26.8	2.4	-	-	100.00	41
114	8.3	79.4	10.2	.8	.8	.5	100.00	373
152	50.6	9.3	34.6	4.5	.7	.4	100.10	269
155	41.7	20.8	31.3	4.2	-	2.1	100.10	48
156	65.4	6.3	19.5	7.5	-	1.3	100.00	159
157	44.9	16.3	33.7	4.4	.3	.3	99.90	294
160	35.7	12.1	47.8	3.2	1.3	-	100.10	157
164	66.7	6.9	19.5	6.3	-	.6	100.00	174
165	61.8	5.9	26.3	4.6	-	1.3	99.90	152
166	47.1	13.4	31.8	6.4	.6	.6	99.90	157
168	52.2	14.1	25.0	6.5	2.2	-	100.00	92
169	56.6	7.6	25.7	6.9	2.8	.3	99.90	288
175	64.8	.8	32.8	.8	-	.8	100.00	125
210	19.5	62.4	14.3	2.5	.7	.7	100.10	447
354	-	100.0	-	-	-	-	100.00	86
424	22.7	6.4	50.5	18.6	1.4	.5	100.10	220
425	33.0	8.2	45.6	9.9	3.2	.2	100.00	476
431	33.3	20.5	31.8	11.2	1.2	1.9	99.90	258
435	39.8	34.9	17.7	4.6	2.1	.9	100.00	327
451	36.6	34.1	23.6	2.4	2.4	.8	99.90	123
452	20.3	56.3	17.2	6.3	-	-	100.10	64
453	59.0	18.0	23.0	-	-	-	100.00	61
454	28.3	44.6	23.9	1.1	2.2	-	100.10	92
484	39.1	20.2	34.5	6.3	-	-	100.10	238
488	43.1	7.3	24.8	23.7	.4	.7	100.00	274
813	57.3	19.5	13.4	7.3	1.2	1.2	99.90	82
821	43.3	3.0	44.8	6.0	3.0	-	100.10	67
822	44.0	4.8	45.2	1.2	4.8	-	100.00	84
826	31.8	4.7	61.5	.7	1.4	-	100.10	148
831	39.3	25.5	31.7	2.8	.7	-	100.00	145
840	23.0	43.9	26.0	5.6	.5	1.0	100.00	196
844	26.7	41.1	27.2	2.5	1.0	1.5	100.00	202
846	46.7	24.5	17.2	9.1	1.9	.6	100.00	319
861	48.5	13.7	28.3	7.3	.9	1.3	100.00	233
867	44.2	17.4	33.7	3.5	1.2	-	100.00	172
869	56.3	16.7	15.5	10.3	.8	.4	100.00	252
871	45.1	23.1	23.3	7.5	1.0	-	100.00	412
872	56.9	14.7	21.6	2.9	2.9	1.0	100.00	102
OVERALL	36.6%	25.5%	30.2%	6.1%	1.0%	.6%	100.00%	11274

Response Rate: 86.7%

TABLE 12
ETHNIC BACKGROUND
BY RESIDENCE SECTOR

Residence Sector	White	Black	Latino	Asian or Pacific Islander	American Indian	Other	Total	Number of Respondents
San Fernando Valley	62.5%	10.0%	20.7%	5.4%	.8%	.6%	100.0%	875
North Central	25.6	11.4	49.6	11.8	1.1	.5	100.0	182
San Gabriel Valley	38.9	24.8	26.2	7.6	1.5	1.0	100.0	562
West Los Angeles	44.4	21.2	25.8	7.2	.5	.9	100.0	760
South Central	6.7	61.2	25.7	3.1	1.4	1.9	100.0	576
East Central	23.3	8.3	63.3	1.4	2.9	.7	99.9	125
East Los Angeles	11.2	2.5	84.2	1.0	1.1	-	100.0	126
Mid-Cities	45.7	11.5	32.8	7.8	2.0	.2	100.0	175
South Bay	41.4	38.0	11.1	7.8	1.0	.6	99.9	489
Downtown L.A.	23.0	19.5	56.4	1.1	-	-	100.0	42
Long Beach	72.8	16.9	5.9	2.1	.5	1.8	100.0	62
North L.A. County	-	-	-	-	-	-	-	4 *
Orange County	-	-	-	-	-	-	-	14 *
San Bernardino County	-	-	-	-	-	-	-	11 *
Ventura County	-	-	-	-	-	-	-	1 *
OVERALL	36.6%	25.5%	30.2%	6.1%	1.0%	.6%	100.0%	4004
Response Rate:	30.8%							

* Sample size too small to allow valid statistical comparison

TABLE 13
ETHNIC BACKGROUND
BY TIME OF DAY

Time Per.	White	Black	Latino	Asian or Pacific Islander	Amer. Indian	Other	Total	Number of Respondents
AM Peak	28.2%	30.5%	35.7%	5.1%	.5%	-	100.0%	1933
AM Base	28.2	29.9	38.0	2.6	.7	.6	100.0	2468
PM Base	30.6	30.1	32.8	5.1	.7	.6	99.9	3399
PM Peak	33.3	24.5	33.7	6.8	.6	1.1	100.0	2811
Evening	19.0	34.3	39.1	6.8	-	.7	99.9	662
OVERALL	36.6%	25.5%	30.2%	6.1%	1.0%	.6%	100.0%	11273

Response Rate: 86.7%

Annual Household Income

The 1978 survey of weekday ridership found that median household income was $8409, at a time when the poverty level for a family of four was set by the Census Bureau at $7412. The median household effective buying income in 1979 was $18,680 for Los Angeles County as a whole. Bus riders' median income was just 13.5% above the poverty level, and only 45% as high as the median income of the general population. In other words, RTD regular-service riders tended to be significantly less affluent than the general population and, in fact, nearly half the riders had household incomes near or below the poverty level.

Table 14 shows that the 1981 median household income reported by riders is $11,066 (although the income figure varies by bus line - from $7199 on the 354 line to $22,233 on the 869). The 1981 poverty level for a family of four is estimated to be $9466, and the median household effective buying income for Los Angeles County is now $21,231. The median income of regular-service bus riders,therefore, is now 16.9% higher than the estimated poverty level and equivalent to 52% of the general population's effective buying income. These figures indicate an increase in bus riders' median income in relation to the poverty level and average county-wide household income. A larger proportion of more affluent people may have begun riding RTD buses during the last three years, but, on average, bus riders are still among the area's least affluent residents.

Table 15 shows bus riders' median household income by number of people living in the household. An analysis of bus rider median income in relation to poverty levels by family size is shown in Table 16. This table indicates a relationship between family size and relative affluence of bus riders. The median income of one and two person rider households is at least twice as high as the poverty levels set for households of that size. As household size increases, however, the median income moves steadily closer to the poverty level. Three person households report a median income which is 56% higher than the poverty level; four person households have a median income 30% higher; and five person households' median income is only 17% above the poverty level. The median income of households containing six or more persons actually falls below the poverty level. Six person households'average incomes are nearly 11% below the poverty level, and larger households are 27% below.

The median household income of regular-service weekday riders also shows variation by time of day, as demonstrated in Table 17. The median income of riders during the AM peak period is nearly $13,000--$1,900 above the average overall income. The lowest median income figures are reported by riders on board the bus during the aftenoon base period. With an average income of only $9,677, these riders are nearly $1,400 below the overall average. The median income of riders using the bus service after 6:30 PM is also somewhat below the overall average, though only by about $400.

Household income also tends to vary according to location of the bus rider's residence. Table 18 clearly shows the wide spread in median household income by sector. The poorest regular-service riders live in East Los Angeles, the North Central sector, and South Central Los Angeles. The median household income among riders from these sectors ranges from $7,362 to $8,021 - well below the overall median of $11,066. Riders from the East Central sector also report below average incomes of just over $9,000.

Riders from South Bay, Orange County, the San Fernando Valley and Long Beach sectors tend to be more affluent, with above-average household incomes of from $14,000 to over $18,400.

Variation in household income can also be found among riders in different age groups. Riders in the 30 to 39 and under-19 age groups tend to live in households with above-average incomes, as shown in Table 19. The most striking variation, however, is that riders in the senior citizen category report median household incomes which equal just 56% of the overall median. With a median income of only $6,250 senior citizens are by far the poorest age group.

Annual household income also varies according to the ethnic background of the rider. Table 20 shows the poorest group of riders to be Latinos with a median household income of only $7,600. The White, Asian and "other" groups have median incomes at least $2,400 above the overall rider average, while Black riders report a median income virtually identical to the overall rider average.

TABLE 14
ANNUAL HOUSEHOLD INCOME BY BUS LINE

Bus Line	Under $5000	$5000 to $9999	$10000 to $14999	$15000 to $19999	$20000 to $24999	$25000 & Over	Total	Median	Number of Respondents
12	21.0%	38.3%	17.3%	12.3%	6.2%	4.9%	100.00%	$ 8,786	81
18	26.5	22.4	18.4	8.2	16.3	8.2	100.00	10,299	49
29	21.5	24.3	38.9	6.3	5.6	3.5	100.10	10,540	144
32	34.3	22.9	22.9	12.9	2.9	4.3	100.20	8,428	70
44	29.9	24.4	20.9	12.4	7.5	5.0	100.10	9,119	201
47	38.8	20.9	11.9	13.4	3.0	11.9	99.90	7,679	67
73	15.4	25.6	15.4	10.3	7.7	25.6	100.00	12,922	39
81	18.8	12.1	20.1	10.1	10.7	28.2	100.00	14,751	149
86	24.2	9.8	18.2	17.4	12.1	18.2	99.90	14,396	132
88	26.8	12.2	15.9	8.5	13.4	23.2	100.00	13,459	82
89	26.1	27.1	19.1	10.6	8.5	8.5	99.90	9,410	199
91	17.5	17.5	23.0	13.5	7.9	20.6	100.00	13,261	126
96	35.7	35.7	14.3	-	-	14.3	100.00	7,003	14
114	33.3	22.5	10.9	9.3	7.8	16.3	100.10	8,711	129
152	19.8	13.6	17.3	8.6	8.6	32.1	100.00	14,798	81
155	22.2	11.1	27.8	16.7	16.7	5.6	100.10	13,004	18
156	12.6	12.6	13.8	17.2	17.2	26.4	99.80	18,198	87
157	16.1	9.3	18.6	19.5	11.0	25.4	99.90	16,538	118
160	26.3	13.2	15.8	10.5	13.2	21.1	1000.1	13,323	38
164	22.1	18.2	19.5	10.4	11.7	18.2	100.10	12,487	77
165	16.7	13.3	18.3	11.7	15.0	25.0	100.00	15,726	60
166	15.7	21.6	13.7	7.8	15.7	25.5	100.00	14,635	51
168	16.7	13.9	11.1	5.6	8.3	44.4	100.00	21,627	36
169	16.3	24.0	12.4	13.2	14.0	20.2	100.10	13,911	129
175	29.3	15.9	9.8	4.9	6.1	34.1	100.10	12,449	82
210	21.6	24.2	20.9	9.8	8.5	15.0	100.00	11,005	153
354	40.5	21.6	8.1	13.5	13.5	2.7	99.90	7,199	37
424	25.0	15.6	23.4	17.2	7.8	10.9	99.90	12,009	64
425	20.6	25.0	16.2	7.4	14.0	16.9	100.10	11,358	136
431	23.1	18.5	21.5	6.2	9.2	21.5	100.00	11,953	65
435	25.2	23.6	13.8	11.4	8.1	17.9	100.00	10,435	123
451	39.2	13.7	19.6	11.8	2.0	13.7	100.00	8,942	51
452	30.0	30.0	25.0	5.0	5.0	5.0	100.00	8,333	20
453	33.3	25.0	16.7	-	-	25.0	100.00	8,340	12
454	29.3	14.6	22.0	14.6	12.2	7.3	100.00	11,386	41
484	38.5	15.4	19.2	15.4	3.8	7.7	100.00	8,734	52
488	10.5	9.7	20.2	25.8	16.1	17.7	100.00	16,860	124
813	11.5	14.8	11.5	13.1	13.1	36.1	100.10	19,656	61
821	13.3	16.7	26.7	10.0	16.7	16.7	100.10	13,745	30
822	28.9	20.0	6.7	17.8	6.7	20.0	100.10	10,821	45
826	32.4	23.9	16.9	9.9	7.0	9.9	100.00	8,682	71
831	14.0	18.6	25.6	14.0	11.6	16.3	100.10	13,398	43
840	27.5	18.8	13.7	11.2	8.8	20.0	100.00	11,350	80
844	26.0	29.0	14.0	5.0	13.0	13.0	100.00	9,138	100
846	19.1	15.4	14.2	11.1	14.8	25.3	99.90	15,586	162
861	23.7	21.6	13.4	8.2	12.4	20.6	99.90	11,754	97
867	33.3	18.8	15.9	7.2	13.0	11.6	99.80	9,441	69
869	13.4	7.2	12.4	12.4	10.3	44.3	100.00	22,233	97
871	16.5	15.8	19.6	20.3	9.5	18.4	100.10	14,515	158
872	33.3	18.2	21.2	9.1	9.1	9.1	100.00	9,588	33
OVER-ALL	24.2%	21.3%	21.1%	11.1%	8.2%	14.2%	100.10%	11,066	4183

Response Rate: 32.2%

Table 15
HOUSEHOLD SIZE
BY ANNUAL HOUSEHOLD INCOME

Annual Household Income	One	Two	Three	Four	Five	Six	Seven or More	Total	Median Number in Household	Number of Respondents
Under $5000	24.8%	22.9%	17.1%	13.0%	8.5%	5.7%	8.0%	100.0%	3.1	880
$5000-$9999	21.8	20.7	17.4	16.2	11.1	6.1	6.7	100.0	3.4	749
$10000-$14999	26.8	24.9	17.6	9.7	9.5	5.1	6.4	100.0	2.9	693
$15000-$19999	18.2	28.8	15.8	17.6	8.8	5.2	5.6	100.0	3.2	480
$20000-$24999	15.7	22.0	18.6	16.1	13.1	5.8	8.7	100.0	3.7	418
$25000-or more	4.4	28.6	18.3	18.5	16.8	6.6	6.8	100.0	3.9	727
OVERALL	16.9%	22.3%	18.0%	16.5%	12.2%	5.7%	8.4%	100.0%	3.6	3947
Median Income	$9,464	$12,366	$11,411	$12,180	$12,931	$11,173	$11,371	$11,066		

Response Rate: 30.4%

TABLE 16

COMPARISON BETWEEN BUS RIDER MEDIAN INCOME AND POVERTY LEVELS BY HOUSEHOLD SIZE

Number in Household	Census Bureau Poverty Levels 1980	1981*	1981 Bus Rider Median Household Income	Relation to 1981 Poverty Level
One	$4,190	$4,655	$ 9,464	+103.3%
Two	5,363	5,958	12,366	+107.6
Three	6,565	7,294	11,411	+ 56.4
Four	8,414	9,347	12,180	+ 30.3
Five	9,966	11,072	12,931	+ 16.8
Six	11,269	12,519	11,173	- 10.8
Seven or more	13,955	15,504	11,371	- 26.7

*1981 Poverty levels are estimates, based on 11.1% annual increase in consumer price index in Los Angeles area as of August 1981. Official Census Bureau poverty level figures for 1981 will be released in 1982.

TABLE 17
ANNUAL HOUSEHOLD INCOME
BY TIME OF DAY

Time Period	Under $5000	$5000-$9999	$10000-$14999	$15000-$19999	$20000-$24999	$25000 or more	Total	Median Income	Number of Responden
AM PEAK	14.9%	19.7%	26.0%	13.8%	10.9%	14.7%	100.0%	$12,962	706
AM BASE	19.2	23.0	27.1	10.0	7.4	13.2	99.9	$11,439	824
PM BASE	29.7	21.7	20.0	10.0	6.0	12.5	99.9	$ 9,677	1267
PM PEAK	24.7	19.8	17.4	12.1	9.6	16.4	100.0	$11,580	1163
EVENING	25.8	22.4	16.3	11.2	9.8	14.6	100.1	$10,644	222
OVERALL	24.2%	21.3%	21.1%	11.1%	8.2%	14.2%	100.1%	$11,066	4182
Response Rate:	32.2%								

TABLE 18
ANNUAL HOUSEHOLD INCOME
BY RESIDENCE SECTOR

Residence Sector	Under $5000	$5000-$9999	$10000-$14999	$15000-$19999	$20000-$24999	$25000 or more	Total	Median Income	Number of Respondents
San Fernando Valley	16.2%	14.5%	17.8%	14.4%	13.3%	23.9%	100.1%	$15,521	654
North Central	36.0	25.9	18.7	7.1	2.8	9.6	100.1	7,703	130
San Gabriel Valley	25.7	16.5	16.8	15.1	10.7	15.2	100.0	12,321	384
West Los Angeles	23.5	20.9	22.4	11.2	8.2	13.8	100.0	11,250	577
South Central	32.6	28.8	17.5	8.4	8.3	4.5	100.1	8,021	371
East Central	29.2	25.7	17.2	9.0	6.4	12.5	100.0	9,047	89
East Los Angeles	35.4	30.9	16.9	12.2	4.1	.5	100.0	7,362	87
Mid-Cities	16.5	24.5	22.7	24.2	5.8	6.2	99.9	11,982	127
South Bay	16.1	9.5	16.6	11.4	13.7	32.9	100.2	18,421	342
Downtown L.A.	-	-	-	-	-	-	-	-	31*
Long Beach	15.9	23.5	15.6	23.2	19.2	2.5	99.9	13,397	48
North L.A. County	-	-	-	-	-	-	-	-	4*
Orange County	-	-	-	-	-	-	-	-	13*
San Bernardino County	-	-	-	-	-	-	-	-	10*
Ventura County	-	-	-	-	-	-	-	-	1*
OVERALL	24.2%	21.3%	21.1%	11.1%	8.2%	14.2%	100.1%	$11,066	2868

Response Rate: 22.1%

* Sample size too small to allow valid statistical comparison

TABLE 19
ANNUAL HOUSEHOLD INCOME BY RIDER AGE

Annual Household Income	Under 19	19 to 29	30 to 39	40 to 49	50 to 61	62 or Older	Total	Median Age	Number of Respondents
Under $5,000	11.7%	43.1%	14.3%	9.4%	8.1%	13.5%	100.1%	28.8	866
$5000-$9999	14.1	40.3	18.8	10.0	5.7	11.1	100.0	28.8	738
$10000-$14999	13.8	44.8	22.7	7.7	7.0	4.0	100.0	27.9	694
$15000-$19999	13.9	45.1	18.6	12.8	7.5	2.1	100.0	27.8	467
$20000-$24999	24.1	33.4	21.0	10.1	6.8	4.6	100.0	27.5	409
$25000 or More	26.5	36.6	18.5	9.0	5.8	3.6	100.0	26.1	708
OVERALL	21.4%	37.6%	16.2%	8.4%	7.9%	8.5%	100.0%	27.4	3882
MEDIAN INCOME	$14119	$11076	$12149	$11485	$11124	$6250	$11066		

Response Rate: 29.9%

TABLE 20
ANNUAL HOUSEHOLD INCOME
BY ETHNIC GROUP

Ethnic Background	Under $5000	$5000 -$9999	$10000- $14999	$15000- $19999	$20000- $24999	$25000 or More	Total	Median Income	Number of Respon- dents
White	19.3%	17.2%	19.4%	12.1%	9.6%	22.3%	99.9%	$13,479	1,796
Black	20.5	23.6	27.3	11.0	8.6	9.0	100.0	11,081	1,037
Latino	35.9	27.1	16.9	8.6	4.5	7.0	100.0	7,601	892
Asian or Pacific Islander	19.6	17.6	19.1	19.9	8.4	15.4	100.0	13,351	235
Indian	41.5	10.4	25.3	.8	6.7	15.3	100.0	9,087	54
Other	25.0	2.1	32.3	11.7	10.7	18.3	100.1	13,545	44
OVERALL	24.2%	21.3%	21.1%	11.1%	8.2%	14.2%	100.0%	11,066	4,058

Response Rate: 31.2%

Household Size

The median household size among regular-service weekday riders is 3.6 persons. Overall, 17% of the riders live alone, and another 22% live with one other person. More than one-quarter of the riders, 26%, live in households of five or more persons.

Table 21 shows that household size does vary somewhat by bus line, ranging from 3 persons on the 86 line to 5.4 persons on the 452.

Table 15 in the previous section showed that household size also tends to vary by income group. Although the relationship is far from perfect, household size tends to be larger among the higher income groups. The number of people per household among riders whose median income is below $20,000 ranges from 2.9 to 3.4; the number of persons in households with median incomes above $20,000 ranges from 3.6 to 3.9.

Variation in household size according to ethnic group can be seen in Table 22. The median household size of White riders is less than 3 persons, whereas Asian, Indian and Latino riders all report 4.2 to 4.5 persons per household. Black riders report a median of 3.7 persons per household.

Table 23 shows that household size also tends to vary by bus rider's residence location. Riders living in the West Los Angeles and downtown sector report a median household size of fewer than three persons. East Los Angeles residents report the largest households, 4.9 persons.

TABLE 21
HOUSEHOLD SIZE BY BUS LINE

Bus Line	One	Two	Three	Four	Five	Six	Seven or more	Total	Median	Number of Respondents
12	8.1%	15.3%	19.8%	20.7%	15.3%	7.2%	13.6%	100.0%	4.3	111
18	9.0	13.4	17.9	20.9	11.9	9.0	17.9	100.0	4.5	67
29	26.1	13.0	20.0	7.8	12.2	5.2	15.7	100.0	3.5	115
32	6.2	12.4	23.7	11.3	9.3	15.5	21.6	100.0	4.7	97
44	16.2	20.9	16.9	20.1	13.3	4.7	7.9	100.0	3.8	278
47	10.1	22.5	19.1	16.9	9.0	13.5	8.9	100.0	3.9	89
73	3.4	16.9	20.3	25.4	3.4	16.9	13.7	100.0	4.4	59
81	16.3	26.0	19.4	15.3	13.8	3.6	5.6	100.0	3.4	196
86	18.5	32.0	14.0	14.6	9.6	4.5	6.8	100.0	3.0	178
88	20.0	22.0	14.0	15.0	15.0	3.0	11.0	100.0	3.6	100
89	30.8	27.0	18.1	9.3	8.9	1.3	4.6	100.0	2.7	237
91	26.8	32.9	15.9	11.0	7.9	2.4	3.1	100.0	2.7	164
96	9.5	23.8	19.0	23.8	9.5	4.8	9.6	100.0	3.9	21
114	5.2	11.7	14.1	23.0	20.7	12.7	12.6	100.0	4.8	213
152	11.3	15.1	17.9	28.3	11.3	5.7	10.4	100.0	4.2	106
155	11.1	25.9	7.4	25.9	11.1	11.1	7.5	100.0	4.2	27
156	5.3	9.2	17.6	25.2	19.1	13.7	9.9	100.0	4.7	131
157	8.3	17.2	22.1	22.8	13.1	4.8	11.7	100.0	4.1	145
160	12.1	20.7	6.9	19.0	24.1	12.1	5.1	100.0	4.5	58
164	16.3	24.5	20.4	19.4	8.2	7.1	4.1	100.0	3.5	98
165	12.5	31.3	16.2	11.2	16.2	6.3	6.3	100.0	3.4	80
166	9.0	19.2	29.5	19.2	11.5	3.8	7.8	100.0	3.7	78
168	5.2	13.8	15.5	27.6	20.7	5.2	12.0	100.0	4.6	58
169	10.4	20.3	20.9	14.3	17.0	8.8	8.3	100.0	3.9	182
175	6.9	17.6	25.5	18.6	17.6	6.9	6.9	100.0	4.0	102
210	16.1	25.6	18.1	16.1	16.1	4.5	3.5	100.0	3.5	199
354	5.9	9.8	21.6	15.7	23.5	3.9	19.6	100.0	4.8	51
424	4.4	15.6	18.9	22.2	16.7	10.0	12.2	100.0	4.5	90
425	12.7	18.9	14.2	21.7	10.4	9.0	13.1	100.0	4.2	212
431	6.6	21.7	14.2	17.9	23.6	7.5	8.5	100.0	4.4	106
435	12.3	13.5	14.0	20.5	18.7	9.4	11.6	100.0	4.5	171
451	8.5	9.9	16.9	28.2	7.0	12.7	16.8	100.0	4.5	71
452	3.2	6.5	9.7	22.6	19.4	12.9	25.7	100.0	5.4	31
453	4.5	22.7	13.6	22.7	18.2	13.6	4.7	100.0	4.4	22
454	7.0	15.8	35.1	24.6	10.5	1.8	5.2	100.0	3.8	57
484	14.8	23.0	16.4	23.0	8.2	8.2	6.4	100.0	3.7	61
488	10.3	17.8	21.2	24.0	13.7	7.5	5.5	100.0	4.0	146
813	17.4	29.0	11.6	14.5	13.0	7.2	7.3	100.0	3.3	69
821	5.1	20.5	15.4	28.2	7.7	12.8	10.3	100.0	4.3	39
822	8.2	19.7	27.9	11.5	18.0	4.9	9.8	100.0	3.8	61
826	10.3	13.8	29.9	18.4	13.8	4.6	9.2	100.0	3.9	87
831	6.7	15.0	20.0	16.7	16.7	8.3	16.6	100.0	4.5	60
840	10.3	12.0	19.7	18.8	19.7	12.8	6.7	100.0	4.4	117
844	3.4	17.6	15.5	20.3	17.6	12.8	12.8	100.0	4.7	148
846	14.6	23.0	19.7	17.4	10.8	7.5	7.0	100.0	3.6	213
861	14.3	22.9	14.3	19.3	14.3	10.0	4.9	100.0	3.9	140
867	14.6	19.8	25.0	12.5	14.6	6.3	7.2	100.0	3.6	96
869	5.8	20.1	16.9	22.7	18.2	5.2	11.1	100.0	4.3	154
871	16.3	28.1	21.4	15.8	9.2	5.1	4.1	100.0	3.3	196
872	20.7	13.8	22.4	17.2	12.1	8.6	5.2	100.0	3.7	58
OVER-ALL	16.9%	22.3%	18.0%	16.5%	12.2%	5.8%	8.3%	100.0%	3.6	5654

Response Rate: 43.5%

TABLE 22
HOUSEHOLD SIZE
BY ETHNIC BACKGROUND

Ethnic Background	One	Two	Three	Four	Five	Six	Seven or More	Total	Median House Hold Size	Number of Respondents
White	27.2%	30.0%	14.9%	13.3%	7.7%	3.4%	3.5%	100.0%	2.8	2,317
Black	14.6	21.1	20.9	16.5	13.3	4.6	9.0	100.0	3.7	1,413
Latino	6.6	13.5	19.6	21.6	16.1	9.8	12.8	100.0	4.5	1,324
Asian or Pacific Islander	9.3	21.9	17.5	8.5	18.7	9.1	15.0	100.0	4.2	306
Indian	8.1	17.9	18.3	20.4	13.1	18.0	4.2	100.0	4.3	74
Other	6.1	19.5	19.4	21.5	10.2	3.6	9.7	100.0	3.7	53
OVERALL	16.9%	22.3%	18.0%	16.5%	12.2%	5.8%	8.3%	100.0%	3.6	5,487

Response Rate: 42.2%

TABLE 23
HOUSEHOLD SIZE
BY RESIDENCE SECTOR

Residence Sector	One	Two	Three	Four	Five	Six	Seven or More	Total	Median House hold Size	Number of Respon-dents
San Fernando Valley	12.4%	22.6%	15.6%	19.0%	14.7%	6.3%	9.4%	100.0%	4.0	827
North Central	13.2	14.9	17.2	19.8	9.9	8.7	16.3	100.0	4.2	173
San Gabriel Valley	12.4	18.8	19.1	21.3	13.4	8.3	6.7	100.0	4.0	529
West Los Angeles	24.0	30.5	14.9	12.9	8.7	2.7	6.3	100.0	2.9	717
South Central	8.9	17.3	19.2	17.4	16.3	8.4	12.5	100.0	4.3	534
East Central	6.8	14.6	26.8	22.6	17.3	4.1	7.8	100.0	4.1	115
East Los Angeles	9.1	17.0	11.7	12.9	5.6	23.0	20.7	100.0	4.9	111
Mid-Cities	10.6	20.5	17.5	14.2	19.7	9.1	8.4	100.0	4.1	162
South Bay	12.1	20.8	27.7	14.4	12.7	4.4	7.9	100.0	3.6	458
Downtown Los Angeles	-	-	-	-	-	-	-	-	-	38*
Long Beach	15.8	25.6	18.6	5.4	28.1	1.7	4.8	100.0	3.5	60
North Los Angeles County	-	-	-	-	-	-	-	-	-	4*
Orange County	-	-	-	-	-	-	-	-	-	14*
San Bernardino County	-	-	-	-	-	-	-	-	-	11*
Ventura County	-	-	-	-	-	-	-	-	-	1*
OVERALL	16.9%	22.3%	18.0%	16.5%	1.2%	5.8%	8.3%	100.0	3.6	3,786
Response Rate:	29.1%									

* Sample size too small to allow valid statistical comparison

NUMBER OF CARS

The on-board surveys conducted in 1978 found that over a third (36%) of the respondents lived in households that did not own a car, and that about 60% of the respondents were riding the bus because no car was available to them for that trip.

The findings of the 1981 Ridership Tracking Study confirm the 1978 findings in regard to the proportion of riders from households without cars. Among respondents on the fifty Regular-Service lines surveyed in 1981, nearly 34%, overall, live in no-car households. Table 24 shows that the proportion of carless households varies by bus line. On the San Fernando Valley's 168 line, for example, which operates along Lassen Street in the North Valley, only 8.5% of the respondents said their households do not have a car. Over 52% of the 89 line (Fairfax Avenue) respondents, on the other hand, said they had no car in their household. The average number of cars per household ranges from .78 on the 89 line to 1.98 on the 168 line. Overall, the number of cars per household among Regular-Service line riders is 1.22.

Table 25 suggests that automobile ownership does vary by age of the bus rider. Young riders under 19 years old live in households which own, on average, the largest number of cars, 1.9, as well as the largest number of cars per person, .41. Respondents in the 19 to 29 age group also claim a fairly large number of cars per household, 1.2. Riders between 30 and 61 have .82 to .99 cars per household. Senior citizens have the smallest number of cars per household, only .64. There is an indirect negative correlation of -.28 between age and number of cars in the household. In other words, there is a tendency for the number of cars to decrease as age increases.

Table 26 indicates that there are differences in car ownership by ethnic background, too. White riders report the largest number of cars per person, .43. Latinos report the smallest number of cars per person, .31. There are some anomalies in Table 26, however. When the number of cars per household is considered, White riders rank lowest, with only 1.16 cars. This paradox is probably best explained by the fact that Whites tend to live in smaller households than minorities. White households were seen in the Table 22 to average 2.8 persons, and minority households 3.7 to 4.5 persons.

Another apparent anomaly in the data is the fact that the largest proportion of riders reporting that their households own no cars is found among White riders. Over 37% of the White riders have no car in the household, as composed to 34% of Black or Indian riders, 31% of Latino riders and only 19% of Asian riders. This apparent contradiction in the data is probably best explained in terms of the different age distributions among these groups of riders. As shown previously in Table 25, senior citizens are least likely to own a car. Table 6 showed that the proportion of senior citizens was highest among White riders up to 17%. Senior citizens account for only 2% to 5% of minority riders on Regular-Service line.

A positive relationship between household income and the number of cars owned is apparent. As income rises, so does the number of cars. The correlation between these two variables is .41. The average number of cars per household and per person both tend to increase as income goes up. Households earning at the lowest end of the income scale report only .68 cars per household; those at the top end of the scale report 2.17 cars. The low-income households average .21 cars per person, and the high-income households average .60.

Table 28 shows how car ownership tends to vary by respondent's residence location. The number of cars per household varies by major planning sector, from about one car or less in the Long Beach, East Central, West Los Angeles and Downtown sectors to 1.5 cars in the San Fernando Valley and 1.65 cars in the South Bay sector. The range in variation of car ownership is even more broad at the sub-sector level. Respondents living in Hollywood report only .63 cars per household, while those living in Malibu/Topanga, Sunland/Tujunga, Canoga Park, Granada Hills/Mission Hills, and Palos Verdes report an average of two or more cars per household (up to 2.32 cars in Palos Verdes.)

TABLE 24
NUMBER OF CARS
BY BUS LINE

Number of Cars Per Household

Bus Line	None	One	Two	Three	Four	Five or More	Total	Mean No. of Cars/HH	Number of Respondents
12	23.4%	34.6%	29.9%	7.5%	2.8%	1.9%	100.0%	1.39	107
18	29.9	31.3	16.4	6.0	10.4	6.0	100.0	1.60	67
29	49.5	28.8	7.2	11.7	1.8	.9	99.9	.92	111
32	36.9	23.8	20.2	9.5	6.0	3.6	100.0	1.39	84
44	38.8	31.8	20.7	6.6	.8	1.2	99.9	1.03	242
47	34.2	30.1	16.4	6.8	8.2	4.1	99.8	1.37	73
73	18.3	33.3	28.3	10.0	3.3	6.7	99.9	1.70	60
81	31.4	22.9	24.5	10.1	7.4	3.7	100.0	1.53	188
86	29.0	39.5	21.0	6.8	3.7	*	100.0	1.17	162
88	27.1	32.3	24.0	11.5	3.1	2.0	100.0	1.39	96
89	52.2	29.7	12.1	1.7	2.6	1.7	100.0	.78	232
91	36.2	38.8	17.1	5.3	2.0	.7	100.1	1.01	152
96	*	*	*	*	*	*	*	*	22
114	20.7	33.3	25.7	11.3	4.1	5.0	100.1	1.63	222
152	24.3	29.0	29.0	7.5	7.5	2.8	100.1	1.58	107
155	*	*	*	*	*	*	*	*	38
156	11.3	25.8	37.9	19.4	3.2	2.4	100.0	1.85	124
157	18.7	23.9	35.8	14.9	3.7	2.8	99.8	1.75	134
160	21.3	24.6	27.9	11.5	13.1	1.6	100.0	1.77	61
164	32.3	32.3	19.4	9.7	3.2	3.3	100.2	1.30	93
165	23.1	35.9	24.4	6.4	9.0	1.3	100.1	1.46	78
166	26.0	32.5	19.5	15.6	3.9	2.6	100.1	1.49	77
168	8.5	28.8	35.6	15.3	6.8	5.1	100.1	1.98	59
169	20.9	30.8	29.7	11.0	4.7	2.9	100.0	1.58	172
175	19.0	37.0	25.0	12.0	5.0	2.0	100.0	1.54	100
210	34.0	33.5	23.1	6.1	1.9	1.4	100.0	1.14	212
354	24.5	32.7	26.5	6.1	6.1	4.0	99.9	1.51	49
424	25.6	22.1	31.4	11.6	4.7	4.7	100.1	1.62	86
425	29.3	31.6	23.1	11.1	3.6	1.3	100.0	1.33	225
431	25.7	26.7	29.7	9.9	5.9	2.0	99.9	1.50	101
435	20.4	31.5	25.9	17.9	1.9	2.4	100.0	1.59	162
451	29.0	21.0	27.4	11.3	6.5	4.8	100.0	1.61	62
452	*	*	*	*	*	*	*	*	29
453	*	*	*	*	*	*	*	*	36
454	27.3	28.8	31.8	9.1	*	3.0	100.0	1.36	66
484	33.9	30.4	23.2	8.9	1.8	1.8	100.0	1.21	56
488	18.2	44.1	25.2	9.1	2.8	.7	100.1	1.36	143
813	25.0	33.8	29.4	4.4	4.4	2.9	99.9	1.38	68
821	*	*	*	*	*	*	*	*	39
822	30.2	31.7	22.2	6.3	3.2	6.4	100.0	1.43	63
826	36.4	36.4	16.9	6.5	1.3	2.6	100.1	1.09	77
831	23.3	33.3	16.7	16.7	1.7	8.4	100.1	1.68	60
840	24.8	33.0	27.5	8.3	2.8	3.6	100.3	1.44	109
844	22.6	30.3	29.0	11.6	3.2	3.2	99.9	1.56	155
846	28.0	25.7	26.6	13.1	2.8	3.7	99.9	1.50	214
861	26.7	34.1	21.5	13.3	1.5	2.9	100.0	1.40	135
867	24.1	34.5	28.7	6.9	3.4	2.2	99.8	1.40	87
869	14.8	31.0	29.0	13.5	5.8	5.8	99.9	1.86	155
871	24.0	37.0	24.0	8.9	2.6	3.6	100.1	1.41	192
872	38.6	31.6	21.1	8.8	*	*	100.1	1.00	57
Overall	33.6%	32.3%	20.9%	8.0%	3.2%	2.0%	100.0%	1.22	5500

*Sample size too small to allow valid statistical comparison

TABLE 25
NUMBER OF CARS PER HOUSEHOLD
BY RIDER AGE

Age	None	One	Two	Three	Four	Five or More	Total	Mean Number of Cars		Number of Respondents
								Per Household	Per Person	
Under 19	13.3%	28.9%	31.7%	14.4%	7.4%	4.3%	100.0%	1.90	.41	1559
19 to 29	33.5	33.2	20.1	8.7	2.7	1.8	100.0	1.20	.35	1812
30 to 39	42.9	35.7	18.5	2.0	.8	-	99.9	.82	.28	672
40 to 49	39.7	37.4	11.5	8.0	2.4	1.0	100.0	.99	.32	345
50 to 61	48.2	30.3	14.2	4.1	1.7	1.6	100.1	.87	.40	367
62 or Older	55.9	29.7	11.3	2.4	-	.7	100.0	.64	.33	352
Overall	33.6%	32.3%	20.9%	8.0%	3.2%	2.0%	100.0%	1.22	.36	5107
Median Age	31.0	27.1	23.1	21.1	18.0	18.5	27.4			

Response Rate: 39%

TABLE 26
NUMBER OF CARS PER HOUSEHOLD
BY ETHNIC BACKGROUND

Ethnic Background	None	One	Two	Three	Four	Five or More	Total	Mean Number Of Cars Per Household	Mean Number Of Cars Per Person	Number of Respondents
White	37.3%	31.6%	19.0%	6.5%	3.2%	2.5%	100.1%	1.16	.43	2305
Black	33.6	34.0	20.6	7.9	2.1	1.6	99.9	1.18	.33	1420
Latino	30.5	31.9	20.5	11.2	4.1	1.7	99.9	1.32	.31	1140
Asian/Pacific Islander	18.7	33.4	32.4	10.0	4.4	1.0	99.9	1.51	.38	301
American Indian	34.0	26.3	27.5	5.3	3.1	3.8	100.0	1.29	.31	74
Other	36.4	30.4	25.5	.6	1.9	5.2	100.0	1.20	.40	53
Overall	33.6%	32.3%	20.9%	8.0%	3.2%	2.0%	100.0%	1.22	.36	5293

Response Rate: 41%

TABLE 27
NUMBER OF CARS PER HOUSEHOLD
BY MEDIAN HOUSEHOLD INCOME

Household Income	None	One	Two	Three	Four	Five or More	Total	Mean Number of Cars		Number of Respondents
								Per Household	Per Person	
Under $5,000	57.2%	27.0%	9.5%	4.5%	1.3%	.5%	100.0%	.68	.21	790
$5,000 - $9,999	47.3	31.4	14.7	5.1	.6	.9	100.0	.83	.25	720
$10,000 - $14,999	41.1	39.6	12.2	4.5	1.9	.7	100.0	.89	.30	684
$15,000 - $19,999	25.8	39.2	24.7	5.6	3.8	1.0	100.1	1.26	.41	467
$20,000 - $24,999	11.8	42.8	26.5	10.7	5.4	2.7	99.9	1.65	.47	414
$25,000 or More	6.6	24.6	37.6	16.9	8.7	5.7	100.1	2.17	.60	720
Overall	33.6%	32.3%	20.9%	8.0%	3.2%	2.0%	100.0%	1.22	.36	3795
Median Income	$7813	$12500	$18084	$19999	$23038	$25414		$11066		

Response Rate: 29%

TABLE 28
NUMBER OF CARS PER HOUSEHOLD BY RESIDENCE SUB-SECTOR

Sub-Sector	None	One	Two	Three	Four	Five or More	Total	Mean Number of Cars/HH	Number of Respondents
Downtown	47.0%	27.6%	11.2%	14.1%	*	*	99.9%	.92	43
Sector Sub-total	47.0	27.6	11.2	14.1	*	*	99.9	.92	43
Wilshire Corr	41.5	33.4	15.0	7.4	.3	2.0	100.0	.98	106
Pico Corr	33.8	41.4	16.0	8.9	*	*	100.1	1.00	69
Echo Park	*	*	*	*	*	*	*	*	34
Los Feliz/LACC	*	*	*	*	*	*	*	*	39
Hollywood	53.9	33.3	10.8	.3	1.7	*	100.0	.63	114
W. Hollywood	37.3	42.5	11.1	7.2	1.9	*	100.0	.98	63
Park La Brea	*	*	*	*	*	*	*	*	21
Beverly Hills	*	*	*	*	*	*	*	*	6
Westwood	*	*	*	*	*	*	*	*	4
Brentwood/Pac Pal	*	*	*	*	*	*	*	*	5
West L A	*	*	*	*	*	*	*	*	7
Venice Mar Vista	*	*	*	*	*	*	*	*	14
Santa Monica	*	*	*	*	*	*	*	*	9
Malibu-Topanga	9.3	27.9	27.9	25.6	4.7	4.6	100.0	2.05	43
Westchester-LAX	*	*	*	*	*	*	*	*	16
Culver City/Palms	*	*	*	*	*	*	*	*	9
Inglewood	21.7	33.5	23.9	20.5	.2	.2	100.0	1.45	79
Century City	*	*	*	*	*	*	*	*	1
WLA Sector Sub-total	30.5	35.2	15.5	6.5	.9	1.3	99.9	.96	639
Crenshaw Corr	32.5	34.6	22.3	6.9	2.2	1.6	100.1	1.17	183
Western Ave Corr	37.0	16.4	26.8	19.1	.8	*	100.1	1.30	49
Harbor Fwy Corr	51.9	15.6	28.9	2.5	2.1	2.9	99.9	.99	103
Central Ave Corr	39.5	35.6	11.7	8.8	*	4.4	100.0	.96	73
Compton	18.2	30.8	27.1	11.2	1.2	1.4	99.9	1.83	145
South Central Sector Sub-total	38.4	27.9	22.0	7.7	1.6	2.2	99.9	1.15	553
Vernon-MP-Bell	31.4	45.8	15.5	7.3	*	*	100.0	.99	52
Lynwood/So.Gate	25.2	54.8	5.6	8.1	.6	5.8	100.1	1.26	53
East Central Sector Sub-Total	30.2	47.5	13.5	7.5	.1	1.1	99.9	1.04	105
ELA-Boyle Hts	32.8	26.5	21.6	11.8	2.0	5.3	100.0	1.80	95
Commerce	*	*	*	*	*	*	*	*	1
Montebello	*	*	*	*	*	*	*	*	11
ELA Sector Sub-total	32.2	27.0	21.7	12.1	1.9	5.1	100.0	1.80	107
Silverlake	*	*	*	*	*	*	*	*	15
Linc Ht/El Sereno	21.0	40.3	17.9	8.8	11.0	1.0	100.0	1.52	62
Highland/Glassel	22.6	42.2	18.5	15.2	1.5	*	100.0	1.31	34
Glendale/Eagle Rk	*	*	*	*	*	*	*	*	22
La Canada/La Crent	*	*	*	*	*	*	*	*	7
Sunland/Tujunga	15.0	25.4	18.8	7.5	29.5	3.8	100.0	2.22	20
North Central Sector Sub-total	28.7	39.6	16.1	8.8	6.2	.6	100.0	1.26	160
Sun Valley	*	*	*	*	*	*	*	*	32
Burbank	*	*	*	*	*	*	*	*	37
N. Hollywood	33.2	33.3	24.1	4.9	4.5	*	100.0	1.14	125
Van Nuys/Pan Cty	26.9	38.2	20.7	6.3	5.6	2.3	100.0	1.35	168
Sherman Oaks	*	*	*	*	*	*	*	*	33
Encino	*	*	*	*	*	*	*	*	34
Tarzana	*	*	*	*	*	*	*	*	10
Woodland Hills	*	*	*	*	*	*	*	*	28
Canoga Park	15.9	22.5	25.8	20.8	10.1	5.4	100.1	2.04	79
West SFV	*	*	*	*	*	*	*	*	5
Pacoima/Sn Fern	17.1	36.2	31.1	11.6	3.4	.5	99.9	1.89	106
Granada/Mission	15.2	31.5	13.4	24.3	6.4	9.2	100.0	2.15	51
Northridge	*	*	*	*	*	*	*	*	33
Chatsworth	*	*	*	*	*	*	*	*	17
Reseda	*	*	*	*	*	*	*	*	41
San Fernando Vly Sector Sub-total	24.1	31.5	25.6	11.5	5.1	2.3	100.1	1.50	799
Altadena	*	*	*	*	*	*	*	*	35
Arcadia/Sra Madre	*	*	*	*	*	*	*	*	18
Monrovia/Duarte	*	*	*	*	*	*	*	*	8
Pasadena/S. Pas	39.1	32.3	21.6	6.3	.7	*	100.0	.97	108
Azusa/Glendora	*	*	*	*	*	*	*	*	13
Baldwin Park	*	*	*	*	*	*	*	*	16
Covina/W. Covina	*	*	*	*	*	*	*	*	30
El Monte	*	*	*	*	*	*	*	*	40
La Puente	*	*	*	*	*	*	*	*	20
Montry Pk/Rosemd	22.6	49.8	16.3	6.8	4.9	*	100.0	1.21	51
San Gab/Temple	*	*	*	*	*	*	*	*	24
Walnut/Industry	*	*	*	*	*	*	*	*	3
Alhambra	*	*	*	*	*	*	*	*	13
Pomona Vly	40.5	29.6	17.2	10.6	1.2	.9	100.0	1.06	158
San Gabriel Vly Sector Sub-total	27.1	31.9	28.2	12.5	2.6	1.6	99.9	1.38	529
Downey	*	*	*	*	*	*	*	*	19
Whittier	*	*	*	*	*	*	*	*	31
La Mirada	*	*	*	*	*	*	*	*	7
Norwalk/Stafespgs	*	*	*	*	*	*	*	*	16
Pico Rivera	*	*	*	*	*	*	*	*	21
Artesia/Cerritos	*	*	*	*	*	*	*	*	21
Bellflwr/Paramt Mid-Cities Sector Sub-total	39.1	36.2	20.2	3.5	.9	*	99.9	.95	46
El Segundo	*	*	*	*	*	*	*	*	20
Gardena	*	*	*	*	*	*	*	*	32
Hawthorne/Lwndale	22.0	20.4	36.0	5.5	17.0	1.1	100.0	1.81	81
Beach Cities	17.3	45.4	28.0	6.4	1.1	1.9	100.1	1.34	128
Palos Verdes	*	33.9	30.3	16.3	13.4	6.1	100.0	2.32	66
Torrance/Lomita	*	*	*	*	*	*	*	*	34
Sn Pedro/Wlmgtn	*	*	*	*	*	*	*	*	41
Carson	*	*	*	*	*	*	*	*	338
South Bay Sector Sub-total	17.2	29.9	35.5	9.3	4.9	2.3	100.1	1.65	420
Lakewood	*	*	*	*	*	*	*	*	6
Long Beach	43.9	30.2	12.2	12.9	.7	.7	100.0	1.00	56
LonB Beach Sector Sub-total	32.3	46.2	9.9	9.6	1.6	.5	100.1	1.08	62
Overall	33.6%	32.3%	20.9%	8.0%	3.2%	2.0%	100.0%	1.22	3633

*Sample size too small to allow valid statistical comparison.

TRIP - RELATED CHARACTERISTICS

Type of Fare

Table 29 indicates that fare mix can vary significantly by bus line. The percentage of cash riders ranges from 30.4% on the 89 line, for example, up to 70.5% on the 867 line. Use of each type of pass also varies widely by line. Only 1.4% of the riders boarding the 813 line use a regular pass, whereas 33.6% of those boarding the 29 line use this type of pass. Several lines surveyed have no boardings by express pass users, but 31% of the riders boarding the 813 use an express pass. Student pass use also varies widely, from 2.1% of line 47 riders to 33.9% of the riders on the 354 line. Three lines in the sample experience no boardings with the college/vocational pass, but nearly 25% of the riders on the 484 line use this pass. Senior citizen pass use ranges from less than 1% on the 152 and 156 lines to 22% on the 89. The proportion of handicapped pass use is small on all lines, ranging from none (on 11 of the sample lines) to 4.2% of the boardings on the 813 line.

Overall, the 1981 survey of regular-service weekday riders found that 48% of the riders use cash, tickets or transfers to board the bus, 23% use a regular pass and 4% used an express pass. Student passes account for 11% of the boardings, and college/vocational passes for 5%. Senior citizen passes are used for 7% of the boardings and handicapped passes for less than 2%.

Table 30 compares the results of the 1978 and 1981 on-board surveys with each other, as well as with fare surveys and line profiles compiled by the Service Analysis Section. Differences in fare mix found by the Market Research on-board surveys, and the Service Analysis Section's fare surveys can be attributed to a number of causes. The on-board surveys collect data supplied by riders, whereas the fare survey collects data by observation. The on-board survey samples one bus run on each line surveyed for a full day; the fare survey samples single one-way trips. The on-board data represented in Table 30 was collected on regular-service lines only, but the fare survey data represents a mix of all types of bus lines.

The cash fare ratio published for the Spring Quarter of 1978 was calculated from Line Profile data collected by observation of boardings on a non-random sample of lines over a period of several months. In spite of the differences in method of collection, the same trend is apparent from the results of all three surveys. The proportion of cash, ticket and transfer boardings has declined significantly, from over 61% in 1978 to between 42% and 48% in 1981. Use of the monthly passes is up since 1978 too. In the Spring of 1978, 38% of boarding passengers used some kind of pass. In 1981, between 51% and 53% of the passengers used a pass. Use of the regular monthly pass increased from 12% of the boardings to 23%.

The increased proportion of pass boardings since 1978 reflects increased sales of monthly passes during the last three years. In May, 1978 134,286 passes were sold, as compared to 224,519 passes sold in May, 1981-- an overall increase of 67%. The rate of growth in the number of passes sold has varied by type of pass. The fastest growing pass has been the handicapped pass. Sales increased 178% over the last three years - from 3,645 passes sold in May, 1978 to 10,124 sold in May, 1981. Market share increased from 2.7% to 4.5%. Growth in sales of the Park and Ride pass has been 90.5%, but this pass still constitutes a small .2% share of the passes sold.

Regular and express passes increased market share from 43.2% to 45.8% on a sales increase of 77.1%. During the past three years, the number of express stamps sold increased 90.7%. The increase in the sales of senior citizen passes has been 55.3%, but market share declined to 23.6% from the May, 1978 level of 25.4%. Although sales of the student and college/vocational passes increased 39%, market share fell to 23.6% from 28.4%. The inter-agency pass accounts for less than .1% of the passes sold. Table A-XVI in the Appendix compares the pass sales mix in May of 1978 and 1981.

Fare mix does tend to vary by time of day, as seen in Table 31. The proportion of riders using cash, ticket or transfer fares is lowest during the morning peak - only 39.7%, as compared to an overall daily average of 47.9%. Cash, ticket and transfer fares are used for half the boardings during the morning and afternoon base periods. Use of the regular monthly pass is highest during the AM peak, and the evening hours. During both periods of the day, the regular pass accounts for 29% of the boardings.

The express pass is used most often during the morning peak, when it represents 7.5% of the boardings. During the PM peak express passes are used for 5.2% of the boardings on regular-service weekday lines.

Greatest use of the under-19 student pass also occurs during morning peak hours, when it is used for 14.4% of the boardings. This pass also accounts for 14% of the boardings during the PM base period.

Use of the college/vocational pass ranges from 3% of boardings to 5.5% . This pass accounts for its largest share of boardings (5.5%) during the PM base period, followed closely by the evening period (5.3% of boardings).

The use of the senior citizen pass varies greatly by time period. This pass is used for 11.3% of the boardings during the AM base period and 8.2% of the boardings during the PM base. During peak periods the senior citizen pass accounts for about 5% of boardings. Use during the evening period is significantly lower - only 3.3% of boardings.

Use of the handicapped pass is fairly consistent throughout the day, ranging from 1.1% to 2.1% of the boardings. Heaviest use occurs during the AM base (2.1% of boardings) and PM peak periods (1.8%).

Table 32 shows that type of fare used varies significantly by location of rider's residence. Relatively high proportions of riders from the Long Beach, Mid-Cities and East Central sectors use cash, ticket or transfer fares (85.7%, 75.6% and 66.0%, respectively). The least likely users of cash, tickets or transfers live in the downtown, West Los Angeles, and South Central sectors (32.9%, 42.1% and 45.5%, respectively).

Use of the regular monthly pass is greatest among downtown residents, 37% of whom use this type of pass. Nearly 30% of South Central residents and 28% of West L.A. residents use a regular pass. Below-average proportions of riders from the South Bay, San Fernando Valley and San Gabriel Valley use a regular pass (17.5%, 16.8% and 14.5% respectively). Only 3.9% and 3.0% of riders from the Mid-Cities and Long Beach sectors respectively, use a regular pass.

No residents of the East Central sector or downtown Los Angeles reported use of an express pass. Nearly 7% of the riders from the San Gabriel Valley and South Bay sectors did use an express pass.

Above-average use of the under-19 student pass - ranging from 13.6% to 16.8% of boardings - is found among riders from the San Fernando Valley, South Central Los Angeles, South Bay and downtown sectors. Fewer than 5% of the riders from the East L.A., Mid-Cities, East Central or Long Beach sectors use a student pass.

The college/vocational pass is most popular among San Bernardino County and San Gabriel Valley riders, who use this pass for 24.5% and 12.7% of their boardings, respectively.

Above-average proportions of senior citizen pass boardings are made by Mid-Cities (9.6%) and West Los Angeles (8.4%) riders. Less than 4% of the riders from South Bay, East L.A., Long Beach or the East Central sector use a senior citizen pass.

The largest proportions of handicapped pass users are found among Long Beach and North Central riders, 3.4% and 3.8% of whom use this type of pass.

As would be expected, type of fare used tends to vary by age of the rider, as illustrated in Table 33. The median age of the users of the under-19 student pass is lowest, of course, about 14 years old, and senior citizen pass users are oldest, with a median age of 67.7 years.

College/vocational pass users, tourist pass users and riders using cash, ticket or transfer fares report a median age below the overall rider average. Riders in these three fare categories are 24.7, 26 and 26.1 years old, on average.

Regular pass users and express pass users are older than average, with median ages of 29.9 and 33.1, respectively.

The median age of handicapped pass users is 39.5.

Table 34 shows type of fare by rider gender. Men are somewhat more likely than women to use cash, ticket or transfer fare. Nearly 50% of the men surveyed used cash, tickets or transfers, as compared to just over 47% of the women. A larger proportion of women use a senior citizen pass - 7.6% versus 5.7% of the men.

Table 35 shows fare type by ethnic background. The largest proportion of cash, ticket, or transfer riders is found among Latinos - 52.9% of whom do not use a pass. The Asian or Pacific Islander group is least likely to pay cash fares - only 37% of these riders do not use a pass.

Besides being most likely to pay cash fares, Latinos are also the group most likely to use a regular monthly pass; 29.5% of the Latinos use a regular pass. Only 19% of White riders and 10% of Indian riders use a regular pass.

Asians and Pacific Islanders constitute the group most likely to use an express pass on regular-service bus lines; 8% of this group uses an express pass. The express pass is used by 5.5% of White riders and 3.2% of Latino riders. Only 1.3% of Black and "Other" riders use an express pass.

The under-19 student pass is used by 32% of American Indian riders (based on a small sample of only 75 respondents). Just over 15% of Black riders use a student pass, as do 11.2% of Asian/Pacific Islander riders. Below-average proportions of Latinos and Whites use a student pass -- 8.4% and 7.3% respectively.

Asians and Pacific Islanders contain the largest proportion of college/vocational pass users, 11.8%. Over 5% of Black riders use a college/vocational pass, but only 3.8% of White or Latino riders use this type of pass.

The largest proportion of senior citizen pass users is found among White riders, 14% of whom use this pass. Use of the senior citizen pass by Latino riders is an extremely low .7% of the riders.

The largest proportions of handicapped pass users are among White riders (2.6%) and Indian riders (2.8%). use of the handicapped pass by Latino riders is also extremely low - .6%.

Table 36 shows that variations in fare type are also apparent by household income. The lowest median household income - $4845 - is reported by handicapped pass users, followed by senior citizen pass users whose median income is only $5784 per year. Riders who use the college/vocational pass have median household incomes of $7801. The median household income of regular pass users is shown to be $10,432, $634 below the average rider income. Cash riders' income, at $11,923 is $857 above average. The median household income of student pass users is $14,641, $3,575 above average. Express pass riders report a median household income of $15,645, $4,579 above the average. The most affluent riders, with a median income of over $25,000, are in that small group who use "other" types of fare (which can include RTD employee passes, police badges, free blind boardings, etc.).

TABLE 29
TYPE OF FARE
BY BUS LINE

Bus Line	Cash Ticket or Transfer	Regular Pass	Express Pass	Student Pass (Undr 19)	College/ Voc. Pass	Senior Citizen Pass	Handicap Pass	Tourist Pass	Other	Total	Number of Respondents
12	43.7%	27.8%	.8%	21.4%	2.4%	2.4%	.8%	.8%	-	100.10%	126
18	34.2	27.4	-	28.8	4.1	1.4	-	1.4	2.7	100.00	73
29	39.1	33.6	-	10.2	6.3	7.8	2.3	-	.8	100.10	128
32	47.2	25.0	2.8	7.4	13.0	1.9	1.9	-	.9	100.10	108
44	43.8	26.9	3.1	9.3	5.5	8.6	1.0	.7	1.0	99.90	290
47	50.0	31.9	4.3	2.1	2.1	8.5	1.1	-	-	100.00	94
73	46.9	15.6	4.7	28.1	1.6	1.6	1.6	-	-	100.10	64
81	37.9	20.4	6.3	17.5	3.9	11.7	1.5	1.0	-	100.20	206
86	49.8	28.2	5.0	5.5	3.3	6.6	1.1	-	.6	100.10	181
88	53.8	11.3	7.5	5.7	13.2	4.7	2.8	.9	-	99.90	106
89	30.4	27.8	2.6	9.9	2.9	22.0	3.3	.7	.4	100.00	273
91	47.7	28.1	8.4	5.1	2.8	5.6	1.7	-	.6	100.00	178
96	65.1	8.7	-	17.4	-	8.7	-	-	-	99.90	23
114	68.0	8.4	1.7	12.6	4.6	1.7	.8	-	1.7	99.50	238
152	64.2	10.8	4.2	14.2	2.5	.8	1.7	-	1.7	100.10	120
155	62.9	2.9	2.9	8.6	8.6	14.3	-	-	-	100.20	35
156	59.6	11.3	6.4	14.9	3.5	.7	.7	-	2.8	99.90	141
157	59.4	11.8	4.6	15.0	1.3	3.9	2.6	.7	.7	100.00	153
160	49.3	7.5	3.0	20.9	4.5	11.9	3.0	-	-	100.10	67
164	48.5	22.2	4.0	9.1	5.1	8.1	3.0	-	-	100.00	99
165	54.3	17.4	2.2	12.0	5.4	7.6	-	1.1	-	100.00	92
166	51.6	19.5	3.4	12.6	5.7	1.1	2.3	1.1	2.3	99.60	87
168	61.2	9.0	3.0	19.4	1.5	1.5	3.0	1.5	-	100.10	67
169	57.1	11.0	1.0	19.9	3.1	3.1	2.6	.5	1.6	99.90	191
175	69.8	12.4	.9	9.7	.9	3.5	-	.9	1.8	99.90	113
210	36.4	32.2	1.4	16.1	4.3	5.7	.9	-	2.8	99.80	211
354	33.9	15.3	5.1	33.9	3.4	1.7	1.7	-	5.1	100.10	59
424	49.0	16.3	3.3	14.1	13.0	3.3	1.1	-	-	100.10	92
425	43.7	26.0	1.7	10.8	8.7	5.2	3.0	-	.9	100.00	231
431	56.1	20.2	2.6	7.0	5.3	7.9	-	-	.9	100.00	114
435	61.9	10.2	1.0	13.7	3.0	7.1	1.0	.5	1.5	99.90	197
451	67.0	6.1	1.2	13.4	7.3	1.2	3.7	-	-	99.90	82
452	69.5	13.9	2.8	5.6	-	5.6	2.8	-	-	100.20	36
453	61.9	-	4.8	19.0	9.5	4.8	-	-	-	100.00	21
454	53.9	9.2	1.5	20.0	6.2	7.7	-	-	1.5	100.00	65
484	50.8	9.2	4.6	3.1	24.6	4.6	3.1	-	-	100.00	65
488	49.6	20.0	12.3	3.9	5.2	5.8	2.6	-	.6	100.00	155
813	43.6	1.4	31.0	2.8	5.6	4.2	4.2	-	7.0	99.80	71
821	69.1	4.8	7.1	9.5	2.4	2.4	2.4	-	2.4	100.10	42
822	64.2	20.9	-	3.0	-	7.5	1.5	1.5	1.5	100.10	67
826	66.3	19.1	1.1	3.4	3.4	2.2	1.1	1.1	2.2	99.90	89
831	55.9	7.4	1.5	22.1	2.9	8.8	-	1.5	-	100.10	68
840	68.7	22.3	-	5.4	-	1.8	-	-	1.8	100.00	112
844	61.6	10.4	1.2	18.9	4.3	1.8	.6	-	1.2	100.00	164
846	75.3	7.1	1.3	7.9	3.8	3.3	.4	-	.8	99.90	240
861	62.6	13.4	2.1	3.5	11.3	4.9	1.4	-	.7	99.90	142
867	70.5	12.6	1.1	4.2	2.1	7.4	-	-	2.1	100.00	95
869	59.8	14.2	1.8	18.9	3.0	1.8	.6	-	-	100.10	169
871	59.4	24.0	2.0	3.4	2.5	6.9	1.0	-	1.0	100.20	204
872	59.7	11.3	4.8	8.1	1.6	12.9	1.6	-	-	100.00	62
OVER-ALL	47.9%	23.2%	3.8%	10.6%	4.7%	7.1%	1.6%	.3%	.8%	100.00%	6106

Response Rate: 47.0%

TABLE 30
FARE MIX COMPARISON

Type of fare	Market Research On-Board Surveys		Service Analysis Section					
			Line Profiles	Fare Surveys				
	May 1978	May-Jun 1981	Spring 1978	March 1980	August 1980	October 1980	March 1981	July 1981
Cash, Ticket or Transfer	61.9%	47.9%	61.4%	57.3%	49.5%	45.2%	41.6%	43.0%
Regular Pass	11.8	23.2	NA	20.2***	24.7	24.6	27.5	27.9
Express Pass	4.4	3.8	NA	-	2.6	3.0	2.1	2.8
Student Pass	12.2	10.6	NA	9.5	4.2*	9.0	11.0	7.0*
College/Vocational Pass	-	4.7	NA	-	2.1	2.7	2.9	1.9
Senior Citizen Pass	5.9	7.1	NA	9.4**	12.3**	11.3**	11.1**	12.8**
Handicap Pass	1.6	1.6	NA	-	-	-	-	-
Tourist Pass	-	.3	NA	.1	.3	.1	.3	.3
Other	2.1	.8	NA	3.5	4.3	4.2	3.6	4.3
OVERALL	99.9%	100.0%	NA	100.0%	100.0%	100.1%	100.1%	100.0%
Number of Respondents	3,419	6,106						

*Includes Summer Youth Pass Boardings
**Includes both Senior Citizen and Handicapped Pass Boardings
***Includes both Regular and Express Pass Boardings

TABLE 31
TYPE OF FARE
BY TIME OF DAY

Time Period	Cash, Ticket or Transfer	Regular Pass	Express Pass	Student Pass (Under 19)	Coll./ Voc. Pass	Senior Cit. Pass	Handicap Pass	Tourist Pass	Other	Total	Number of Respondents
AM Peak	39.7%	29.0%	7.5%	14.4%	3.0%	4.7%	1.1%	.3%	.4%	100.1%	1121
AM Base	50.0	22.5	1.9	7.2	4.4	11.3	2.1	.1	.5	100.0	1170
PM Base	49.9	17.5	2.3	13.9	5.5	8.2	1.4	.6	.7	100.0	1820
PM Peak	48.0	25.9	5.2	8.0	4.6	5.3	1.8	-	1.2	100.0	1691
Evening	46.7	29.1	3.2	8.9	5.3	3.3	1.3	1.0	1.3	100.1	303
OVERALL	47.9%	23.2%	3.8%	10.6%	4.7%	7.1%	1.6%	.3%	.8%	100.0%	6105

Response Rate: 47.0%

TABLE 32
TYPE OF FARE
BY RESIDENCE SECTOR

Residence Sector	Cash Ticket or Transfer	Regular Pass	Express Pass	Student Pass (under19)	College/ Voc. Pass	Senior Citizen Pass	Hand-icap Pass	Tourist Pass	Other	Total	Number of Respondents
San Fernando Valley	51.9%	16.8%	4.3%	13.6%	3.8%	7.2%	1.5%	.2%	.6%	99.9%	866
North Central	52.5	27.6	1.7	15.6	2.5	5.3	3.8	-	-	109.0	184
San Gabriel Valley	53.1	14.5	6.6	7.5	12.7	4.6	.7	-	.4	100.1	562
West Los Angeles	42.1	28.2	5.2	8.4	4.4	8.6	2.0	.1	.9	99.9	762
South Central	45.5	29.8	1.2	13.8	3.8	4.0	.8	-	1.1	100.0	580
East Central	66.0	26.0	-	3.0	2.1	1.1	1.6	-	.1	99.9	117
East Los Angeles	54.8	26.5	2.7	4.8	7.1	2.5	1.5	-	-	99.9	125
Mid-Cities	75.6	3.9	3.6	3.2	.5	9.6	1.0	.3	2.3	100.0	171
South Bay	51.4	17.5	6.7	14.7	3.5	3.1	.1	-	3.0	100.0	489
Downtown L.A.	32.9	37.0	-	16.8	3.8	5.7	-	3.8	-	100.0	42
Long Beach	85.7	3.0	3.6	1.5	-	1.8	3.4	-	1.1	100.1	61
North L.A. County	-	-	-	-	-	-	-	-	-	-	3 *
Orange County	-	-	-	-	-	-	-	-	-	-	14 *
San Bernardino County	-	-	-	-	-	-	-	-	-	-	10 *
Ventura County	-	-	-	-	-	-	-	-	-	-	1
OVERALL	47.9%	23.2%	3.8%	10.6%	4.7%	7.1%	1.6%	.3%	.8%	100.0%	3987
Response Rate:	30.7%										

*Sample size too small to allow valid statistical comparison

TABLE 33
TYPE OF FARE
BY RIDER AGE

AGE	Cash Ticket or Trf.	Regular Pass	Express Pass	Student Pass (Udr 19)	Coll./ Voc. Pass	Senior Citizen Pass	Hand-icap Pass	Tour-ist Pass	Other	Total	Number of Respondents
Under 19	45.1%	5.2%	1.5%	43.3%	3.2%	.1%	.1%	.1%	1.3%	99.9%	1522
19 to 29	56.8	27.2	3.2	2.0	8.2	.4	.9	.3	1.0	100.0	1885
30 to 39	52.8	34.0	5.9	.3	3.6	.1	1.8	.4	1.0	99.9	707
40 to 49	48.5	36.2	10.2	-	2.9	.1	1.9	-	.4	100.2	360
50 to 61	42.9	39.1	5.6	-	1.3	4.0	6.8	-	.3	100.0	370
62 or older	21.6	7.7	.9	-	-	68.4	.8	.1	.1	99.6	366
OVER-ALL	47.9%	23.2%	3.8%	10.6%	4.7%	7.1%	1.6%	.3%	.8%	100.0	5210
MEDIAN AGE	26.1	29.9	33.1	14.2	24.7	67.7	39.5	26.0	23.1	27.4	

Response Rate: 40.1%

TABLE 34
TYPE OF FARE
BY RIDER GENDER

Gender	Cash, Ticket or Tfr.	Regular Pass	Express Pass	Student Pass (Udr 19)	Coll./ Voc. Pass	Senior Citizen Pass	Handicap Pass	Tourist Pass	Other	Total	Number of Respondents
Male	49.7%	22.8%	4.0%	10.3%	4.5%	5.7%	1.7%	.5%	.8%	100.0%	2530
Female	47.2	23.8	3.5	10.7	4.5	7.6	1.6	.2	.9	100.0	3376
Total	47.9%	23.2%	3.8%	10.6%	4.7%	7.1%	1.6%	.3%	.8%	100.0%	5906

Response Rate: 45.4%

TABLE 35
TYPE OF FARE
BY ETHNIC BACKGROUND

Ethnic Background	Cash, Ticket or Transfer	Regular Pass	Express Pass	Student Pass (Udr 19)	College/ Voc. Pass	Senior Citizen Pass	Hand-icap Pass	Tourist Pass	Other	Total	Number of Respondents
White	46.9%	19.3%	5.5%	7.3%	3.8%	14.0%	2.6%	.3%	.5%	100.2%	2462
Black	48.3	24.1	1.3	15.3	5.2	3.3	1.0	.1	1.4	100.0	1516
Latino	52.9	29.5	3.2	8.4	3.8	.7	.6	.5	.5	100.1	1355
Asian or Pacific Islander	37.0	24.7	8.0	11.2	11.8	4.6	1.2	.8	.5	99.8	325
Indian	50.2	10.1	-	32.0	1.7	1.6	2.8	-	1.5	99.9	75
Other	40.0	26.7	1.3	19.2	9.5	3.2	.1	-	.2	100.2	54
Total	47.9%	23.2%	3.8%	10.6%	4.7	7.1%	1.6%	.3%	.8%	100.0%	5787
Response Rate:	44.5%										

TABLE 36
TYPE OF FARE
BY ANNUAL HOUSEHOLD INCOME

Annual Household Income	Cash, Ticket or Transfer	Regular Pass	Express Pass	Student Pass (Udr 19)	College/ Voc. Pass	Senior Citizen Pass	Handicap Pass	Tourist Pass	Other	Total	Number of Respondents
Under $5000	43.8%	25.6%	2.0%	5.2%	7.6%	11.8%	3.5%	.3%	.3%	100.1%	851
$5000-$9999	47.0	26.7	2.5	7.4	5.0	8.5	2.5	-	.3	99.9	724
$10000-$14999	49.8	28.8	5.7	6.4	3.4	5.1	.2	.1	.5	100.0	663
$15000-$19999	45.3	33.5	3.6	10.8	2.7	1.4	1.0	1.0	.8	100.1	454
$20000-$24999	48.7	22.4	8.2	13.2	4.4	2.4	.1	-	.5	99.9	398
$25000 or more	61.3	11.5	7.1	10.3	4.2	2.0	.6	.3	2.6	99.9	711
OVERALL	47.9%	23.2%	3.8%	10.6%	4.7%	7.1%	1.6%	.3%	.8%	100.0	3801
MEDIAN INCOME	$11,923	$10,432	$15,645	$14,641	$7,801	$5,784	$4,845	$16,363	$25,155	$11,066	

Response Rate: 29.2%

Reasons For Not Using RTD Pass

Although pass sales have increased 66% over the last three years and the proportion of cash boardings has declined steadily from 62% to 48% during that same period, there is still a large market for additional pass sales.

Table 37 shows that fewer than half (46%) of the cash riders pay cash fares because they don't ride the bus enough to justify the cost of a pass. Nearly 23% of the cash riders say they cannot afford a pass. Another 6.5% of the cash riders claim they do not know where to buy a pass, and 7.1% say there is no convenient sales outlet at which they can purchase a pass. Nearly 7.5% of the cash riders express the fear that they might lose a pass if they had one. Nearly 10% say there is some "other" reason they do not use a pass.

Reasons for not using an RTD pass vary significantly by bus line. The largest proportions of infrequent cash riders are found on the 155 and 488 lines (each 71.4%), and the 813 line, where 73.1% of the cash riders do not ride enough to justify purchase of a pass.

The proportion of cash riders who say they cannot afford a pass is highest on the 32 line (45.2%), 453 line (50%), and the 29 line (56.8%).

Over 20% of the cash riders on the 821, 156, and 454 lines said they do not know where to buy a pass. A quarter of the cash riders on the 160 line say there is no convenient outlet at which to buy a pass.

Table 38 analyzes by rider's residence location the reasons for not using a pass. Relatively infrequent bus riding is given as a reason by a majority of cash riders from the San Gabriel Valley, North Central L.A. and South Bay. The inability to afford a pass is highest among cash riders from East Central L.A. (29.7%), South Central L.A. (34.1%), and East Los Angeles (37.3%).

Relatively large proportions of cash riders from three sectors say they do not know where to buy a pass: 8.7% of East L.A. riders, 9.8% of San Fernando Valley riders and 9.9% of Mid-cities riders.

More than 9.5% of cash riders from four sectors claim that there is no convenient sales outlet at which to buy a pass: West Los Angeles (9.5%), San Fernando Valley (10.2%), East Central and South Bay (13.3%).

Fear that they might lose a pass deters over 12% of the cash riders from East Los Angeles and 20.3% from Mid-Cities.

There is some variation by time of day in the reasons for not buying a pass, as shown in Table 39. The proportion of cash riders who do not ride the bus often enough to justify purchase of a pass, and of those who cannot afford a pass is significantly lower during the AM peak than during other parts of the day. The proportion of AM peak cash riders who say there is no convenient pass sales outlet is more than twice as high as the average proportion in this category. The 11.8% of evening cash riders in this category is also well aboveaverage. Fear of losing their pass is highest among AM peak cash riders (10.3%), followed by AM base period riders (9.5%).

Table 40 shows that reasons for not buying a pass vary by age of the rider. The proportion of cash riders who do not ride the bus often enough is highest among the 50 to 61 age group, 61.5%, followed by the under 19 age group with 50.9% of the respondents in this category.

The proportion of cash riders who say they cannot afford a pass is above average in the 19-to-29 and 30-to-39 age groups - 25.6% and 27.7%, respectively. Significantly below-average proportions of the under-19 group and the 50 or older group say they cannot afford a pass. Fewer than 16% of the respondents in these age categories gave this as the reason. Ignorance of where to buy a pass is highest among senior citizens, 11.1% of the cash riders over 62. This age category also has the highest proportion of cash riders who say there is no convenient pass sales outlet (10.4%). Fear of losing a pass is highest among the 40-to-49 age group (9.8%).

Table 41 shows the reasons given by men and women for not using a pass. Only slight differences exist. Over 48% of the male cash riders say they do not ride the bus often enough, as opposed to 45.4% of the female cash riders.

Table 42 shows the influence of ethnic background on reasons for not using an RTD pass. Over 55% of White riders don't ride the bus often enough to justify purchase of a pass, but only 38% of Latinos give this as a reason.

Latinos are most likely to state that they cannot afford a pass. Over 31% of Latinos are in this category, as are 26% of Black cash riders. Only 13% of White cash riders say they cannot afford a pass.

Asians and Pacific Islanders are most likely to cite lack of knowledge of pass sales locations as a reason for not buying a pass. Up to 8.3% of the Asian cash riders are in this category, followed by 7.8% of the Latinos.

Nearly 11% of White and 10% of Asian/Pacific Islander cash riders say there is no convenient sales outlet where they can buy a pass. Fear of losing their pass is greatest among Latino respondents (12% gave this reason) and Blacks (7.8%).

Table 43 shows the variation by household income in reasons given for not buying a pass. The proportion of cash riders who do not ride the bus often enough tends to increase as income increases, from 37.2% of low-income riders to 62.3% of high income riders. The proportion of cash riders who cannot afford to buy a pass tends to decrease as income increases, so that 42.9% of the cash riders from low-income households give this reason, but only 9% of high-income riders do. At 11.2%, the proportion of riders who do not know where to buy a pass is highest among riders in the $20,000 to $24,999 income category. Lack of a convenient sales outlet deters 11% of the cash riders in the $25,000 or more income category. Fear of losing a pass is highest, at 14.4%, among the cash riders in the $15,000 to $19,999 category.

TABLE 37
REASON FOR NOT USING RTD PASS
BY BUS LINE

Bus Line	Don't Ride Enough	Can't Afford Pass	Don't Know Where To Buy Pass	No Convenient Outlet	Might Lose Pass	Other	Total	Number of Respondents
12	54.5%	15.9%	2.3%	4.5%	13.6%	9.1%	99.90%	44
18	30.0	20.0	15.0	5.0	5.0	25.0	100.00	20
29	18.9	56.8	-	-	16.2	8.1	100.00	37
32	33.3	45.2	2.4	9.5	4.8	4.8	100.00	42
44	37.0	31.5	6.5	10.2	6.5	8.3	100.00	108
47	43.2	29.7	2.7	5.4	16.2	2.7	99.90	37
73	58.3	8.3	16.7	8.3	-	8.3	99.90	12
81	63.8	6.9	12.1	6.9	3.4	6.9	100.00	58
86	36.6	19.5	1.2	8.5	11.0	23.2	100.00	82
88	48.8	22.0	14.6	7.3	-	7.3	100.00	41
89	41.4	25.7	4.3	11.4	4.3	12.9	100.00	70
91	48.4	17.2	7.8	3.1	6.3	17.2	100.00	64
96	41.7	33.3	8.3	-	8.3	8.3	99.90	12
114	52.8	18.5	4.6	4.6	6.5	13.0	100.00	108
152	57.1	7.1	5.4	16.1	1.8	12.5	100.00	56
155	71.4	7.1	7.1	-	-	14.3	99.90	14
156	54.7	7.5	24.5	9.4	1.9	1.9	99.90	53
157	50.0	13.2	10.3	11.8	4.4	10.3	100.00	68
160	50.0	6.3	-	25.0	12.5	6.3	100.10	16
164	57.1	8.6	2.9	11.4	5.7	14.3	100.00	35
165	56.7	16.7	16.7	10.0	-	-	100.10	30
166	54.3	8.6	8.6	2.9	11.4	14.3	100.10	35
168	61.5	7.7	7.7	11.5	-	11.5	99.90	26
169	45.0	15.0	12.5	7.5	5.0	15.0	100.00	80
175	64.6	8.3	8.3	10.4	4.2	4.2	100.00	48
210	48.4	18.8	7.8	7.8	10.9	6.3	100.00	64
354	40.0	6.7	-	6.7	20.0	26.7	100.10	15
424	40.0	36.7	3.3	10.0	3.3	6.7	100.00	30
425	56.3	16.9	2.8	8.5	4.2	11.3	100.00	71
431	62.0	18.0	12.0	2.0	-	6.0	100.00	50
435	62.5	17.2	6.3	7.8	3.1	3.1	100.00	64
451	60.0	13.3	6.7	13.3	-	6.7	100.00	30
452	66.7	22.2	-	-	5.6	5.6	100.10	18
453	33.3	50.0	-	-	-	16.7	100.00	6
454	35.0	25.0	25.0	10.0	5.0	-	100.00	20
484	53.8	19.2	11.5	11.5	-	3.8	99.80	26
488	71.4	12.2	8.2	4.1	2.0	2.0	99.90	49
813	73.1	11.5	-	3.8	11.5	-	99.90	26
821	47.4	5.3	21.1	10.5	5.3	10.5	100.10	19
822	45.2	16.1	6.5	19.4	9.7	3.2	100.10	31
826	45.8	22.9	4.2	6.3	10.4	10.4	100.00	48
831	47.8	17.4	8.7	13.0	8.7	4.3	99.90	23
840	53.6	19.6	7.1	7.1	7.1	5.4	99.90	56
844	42.2	9.4	10.9	17.2	4.7	15.6	100.00	64
846	57.1	15.1	3.4	8.4	5.0	10.9	99.90	119
861	67.9	12.5	1.8	8.9	1.8	7.1	100.00	56
867	36.1	16.7	11.1	11.1	5.6	19.4	100.00	36
869	62.9	12.9	4.3	7.1	2.9	10.0	100.10	70
871	57.7	9.3	9.3	10.3	5.2	8.2	100.00	97
872	38.9	16.7	11.1	16.7	11.1	5.6	100.10	18
OVER-ALL	46.3%	22.8%	6.5%	7.1%	7.4%	9.9%	100.00%	2302

Response Rate: 78.7% (of respondents paying cash fares)

TABLE 38
REASON FOR NOT USING RTD PASS
BY RESIDENCE SECTOR

Residence Sector	Don't Ride Enough	Can't Afford Pass	Don't Know Where to Buy Pass	No Convenient Outlet	Might Lose Pass	Other	Total	Number of Respondents
San Fernando Valley	48.8%	12.0%	9.8%	10.2%	8.4%	10.8%	100.0%	356
North Central	54.9	16.3	5.4	5.2	6.6	11.6	100.0	79
San Gabriel Valley	54.5	24.8	3.9	8.0	1.2	7.6	100.0	212
West Los Angeles	43.9	23.7	6.9	9.5	8.2	7.8	100.0	280
South Central	41.1	34.1	5.0	2.8	6.5	10.6	100.1	210
East Central	31.6	29.7	6.1	13.3	3.1	16.2	100.0	62
East Los Angeles	32.1	37.3	8.7	4.5	12.3	5.1	100.0	56
Mid-Cities	35.3	19.8	9.9	5.6	20.3	9.2	100.1	98
South Bay	57.0	10.3	4.0	13.3	5.5	10.0	100.1	215
Downtown Los Angeles	—	—	—	—	—	—	—	16*
Long Beach	—	—	—	—	—	—	—	33*
North L.A. County	—	—	—	—	—	—	—	2*
Orange County	—	2.5	—	—	—	—	—	11*
San Bernardino County	—	33.3	—	—	—	—	—	6*
Ventura County	—	—	—	—	—	—	—	1*
OVERALL	46.3%	22.8%	6.5%	7.1%	7.4%	9.9%	100.0%	1637

Response Rate: 56.0% (of respondents paying cash fares)

* Sample size too small to allow valid statistical comparison

TABLE 39
REASON FOR NOT USING RTD PASS
BY TIME OF DAY

Time Period	Don't Ride Enough	Can't Afford Pass	Don't Know Where to Buy	No Convenient Outlet	Might Lose Pass	Other	Total	Number of Respondents
AM PEAK	35.9%	17.0%	6.7%	15.6%	10.3%	14.6%	100.1%	390
AM BASE	47.8	20.6	4.8	7.6	9.5	9.6	99.9	455
PM BASE	46.1	27.7	6.9	5.3	6.7	7.3	100.0	695
PM PEAK	49.1	20.4	7.0	5.1	6.1	12.3	100.0	657
EVENING	44.2	21.8	7.4	11.8	7.0	7.8	100.0	105
OVERALL	46.3%	22.8%	6.5%	7.1%	7.4%	9.9%	100.0%	2302

Response Rate: 78.7% (of respondents paying cash fares)

TABLE 40
REASON FOR NOT USING RTD PASS
BY RIDER AGE

Age	Don't Ride Enough	Can't Afford Pass	Don't Know Where to Buy	No Convenient Outlet	Might Lose Pass	Other	Total	Number of Respondents
Under 19	50.9%	15.3%	8.4%	5.4%	6.4%	13.6%	100.0%	569
19 to 29	43.7	25.6	6.1	8.1	7.0	9.4	99.9	872
30 to 39	42.8	27.7	4.7	9.0	7.0	8.7	99.9	316
40 to 49	47.4	22.9	6.4	1.5	9.8	12.0	100.0	148
50 to 61	61.5	15.7	2.0	6.7	5.6	8.5	100.0	159
62 or older	49.2	14.5	11.1	10.4	7.8	7.0	100.0	84
OVERALL	46.3%	22.8%	6.5%	7.1%	7.4%	9.9%	100.0%	2148
MEDIAN AGE	26.3	26.9	24.9	26.7	26.8	25.1	27.4	

Response Rate: 73.4% (of respondents paying cash fares)

TABLE 41
REASON FOR NOT USING RTD PASS
BY GENDER

Gender	Don't Ride Enough	Can't Afford Pass	Don't Know Where to Buy	No Convenient Outlet	Might Lose Pass	Other	Total	Number of Respondents
Male	48.3%	21.7%	6.4%	8.4%	7.3%	7.9%	100.0%	1052
Female	45.4	23.3	6.0	6.1	7.0	12.2	100.0	1223
OVERALL	46.3%	22.8%	6.5%	7.1%	7.4%	9.9%	100.0%	2275

Response rate: 77.8% (of respondents paying cash fares)

TABLE 42
REASON FOR NOT USING RTD PASS
BY ETHNIC BACKGROUND

Ethnic Background	Don't Ride Enough	Can't Afford Pass	Don't know Where to Buy	No Convenient Outlet	Might Lose Pass	Other	Total	Number of Respondents
White	55.3%	12.9%	6.2%	10.5%	4.2%	11.0%	100.1%	960
Black	43.0	26.3	5.5	4.8	7.8	12.5	99.9	546
Latino	38.4	31.4	7.8	4.1	12.0	6.2	99.9	528
Asian or Pacific Islander	49.8	20.8	8.3	9.8	2.0	9.2	99.9	132
Indian	-	-	-	-	-	-	-	33*
Other	-	-	-	-	-	-	-	20*
OVERALL	46.3%	22.8%	6.5%	7.1%	7.4%	9.9%	100.0%	2219

Response Rate: 75.9% (of respondents paying cash fares)

* Sample size too small to allow valid statistical comparison

TABLE 43
REASON FOR NOT USING RTD PASS
BY ANNUAL HOUSEHOLD INCOME

Annual Household Income	Don't Ride Enough	Can't Afford Pass	Don't Know Where to Buy	No Convenient Outlet	Might Lose Pass	Other	Total	Number of Respondents
Under $5000	37.2%	42.9%	4.5%	4.9%	4.5%	6.0%	100.0%	327
$5000 to $9999	43.9	26.3	5.6	8.1	6.8	9.4	100.1	328
$10000-14999	42.5	19.7	5.1	8.5	9.2	15.0	100.0	308
$15000-19999	48.9	9.0	6.1	9.5	14.4	12.1	100.0	197
$20000-24999	56.4	6.6	11.2	9.0	2.4	14.5	100.1	187
$25000 or more	62.3	9.0	4.0	11.0	5.0	8.7	100.0	358
OVERALL	46.3%	22.8%	6.5%	7.1%	7.4%	9.9%	100.0%	1705
MEDIAN INCOME	$13,408	$6,508	$12,717	$13,725	$12,672	$13,059	$11,066	

Response Rate: 58.3% (of respondents paying cash fares)

Frequency of Bus Use

The on-board survey conducted in May, 1978 found that 71.1% of the riders rode the bus five or more days a week. Table 44 shows that 76.3% of the 1981 survey respondents ride five or more days per week. The average number of days of bus use is 4.9. As do most measures, the frequency of bus use varies by bus line.

Frequency of bus use also varies by type of fare, as illustrated in Table 45. Riders who use cash, ticket or transfer fares ride least often, 4.3 days per week. Senior Citizen pass users ride 4.9 days a week. Express, student, handicapped and college/vocational pass users average 5.4 to 5.5 days of bus riding each week. Regular pass users ride 5.7 days a week.

Riders surveyed during different periods of the day showed only slight variation in frequency of bus use. Riders during the morning peak period average 5.1 days of bus riding per week, while riders during the base periods average 4.8. Evening riders average 5.3 days of bus use per week. Almost 60% of the AM peak riders use the bus five days a week, and another 26.7% ride more than five days. Among evening riders, on the other hand, only 31.8% ride five days a week, and 45.9% ride more than five days. Table 46 breaks down frequency of bus use by time period.

Overall, 35% of the regular-service riders ride more than five days a week, but Table 47 shows variations by sector. Half the riders who live in the downtown sector ride more than five days, as do 42% of the South Central riders and 40% of the West Los Angeles riders. Frequency of bus use ranges from a low of 4.2 days a week among riders from the Mid-Cities Sector to 5.5 days among riders living in downtown Los Angeles.

Differences in frequency of bus use by different age groups can be seen in Table 48. Riders under 19 years of age are least likely to ride more than five days a week. Only 28.6% of this age group rides six or seven days a week, as compared to an overall average of 35.1% of riders in this category. Riders in the 40 to 49 age group seem most likely to ride more than five days, as attested to by the 39.9% of these riders who say they ride six or seven days a week.

The proportion of riders who use the bus five days a week tends to decline with age. Nearly 49% of the riders under 19 years old ride five days a week. About 41 to 42 percent of riders between 19 and 49 ride five days, but only 37% of the riders between 50 and 61 ride five days. Among senior citizens, the proportion riding five days declines to only 28%. Senior citizens are most likely to ride three or four days a week; 23.4% of the riders 62 or older ride only

three or four days. Average bus use among senior citizens is 4.6 days per week. Riders under 19 years of age ride the bus 4.8 days a week on average. Riders between 19 and 39 ride 4.9 to 5.0 days, as do those between 50 and 61. The most frequent bus riders are between 40 and 49 years old; they ride an average of 5.2 days a week.

Gender also has some effect on frequency of bus use. Whereas 38.2% of the male riders ride six or seven days a week, only 31.9% of the females do. On the other hand, females are more likely than males to ride five days a week, 44.1% to 38.1%. Table 49 shows that the median number of days on the bus is just slightly higher for men than it is for women -- 5.0 versus 4.9 days.

Variation in bus use frequency by different ethnic groups is shown in Table 50. the most frequent users of the RTD are the Latinos, over 44% of whom ride six or seven days a week. They average 5.1 days of bus use during the week. The group with the largest proportion riding five days a week -- 51.8% -- is the Asian/Pacific Islander group. Black riders ride 5.0 days a week on average, and White riders use the bus 4.8 days.

Table 51 shows that the frequency of bus use tends to decline as income rises. Riders with incomes below $10,000 tend to ride most often, an average of 5.1 days a week. Riders with household incomes between $10,000 and $20,000 ride 5.0 days, and those earning between $20,000 and $25,000 ride 4.7 days. The least frequent bus users have incomes above $25,000; this high income group rides 4.4 days a week, on average. Whereas 45.3% of the riders from households earning less than $5000 ride more than five days a week, only 18% of the riders with household incomes above $25000 ride as often. High income riders are more likely to ride the bus five days a week than are low income riders. Only 27.6% of the low income riders are in this category, as opposed to 53.8% of the high income riders.

The lowest median household income - $7490- was reported by riders who ride only one day a week, followed by seven-day-a-week riders with a median income of $8510. Four-day and six-day riders also report below-average incomes - $9380 and $9774, respectively. Riders who ride five days a week have an above-average income of $13,581. The most affluent rider - with a median income of $17,817 - is the infrequent bus rider, who ride less than one day a week.

TABLE 44
FREQUENCY OF BUS USE
BY BUS LINE

Bus Line	Number of Days Per Week: Seven	Six	Five	Four	Three	Two	One	Less Than One	Total	Mean Number of Days	Number of Respondents
12	20.5%	16.4%	28.7%	9.0%	10.7%	7.4%	4.1%	3.3%	100.1%	4.7	122
18	22.8	10.1	51.9	2.5	2.5	2.5	5.1	2.5	99.9	5.1	79
29	28.2	7.6	41.2	7.6	6.1	5.3	3.1	.8	99.9	5.1	131
32	24.5	13.6	51.8	2.7	3.6	.9	1.8	.9	99.8	5.4	110
44	23.6	18.5	40.4	5.1	4.0	3.3	2.5	2.5	99.9	5.2	275
47	23.1	15.4	39.4	6.7	4.8	4.8	1.9	3.8	99.9	5.1	104
73	18.8	15.9	52.2	1.4	4.3	-	2.9	4.3	99.8	5.1	69
81	15.8	12.2	48.0	5.1	6.1	5.6	2.6	4.6	100.0	4.8	196
86	15.3	10.9	53.0	8.2	4.4	3.3	1.6	3.3	100.0	4.9	183
88	20.0	10.5	40.0	9.5	5.7	7.6	1.9	4.8	100.0	4.8	105
89	27.6	18.0	33.0	8.0	5.4	4.6	1.1	2.3	100.0	5.3	261
91	25.1	14.3	39.4	5.7	6.3	4.6	.6	4.0	100.0	5.1	175
96	17.4	13.0	34.8	8.7	4.3	-	13.0	8.7	99.9	4.4	23
114	9.2	12.6	48.1	7.1	6.7	6.3	5.0	5.0	100.0	4.5	239
152	12.6	15.1	45.4	4.2	8.4	4.2	3.4	6.7	100.0	4.6	119
155	12.1	12.1	36.4	3.0	9.1	9.1	9.1	9.1	100.0	4.1	33
156	10.0	12.1	54.3	7.9	5.7	3.6	.7	5.7	100.0	4.7	140
157	14.0	18.3	37.8	6.7	5.5	6.1	4.9	6.7	100.0	4.6	164
160	12.5	20.3	48.4	3.1	9.4	3.1	1.6	1.6	100.0	5.0	64
164	22.0	13.0	40.0	8.0	6.0	6.0	2.0	3.0	100.0	5.0	100
165	17.4	14.0	41.9	8.1	7.0	2.3	2.3	7.0	100.0	4.8	86
166	15.3	14.1	51.8	2.4	2.4	2.4	3.5	8.2	100.1	4.8	85
168	7.4	5.9	54.4	14.7	4.4	4.4	4.4	4.4	100.0	4.5	68
169	10.6	14.1	55.6	4.5	2.5	4.0	3.5	5.1	99.9	4.8	198
175	20.6	13.1	25.2	12.1	10.3	4.7	4.7	9.3	100.0	4.5	107
210	24.4	17.5	41.0	5.1	3.7	3.7	1.8	2.8	100.0	5.2	217
354	15.5	20.7	46.6	8.6	5.2	3.4	-	-	100.0	5.2	58
424	9.6	14.9	55.3	6.4	7.4	2.1	2.1	2.1	99.9	4.9	94
425	16.9	14.0	45.3	6.8	3.4	6.8	1.3	5.5	100.0	4.8	236
431	7.8	9.5	56.9	5.2	6.9	6.0	1.7	6.0	100.0	4.5	116
435	12.0	8.5	46.0	9.0	6.5	7.0	2.5	8.5	100.0	4.4	200
451	9.5	1.4	59.5	13.5	6.8	1.4	1.4	6.8	100.3	4.5	74
452	7.7	7.7	53.8	5.1	5.1	2.6	10.3	7.7	100.0	4.2	39
453	5.3	5.3	47.4	10.5	5.3	5.3	10.5	10.5	100.1	3.9	19
454	4.3	8.7	62.3	5.8	4.3	4.3	1.4	8.7	99.8	4.4	69
484	14.5	14.5	38.7	6.5	9.7	3.2	4.8	8.1	100.0	4.5	62
488	5.6	13.2	50.0	8.3	6.9	5.6	5.6	4.9	100.1	4.4	144
813	10.0	5.7	55.7	7.1	5.7	5.7	1.4	8.6	99.9	4.5	70
821	11.9	7.1	54.8	4.8	2.4	9.5	9.5	-	100.0	4.5	42
822	3.1	9.2	63.1	3.1	7.7	4.6	4.6	4.6	100.0	4.4	65
826	20.2	20.2	31.5	6.7	6.7	3.4	6.7	4.5	99.9	4.8	89
831	10.0	5.7	61.4	7.1	7.1	2.9	-	5.7	99.9	4.7	70
840	11.5	19.5	42.5	8.0	5.3	5.3	.9	7.1	100.1	4.7	113
844	3.5	8.2	64.1	6.5	5.3	6.5	4.1	1.8	100.0	4.5	170
846	10.7	7.3	49.4	8.6	5.6	6.9	4.3	7.3	100.1	4.4	233
861	6.5	15.8	50.4	12.2	5.0	4.3	3.6	2.2	100.0	4.7	139
867	12.6	21.4	38.8	8.7	1.9	4.9	5.8	5.8	99.9	4.7	103
869	5.5	13.9	57.6	7.3	4.8	6.1	2.4	2.4	100.0	4.7	165
871	12.6	11.1	39.4	8.1	9.1	7.1	6.6	6.1	100.1	4.4	198
872	11.3	14.5	48.4	8.1	6.5	1.6	3.2	6.5	100.1	4.7	62
OVER-ALL	20.6%	14.5%	41.2%	6.6%	5.8%	4.4%	2.9%	4.0%	100.0%	4.9	6083

Response Rate: 46.8%

TABLE 45
FREQUENCY OF BUS USE
BY TYPE OF FARE

Type of Fare	Number of Days Per Week: Seven	Six	Five	Four	Three	Two	One	Less Than One	Total	Mean Number of Days	Number of Respondents
Cash, Ticket or Transfer	12.7%	11.5%	38.4%	8.9%	8.3%	7.3%	5.3%	7.6%	100.0%	4.3	3057
Regular Pass	31.1	20.2	42.6	2.4	1.7	1.0	.3	.6	99.9	5.7	1044
Express Pass	18.0	16.0	63.8	1.4	-	-	.3	.5	100.0	5.5	192
Student Pass (Under 19)	24.0	15.6	52.3	4.2	1.0	.7	.8	1.4	100.0	5.5	682
College/Vocational Pass	23.6	13.2	55.1	3.2	3.7	.3	.3	.6	100.0	5.4	270
Senior Citizen Pass	24.7	12.0	25.5	15.0	14.5	6.4	1.8	-	99.9	4.9	308
Handicap Pass	43.9	8.9	23.6	10.7	6.2	5.9	.5	.3	100.0	5.5	82
Tourist Pass	-	-	-	-	-	-	-	-	-	-	15*
Other	22.6	20.1	43.1	2.6	1.1	4.2	1.1	5.2	100.0	5.2	63
OVERALL	20.6%	14.5%	41.2%	6.6%	5.8%	4.4%	2.9%	4.0%	100.0	4.9	5713

Response Rate: 43.9%

*Sample size too small to allow valid statistical comparison

TABLE 46
FREQUENCY OF BUS USE
BY TIME OF DAY

Time Period	Number of Days Per Week: Seven	Six	Five	Four	Three	Two	One	Less Than One	Total	Mean	Number of Respondents
AM Peak	12.8%	13.9%	59.7%	5.6%	2.9%	2.4%	.7%	2.1%	100.1	5.1	1130
AM Base	19.7	15.2	35.4	7.5	8.9	5.0	4.1	4.2	100.0	4.8	1160
PM Base	22.3	14.1	35.2	7.0	7.2	5.2	3.8	5.2	100.0	4.8	1798
PM Peak	19.8	14.8	46.2	5.5	3.7	4.1	2.2	3.7	100.0	5.0	1682
Evening	31.2	14.7	31.8	8.1	5.1	4.6	2.3	2.2	100.0	5.3	312
OVERALL	20.6%	14.5%	41.2%	6.6%	5.8%	4.4%	2.9%	4.0%	100.0%	4.9	6082

Response Rate: 46.8%

TABLE 47
FREQUENCY OF BUS USE
BY RESIDENCE SECTOR

Residence Sector	Number of days per week: Seven	Six	Five	Four	Three	Two	One	Less Than One	Total	Mean	Number of Respondents
San Fernando Valley	14.9%	13.1%	47.5%	7.0%	6.0%	4.5%	2.2%	4.7%	99.9%	4.8	860
North Central	21.4	10.5	42.7	7.1	5.6	8.1	1.9	2.7	100.0	4.9	183
San Gabriel Valley	12.7	8.6	46.3	9.4	9.5	3.5	3.4	6.6	100.0	4.5	554
West Los Angeles	24.0	16.3	39.3	6.1	5.5	4.1	1.5	3.2	100.0	5.1	741
South Central	25.2	16.4	39.7	4.2	5.4	3.0	3.2	3.0	100.1	5.0	579
East Central	13.4	21.6	43.5	5.6	6.3	2.6	5.1	1.9	100.0	4.9	111
East Los Angeles	15.5	30.8	39.0	1.6	5.5	7.0	-	.6	100.0	5.3	122
Mid-Cities	3.5	7.8	49.0	18.2	5.3	6.8	2.2	7.3	100.1	4.2	171
South Bay	16.1	11.2	47.1	9.1	5.4	5.0	2.5	3.5	99.9	4.8	479
Downtown L.A.	41.9	9.1	33.2	3.1	1.1	6.5	5.0	-	99.9	5.5	42
Long Beach	8.8	10.1	36.6	36.1	3.6	1.7	1.1	1.9	99.9	4.7	61
North L.A. County	-	-	-	-	-	-	-	-	-	-	4*
Orange County	-	-	-	-	-	-	-	-	-	-	14*
San Bernardino County	-	-	-	-	-	-	-	-	-	-	10*
Ventura County	-	-	-	-	-	-	-	-	-	-	1*
OVERALL	20.6%	14.5%	41.2%	6.6%	5.8%	4.4%	2.9%	4.0%	100.0%	5.6	3932
Response Rate:	30.2%										

*Sample size too small to allow valid statistical comparison

TABLE 48
FREQUENCY OF BUS USE
BY RIDER AGE

Age	Number of Days per Week: Seven	Six	Five	Four	Three	Two	One	Less Than One	Total	Mean	Number of Respondents
Under 19	16.2%	12.4%	48.5%	5.7%	4.6%	4.7%	3.6%	4.3%	100.0%	4.8	1511
19 to 29	22.7	14.6	41.0	5.0	5.4	3.3	3.0	4.9	99.9	5.0	1867
30 to 39	19.1	16.1	41.2	7.0	5.4	4.6	1.5	5.0	99.9	4.9	687
40 to 49	21.5	18.4	42.0	6.6	5.1	1.8	2.6	2.0	100.0	5.2	354
50 to 61	22.3	14.0	36.8	7.2	6.3	7.8	2.8	2.8	100.0	4.9	362
62 or older	21.8	10.9	27.9	11.8	11.6	9.2	3.4	3.3	99.9	4.6	342
OVER-ALL	20.6%	14.5%	41.2%	6.6%	5.8%	4.4%	2.9%	4.0%	100.0%	4.9	5123
MEDIAN AGE	26.9	27.2	25.5	29.1	28.2	28.4	24.7	25.6	27.4		

Response Rate: 39.4%

TABLE 49
FREQUENCY OF BUS USE
BY GENDER

	Number of days per week										
Gender	Seven	Six	Five	Four	Three	Two	One	Less Than One	Total	Mean Number of Days	Number of Respondents
Male	23.0%	15.2%	38.1%	6.7%	5.8%	4.3%	2.4%	4.6%	100.0%	5.0	2532
Female	17.9	14.0	44.1	6.5	5.8	4.7	3.3	3.7	100.0	4.9	3344
OVER-ALL	20.6%	14.5%	41.2%	6.6%	5.8%	4.4%	2.9%	4.0%	100.0%	4.9	5876

Response Rate: 45.2%

TABLE 50
FREQUENCY OF BUS USE
BY ETHNIC BACKGROUND

Ethnic Background	Number of Days Per Week							Less Than One	Total	Mean Number of Days	Number of Respondents
	Seven	Six	Five	Four	Three	Two	One				
White	19.3%	11.6%	40.2%	9.1%	6.8%	4.8%	3.1%	5.1%	100.0%	4.8	2424
Black	19.1	13.4	45.6	6.0	5.9	3.0	3.6	3.5	100.1	5.0	1530
Latino	23.9	20.2	35.3	4.5	4.7	5.7	2.3	3.3	99.9	5.1	1356
Asian or Pacific Islander	17.1	15.3	51.8	4.5	3.7	4.7	.3	2.5	99.9	5.1	318
Indian	35.5	3.7	41.0	4.3	5.5	3.5	.2	6.3	100.0	5.2	77
Other	24.9	5.7	56.7	5.4	2.5	.7	.3	3.8	100.0	5.2	52
OVERALL	20.6%	14.5%	41.2%	6.6%	5.8%	4.4%	2.9%	4.0%	100.0%	4.9	5757

Response Rate: 44.3%

TABLE 51
FREQUENCY OF BUS USE
BY ANNUAL HOUSEHOLD INCOME

Annual Household Income	Number of Days Per Week: Seven	Six	Five	Four	Three	Two	One	Less Than One	Total	Mean Number of Days /Week	Number of Respondents
Under $5000	27.6%	17.7%	27.6%	7.9%	6.8%	4.9%	4.5%	3.0%	100.0%	5.1	821
$5000-$9999	25.1	15.6	35.3	8.6	4.6	4.3	3.3	3.3	100.1	5.1	713
$10000-$14999	19.7	13.3	46.8	6.1	6.2	3.5	1.2	3.1	99.9	5.0	652
$15000-$19999	19.2	19.0	40.6	5.9	6.0	2.1	1.3	5.9	100.0	5.0	457
$20000-$24999	11.2	13.4	53.4	4.9	3.7	3.3	3.2	6.9	100.0	4.7	393
$25000 or more	10.4	7.6	53.8	5.9	4.1	6.3	2.4	9.5	100.0	4.4	701
OVERALL	20.6%	14.5%	41.2%	6.6%	5.8%	4.4%	2.9%	4.0%	100.0%	4.9	3737
MEDIAN INCOME	$8510	$9774	$13581	$9380	$10608	$10535	$7490	$17817	$11066		

Response Rate: 28.7%

Number of Buses to Complete Linked Trip

Nearly 45% of regular-service weekday riders are able to complete their linked transit trip on only one bus, and 39% must ride two buses. Another 12.4% must ride three buses. The proportion riding more than three buses to complete their linked trip is only 4.1% of the riders. Table 52 shows wide variation in transfers by bus line, however. The proportion of riders using only one bus to complete a transit trip ranges from a low of 24% to a high of 72%. The proportion riding more than three buses ranges from none to 8.7%.

Table 53 shows by type of fare the variation in number of buses required to complete a linked trip. Half the cash riders ride only one bus. The proportion of senior citizen and handicapped pass users who ride a single bus is a bit above average -- 47.3% and 46.1% respectively. The group with the lowest proportion of one-bus linked trips is regular pass users; only 28.8% of this group ride just one bus.

Regular pass users are the most likely to ride two buses, however. Nearly 49% of the regular pass users ride two buses. An above-average proportion of riders in two other fare categories also use two buses. Nearly 45% of student pass users and 44% of college/vocational pass users ride two buses.

Transfers also tend to vary by time of day. Riders during the morning base period are more likely to ride only one bus than are riders during any other part of the day. Nearly 53% of the morning base period riders report riding one bus. The proportion of riders using only one bus is somewhat below average during the PM peak and evening periods, when 41% and 40.2%, respectively, do not transfer.

Table 54 shows further that the proportion of riders taking two buses to complete their trips is above average during the AM peak (41.1%) and PM peak (43.1%) and somewhat below average during the remainder of the day. The proportion of riders taking three or more buses is highest during evening hours. Over 18% of evening riders ride three buses, and 4.7% ride more.

Table 55 shows transfers by trip purpose. The median number of buses needed for a linked trip varies from 1.7 buses for shopping, school and social/recreational to 1.9 for medical and "other" trips. Work trips require 1.8 buses, on average. Over 53% of the riders on shopping trips take only one bus, as do 46.1% of those on social/recreational trips, and 45% of those on school trips. About 41% of riders on medical or work trips take one bus.

The number of buses required to complete a linked trip varies considerably by geographic sector. Table 56 shows that the proportion of riders taking just one bus ranges from 27.6% among North Central residents to 50% among those from South BAy. Overall, the proportion of riders requiring a single bus for their trips is 44.7%. Above average proportions of riders in this category can be found in the San Fernando Valley (46.3%), Mid-Cities (48.7%) and South Bay (50%).

Table 57 shows that the number of buses ridden to complete a linked trip varies by age group. Senior citizens and riders under 19 years old are most likely to complete their trips on one bus. Over half the senior citizens and 47.2% of the young riders take only one bus. Riders in the 30 to 39 age group are least likely to ride only one bus. Only 38% are in this category.

There is a relationship between rider age and the number of buses ridden on a linked trip. The median age of riders taking one bus is 26. the median age for riders taking two or three buses is nearly 27. The median age of riders who report taking four buses is over 29. Above that level of riding, median age drops back to less than 26 years old.

Table 58 shows that there is no significant difference between male and female riders in terms of the number of buses ridden to complete a linked trip. The median for each group is 1.8 buses.

There are significant differences by ethnic group, however. These differences are illustrated in Table 59, which shows that White riders ride an average of 1.6 buses, whereas Latinos ride 1.9. Blacks and the Asian/Pacific Islander group both ride an average of 1.8 buses on linked trips.

Table 60 shows the relationship between household income and number of buses ridden on a linked trip. Generally, the number of buses ridden tends to decrease as income goes up. Riders from households at the bottom of the economic ladder ride an average of 2.3 buses, but riders from affluent households ride an average of 1.6 buses. Over 8% of the poor respondents ride more than three buses;only 2% of the affluent ride as many buses.

TABLE 52

NUMBER OF BUSES REQUIRED FOR TRIP FROM ORIGIN TO DESTINATION BY BUS LINE

Bus Line	Number of Buses: One	Two	Three	Four	Five or More	Total	Mean Number of Buses	Number of Respondents
12	42.1%	42.1%	12.1%	1.9%	1.9%	100.1%	1.8	107
18	26.6	48.1	19.0	-	6.3	100.0	2.1	79
29	56.2	25.3	13.0	3.4	2.1	100.0	1.7	146
32	38.5	38.5	16.8	4.2	2.1	100.1	1.9	143
44	42.2	40.4	11.6	3.6	2.2	100.0	1.8	275
47	46.1	42.7	7.9	2.2	1.1	100.0	1.7	89
73	41.7	45.2	10.7	2.4	-	100.0	1.7	84
81	39.1	38.2	18.6	2.7	1.4	100.0	1.9	220
86	43.3	42.8	12.2	1.1	.6	100.0	1.7	180
88	39.8	36.6	16.1	5.4	2.2	100.1	1.9	93
89	46.0	39.2	12.0	.9	1.9	100.0	1.7	324
91	44.0	42.9	9.4	2.6	1.0	99.9	1.7	191
96	30.4	34.8	26.1	8.7	-	100.0	2.1	23
114	38.1	43.3	13.3	3.8	1.4	99.9	1.9	210
152	46.6	46.6	4.9	1.0	1.0	100.1	1.6	103
155	44.4	47.2	5.6	2.8	-	100.0	1.7	36
156	36.0	50.9	9.3	3.1	.6	99.9	1.8	161
157	43.8	34.7	16.5	4.0	1.1	100.1	1.8	176
160	51.5	36.8	8.8	2.9	-	100.0	1.6	68
164	49.6	38.1	9.7	1.8	.9	100.1	1.7	113
165	55.9	37.6	4.3	1.1	1.1	100.0	1.5	93
166	46.2	44.0	7.7	2.2	-	100.1	1.7	91
168	61.6	26.0	11.0	-	1.4	100.0	1.5	73
169	51.5	37.1	9.2	1.3	.9	100.0	1.6	229
175	60.5	22.8	14.0	.9	1.8	100.0	1.6	114
210	34.2	44.9	17.1	3.0	.9	100.1	1.9	234
354	35.2	49.3	12.7	1.4	1.4	100.0	1.8	71
424	52.2	37.4	8.7	.9	.9	100.1	1.6	115
425	41.0	41.0	15.0	2.9	-	99.9	1.8	273
431	51.0	35.8	9.9	3.3	-	100.0	1.7	151
435	57.1	35.5	5.5	1.8	-	99.9	1.5	217
451	59.1	24.7	10.8	3.2	2.2	100.0	1.6	93
452	47.6	42.9	9.5	-	-	100.0	1.6	42
453	44.8	44.8	6.9	-	3.4	99.9	1.7	29
454	67.6	27.0	4.1	1.4	-	100.1	1.4	74
484	67.1	19.2	9.6	2.7	1.4	100.0	1.5	73
488	52.9	28.8	14.7	1.8	1.8	100.0	1.7	170
813	55.3	34.2	9.2	1.3	-	100.0	1.6	76
821	60.4	27.1	6.3	6.3	-	100.1	1.6	48
822	51.9	27.2	18.5	2.5	-	100.1	1.7	81
826	30.5	42.7	24.4	2.4	-	100.0	2.0	82
831	52.4	41.7	2.9	1.0	1.9	99.9	1.6	103
840	23.8	57.1	16.2	1.0	1.9	100.0	2.0	105
844	34.0	50.4	15.6	-	-	100.0	1.8	141
846	55.5	32.8	9.8	1.6	.4	100.1	1.6	256
861	63.8	29.3	6.3	.6	-	100.0	1.4	174
867	46.6	37.0	8.2	5.5	2.7	100.0	1.8	73
869	68.5	23.9	5.1	2.5	-	100.0	1.4	197
871	48.8	37.7	9.8	2.8	.9	100.0	1.7	215
872	71.6	20.3	4.1	4.1	-	100.1	1.4	74
OVER-ALL	44.7%	38.7%	12.4%	2.8%	1.3%	99.9%	1.8	6588

Response Rate: 50.7%

TABLE 53
NUMBER OF BUSES REQUIRED FOR TRIP FROM ORIGIN TO DESTINATION BY TYPE OF FARE

Type of Fare	Number of Buses: One	Two	Three	Four	Five or more	Total	Mean Number of Buses	Number of Respondents
Cash, Ticket or Transfer	50.1%	36.5%	10.7%	2.2%	.5%	100.0%	1.7	3007
Regular Pass	28.8	48.8	16.4	3.3	2.7	100.0	2.0	1029
Express Pass	44.4	36.8	16.3	2.5	-	100.0	1.8	195
Student Pass (under 19)	38.9	44.6	12.9	1.2	2.4	100.0	1.8	681
College/Vocational Pass	37.5	43.9	12.0	4.1	2.5	100.0	1.9	279
Senior Citizen Pass	47.3	35.0	12.6	4.3	.8	100.0	1.8	319
Handicap Pass	46.1	23.9	21.9	5.4	2.7	100.0	1.9	79
Tourist Pass	-	-	-	-	-	-	-	15*
Other	41.2	37.6	12.8	6.7	1.7	100.0	1.9	63
OVERALL	44.7%	38.7%	12.4%	2.8%	1.3%	99.9%	1.8	5667
Response Rate:	43.6%							

*Sample size too small to allow valid statistical comparison

TABLE 54
NUMBER OF BUSES REQUIRED FOR TRIP FROM ORIGIN TO DESTINATION
BY TIME OF DAY

Time Period	Number of Buses						Mean Number of Buses	Number of Respondents
	One	Two	Three	Four	Five or More	Total		
AM Peak	45.0%	41.1%	12.6%	1.0%	.4%	100.1%	1.7	1195
AM Base	52.6	35.3	9.4	2.3	.3	99.9	1.6	1291
PM Base	44.4	36.3	13.6	3.6	2.2	100.1	1.8	1961
PM Peak	41.0	43.1	11.7	3.1	1.2	100.1	1.8	1826
Evening	40.2	36.6	18.4	2.5	2.2	99.9	1.9	314
OVERALL	44.7%	38.7%	12.4%	2.8%	1.3%	99.9%	1.8	6587

Response Rate: 50.7%

TABLE 55

NUMBER OF BUSES REQUIRED FOR TRIP FROM ORIGIN TO DESTINATION BY TRIP PURPOSE

Trip purpose	Number of Buses						Mean Number of Buses	Number of Respondents
	One	Two	Three	Four	Five or More	Total		
Work	40.9%	42.2%	12.9%	2.6%	1.3%	100.0%	1.8	2524
School	45.0	40.0	12.9	1.2	.9	100.0	1.7	1522
Shopping	53.3	31.1	11.4	3.2	.9	99.9	1.7	506
Medical	41.3	38.0	13.6	6.4	.7	100.0	1.9	205
Social/Recreational	46.1	38.1	12.3	2.0	1.4	99.9	1.7	422
Other	36.8	40.1	16.6	4.4	2.1	100.0	1.9	268
OVERALL	44.7%	38.7%	12.4%	2.8%	1.3%	99.9%	1.8	5447
Response rate:	41.9%							

TABLE 56
NUMBER OF BUSES REQUIRED FOR TRIP FROM ORIGIN TO DESTINATION
BY RESIDENCE SECTOR

Residence Sector	Number of Buses						Mean Number of Buses	Number of Respondents
	One	Two	Three	Four	Five or More	Total		
San Fernando Valley	46.3%	42.0%	9.2%	2.1%	.3%	99.9%	1.7	858
North Central	27.6	43.3	17.0	8.9	3.2	100.0	2.2	181
San Gabriel Valley	44.9	34.9	14.1	5.7	.4	100.0	1.8	575
W. Los Angeles	42.0	43.9	10.8	2.3	1.0	100.0	1.8	744
South Central	29.5	43.4	19.7	5.0	2.4	100.0	2.1	562
East Central	31.5	38.0	26.9	3.3	.3	100.0	2.0	108
East Los Angeles	41.9	37.6	13.2	3.5	3.8	100.0	1.9	126
Mid-Cities	48.7	33.4	17.5	.3	-	99.9	1.7	167
South Bay	50.0	35.5	13.1	.7	.6	99.9	1.7	484
Downtown L.A.	31.5	47.5	5.0	11.5	4.4	99.9	2.1	38
Long beach	38.8	36.8	10.4	10.8	3.2	100.0	2.0	62
N. Los Angeles County	-	-	-	-	-	-	-	4*
Orange County	-	-	-	-	-	-	-	13*
San Bernardino County	-	-	-	-	-	-	-	11*
Ventura County	-	-	-	-	-	-	-	1*
OVERALL	44.7%	38.7%	12.4%	2.8%	1.3%	99.9	1.8	3934
Response Rate:	30.3%							

*Sample size too small to allow valid statistical comparison

TABLE 57

NUMBER OF BUSES REQUIRED FOR TRIP FROM ORIGIN TO DESTINATION BY RIDER AGE

Age	Number of Buses						Mean Number of Buses	Number of Respondents
	One	Two	Three	Four	Five or More	Total		
Under 19	47.2%	37.6%	12.7%	1.5%	1.0%	100.0%	1.7	1564
19 to 29	41.9	40.6	12.8	2.9	1.9	100.1	1.8	1909
30 to 39	37.6	43.7	14.0	3.0	1.7	100.0	1.9	715
40 to 49	43.3	37.8	16.7	1.5	.6	99.9	1.8	360
50 to 61	37.9	46.3	11.4	4.2	.1	99.9	1.8	381
62 or older	50.4	31.5	11.3	6.0	.8	100.0	1.8	370
OVERALL	44.7%	38.7%	12.4%	2.8%	1.3%	99.9%	1.8	5299
MEDIAN AGE	26.0	26.8	26.9	29.2	25.6	27.4		

Response Rate: 40.8%

TABLE 58

NUMBER OF BUSES REQUIRED TO COMPLETE TRIP FROM ORIGIN TO DESTINATION BY GENDER

	Number of Buses							
Gender	One	Two	Three	Four	Five Or More	Total	Mean Number of Buses	Number of Respondents
Male	45.4%	39.9%	10.6%	2.5%	1.6%	100.0	1.8	2679
Female	44.5	37.7	14.0	2.7	1.1	100.0	1.8	3655
OVERALL	44.7%	38.7%	12.4%	2.8%	1.3%	99.9%	1.8	6334

Response Rate: 48.7%

TABLE 59
NUMBER OF BUSES REQUIRED TO COMPLETE TRIP FROM ORIGIN TO DESTINATION
BY ETHNIC BACKGROUND

Ethnic Background	Number of buses						Mean Number of Buses	Number of Respondents
	One	Two	Three	Four	Five or More	Total		
White	51.6%	36.2%	9.7%	2.0%	.5%	100.0%	1.6	2645
Black	41.1	39.9	14.8	3.1	1.1	100.0	1.8	1606
Latino	39.0	40.3	14.6	3.9	2.2	100.0	1.9	1478
Asian or Pacific Islander	43.4	42.7	9.2	2.5	2.3	100.1	1.8	346
American Indian	44.2	52.3	1.5	1.0	1.1	100.1	1.6	81
Other	47.8	30.9	14.3	.3	6.7	100.0	1.9	49
OVERALL	44.7%	38.7%	12.4%	2.8%	1.3%	99.9%	1.8	6205

Response Rate: 47.7%

TABLE 60
NUMBER OF BUSES REQUIRED FOR TRIP FROM ORIGIN TO DESTINATION
BY ANNUAL HOUSEHOLD INCOME

Annual Household Income	Number of Buses						Mean Number of Buses	Number of Respondents
	One	Two	Three	Four	Five or More	Total		
Under $5000	37.9%	36.9%	17.1%	4.8%	3.3%	100.0%	2.0	841
$5000-$9999	39.9	41.8	14.4	2.7	1.2	100.0	1.8	720
$10000-$14999	46.1	37.5	14.0	1.3	1.2	100.1	1.7	669
$15000-$19999	43.0	40.3	9.5	5.3	1.9	100.0	1.8	451
$20000-$24999	43.1	40.1	14.0	2.7	.1	100.0	1.8	399
$25000 or more	50.9	38.6	8.6	1.3	.6	100.0	1.6	727
OVERALL	44.7%	38.7%	12.4%	2.8%	1.3%	99.9%	1.8	3807
MEDIAN INCOME	$12,251	$11,296	$9,378	$8,182	$5,125	$11,066		

Response Rate: 29.3%

Mode of Access

Table 61 reveals that 90% of the regular-service weekday riders access the RTD system on foot. Only 8.6% get to the RTD system by car -- 3.2% drive and 5.4% ride as passengers in a car. The remaining 1.4% of the respondents say that they get to the RTD system by some other means, which would imply that some transferred to RTD from one of the municipal bus lines. Further analysis does indicate that about 1% of RTD regular-service riders ride a municipal line bus over a portion of their linked trip.

Differences in access mode by residence sector are displayed in Table 62. Riders most likely to drive to the bus are fromMid-Cities (5.9%), San Gabriel Valley or South Bay (5.6% each).

The percentage of riders getting to the bus on foot ranges from less than 86% in the San Gabriel Valley, Mid-Cities and South Bay to 95.7% in East Los Angeles.

There is a relationship between age and mode of access shown in Table 63. Riders who drive to the bus have a median age of 29 and are significantly older than other riders, while riders who get to the bus as passengers in a car have a median age of 25.5. Riders who walk to the bus are 26.5 years old, on average. The youngest group, with a median age of 22.9, are those riders who access the RTD by some means other than by car or on foot.

Table 64 shows no significant differences in mode of access to the RTD system by gender.

Table 65 shows that the Asian/Pacific Islander and "other" riders are most likely to drive to the bus. Nearly 5% of the former and 6% of the latter, say they drive. Least likely to drive, at 1.9% and 1.2%, respectively, are Black riders snd Indians.

A relationship can be seen in Table 66 between income and mode of access to the RTD system. The less affluent the household, the more likely is the rider to walk to the bus. About 94% of the riders whose household incomes are below $15,000 walk, whereas, only 83.5% to 88.5% of the riders with incomes above that level walk to the bus. The median household income of riders who access the RTD system on foot is $10,796. Those who ride as passengers in a car have an income of $17,523, and those who drive have $15,962 median income.

TABLE 61
MODE OF ACCESS TO RTD SYSTEM BY BUS LINE

Bus Line	Drove	Was Driven	Walked	Other	Total	Number of Respondents
12	5.2%	6.5%	87.7%	.6%	100.00%	154
18	2.0	2.0	94.1	2.0	100.10	101
29	1.7	5.0	92.8	.6	100.10	181
32	.8	4.5	94.0	.8	100.10	133
44	3.6	4.4	90.5	1.5	100.00	338
47	6.9	6.9	83.6	2.6	100.00	116
73	3.8	9.0	84.6	2.6	100.00	78
81	6.4	5.5	83.6	4.5	100.00	220
86	8.0	4.5	86.5	1.0	100.00	200
88	6.8	7.6	82.2	3.4	100.00	118
89	.9	2.5	94.1	2.5	100.00	322
91	2.2	4.4	92.9	.5	100.00	183
96	-	3.7	96.3	-	100.00	27
114	1.4	6.7	89.1	2.8	100.00	285
152	3.0	9.0	87.2	.8	100.00	133
155	2.6	7.9	89.5	-	100.00	38
156	3.3	7.9	84.1	4.6	99.90	151
157	1.7	4.6	91.9	1.7	99.90	173
160	1.4	4.3	91.3	2.9	99.90	69
164	4.3	7.0	88.7	-	100.00	115
165	1.9	8.7	87.4	1.9	99.90	103
166	5.1	8.1	84.8	2.0	100.00	99
168	1.4	6.8	89.0	2.7	99.90	73
169	3.4	6.0	89.7	.9	100.00	233
175	5.0	11.7	79.2	4.2	100.00	120
210	1.7	3.4	94.5	.4	100.00	238
354	1.5	4.4	94.1	-	100.00	68
424	5.5	9.1	83.6	1.8	100.00	110
425	2.9	5.1	89.5	2.5	100.00	276
431	4.2	3.5	90.8	1.4	99.90	142
435	3.4	5.5	91.1	-	100.00	237
451	3.1	4.1	91.8	1.0	100.00	98
452	5.4	2.7	89.2	2.7	100.00	37
453	-	14.3	78.6	7.1	100.00	28
454	1.3	1.3	96.1	1.3	100.00	77
484	3.8	9.0	85.9	1.3	100.00	78
488	10.5	9.9	79.5	-	99.90	171
813	16.0	10.7	73.3	-	100.00	75
821	-	17.8	80.0	2.2	100.00	45
822	2.5	3.8	91.2	2.5	100.00	80
826	1.0	3.1	94.8	1.0	99.90	97
831	3.4	11.4	83.0	2.3	100.10	88
840	2.9	10.9	83.9	2.2	99.90	137
844	3.1	9.7	85.1	2.1	100.00	195
846	1.9	6.9	85.7	5.4	99.90	259
861	1.2	7.1	90.5	1.2	100.00	169
867	2.5	2.5	94.9	-	99.90	118
869	2.6	6.8	87.4	3.2	100.00	190
871	2.7	6.8	88.6	1.8	99.90	219
872	1.4	1.4	95.7	1.4	99.90	69
OVER-ALL	3.2%	5.4%	90.0%	1.4%	100.00%	7064

Response Rate: 54.3%

TABLE 62
MODE OF ACCESS TO RTD SYSTEM
BY RESIDENCE SECTOR

Residence Sector	Drove	Was Driven	Walked	Other	Total	Number of Respondents
San Fernando Valley	3.2%	6.2%	88.7%	1.9%	100.0%	876
North Central	2.5	6.1	89.8	1.6	100.0	179
San Gabriel Valley	5.6	7.8	85.4	1.2	100.0	564
West Los Angeles	2.1	3.3	93.8	.8	100.0	753
South Central	2.1	2.7	94.1	1.2	100.1	569
East Central	-	6.9	92.8	.2	99.9	123
East Los Angeles	.6	3.2	95.7	.4	99.9	123
Mid-Cities	5.9	7.2	85.7	1.1	99.9	172
South Bay	5.6	8.1	85.9	.4	100.0	482
Downtown L.A.	-	-	-	-	-	35 *
Long Beach	1.5	3.4	92.2	2.9	100.0	62
North L.A. County	-	-	-	-	-	4 *
Orange County	-	-	-	-	-	13 *
San Bernardino County	-	-	-	-	-	11 *
Ventura County	-	-	-	-	-	1 *
OVERALL	3.2%	5.4%	90.0%	1.4%	100.0%	3967

Response Rate: 30.5%

* Sample size too small to allow valid statistical comparison

TABLE 63
MODE OF ACCESS TO RTD SYSTEM
BY RIDER AGE

Age	Drove	Was Driven	Walked	Other	Total	Number of Respondents
Under 19	1.5%	5.0%	91.4%	2.0%	99.9%	1628
19 - 29	2.9	6.3	89.7	1.1	100.0	1955
30 - 39	3.6	3.8	91.8	.7	99.9	739
40 - 49	3.2	5.8	90.1	1.0	100.1	362
50 - 61	5.3	4.3	88.7	1.7	100.0	384
62 or older	1.8	4.5	93.2	.5	100.0	383
OVERALL	3.2%	5.4%	90.0%	1.4%	100.0	5451
MEDIAN AGE	29.0	25.5	26.5	22.9	27.4	
Response Rate:	41.9%					

TABLE 64
MODE OF ACCESS TO RTD SYSTEM BY GENDER

Gender	Drove	Was Driven	Walked	Other	Total	Number of Respondents
Male	3.8%	5.6%	89.0%	1.7%	100.1%	2916
Female	2.6	5.2	91.0	1.2	100.0	3804
Total	3.2%	5.4%	90.0%	1.4%	100.0	6720

Response Rate: 51.7%

TABLE 65
MODE OF ACCESS TO RTD SYSTEM
BY ETHNIC BACKGROUND

Ethnic Background	Drove	Was Driven	Walked	Other	Total	Number of Respondents
White	3.8%	4.7%	89.7%	1.7%	100.0%	2761
Black	1.9	4.5	92.6	.9	99.9	1769
Latino	3.1	6.7	88.9	1.2	99.9	1562
Asian or Pacific Islander	4.9	8.5	85.0	1.6	100.0	349
Indian	1.2	6.7	86.3	5.7	99.9	83
Other	6.0	7.0	81.4	5.6	100.0	57
Total	3.2%	5.4%	90.0%	1.4%	100.0%	6581
Response Rate:	50.6%					

TABLE 66
MODE OF ACCESS TO RTD SYSTEM
BY ANNUAL HOUSEHOLD INCOME

Annual Household Income	Drove	Was Driven	Walked	Other	Total	Number of Respondents
Under $5000	2.9%	2.9%	93.7%	.5%	100.0%	884
$5000-$9999	1.4	3.3	94.2	1.1	100.0	744
$10000-$14999	2.6	2.7	93.6	1.1	100.0	668
$15000-$19999	4.4	9.5	85.2	.8	99.9	463
$20000-$24999	4.4	6.0	88.5	1.1	100.0	408
$25000 or more	5.4	9.3	83.5	1.7	99.9	729
OVERALL	3.2%	5.4%	90.0%	1.4%	100.0%	3896
MEDIAN INCOME	$15,962	$17,523	$10,796	$13,660	$11,066	

Response Rate: 30.0%

Trip Purpose

Table 67 shows that just over half the regular-service weekday riders are on trips to or from work, 21.2% are going to or from school and 10.5% are on shopping trips. Social/recreational trips motivate 9.2% of the riders to ride the bus and 4.7% are riding on medical trips.

Results of the 1978 on-board surveys indicated a similar mix of trip purposes, with one notable exception. In 1978, 49.2% of the riders were on work trips and 27.8% were on school trips. The lower proportion of school trips found in 1981 may be partially attributable to two causes: 1) Surveying in 1981 was conducted for a full day, from early morning to evening, on each line, whereas the 1978 survey was conducted for about eight hours on each line. 2) in 1981, some lines were surveyed during the first week in June, rather than in May. These June surveys may have been conducted after the beginning of final exams and semester break at some schools. The proportion of other trip purposes did not change significantly since 1978, when 8.5% of the trips were social/recreational, 5.5% were shopping trips and 5.2% were medical.

There is wide variation in trip purpose by bus line. The percentage of work trips, for example, ranges from a low of 15% on the 96 line to a high of 70.3% on both the 32 and 47 lines.

As expected, the trip purpose mix is different for each fare category, as shown in Table 68. Riders using the under-19 student pass report the lowest proportion of work trips, 9.1%, and the highest proportion of school trips, 73.2%. Most regular and express pass users are on work trips, 80% and 76.5%, respectively. School trips are also fairly frequent among express pass riders, 13% of them checked this trip purpose.

Half the cash riders are on work trips, 17% on school trips and 12% on social/recreational trips. Another 9.4% of the cash riders are going to or from shopping and 5.7% are on medical trips.

Few senior citizen and handicapped pass users ride the bus on work trips -- only about 21% to 23%. Shopping trips are important to riders using these passes; 34% of the handicapped pass users and 40% of the senior citizen pass users are on shopping trips. Social/recreational trips account for 17% of the trips by senior citizen pass users and 20% of the trips by handicapped pass riders.

Riders using senior citizen or handicapped passes are more likely to travel on medical trips than are riders in any other fare category. Nearly 10% of the handicapped pass riders and 13.3% of those using senior citizen passes are on medical trips.

Senior citizen pass users are least likely to ride on school trips. Only 2.5% do. Over 8% of handicapped pass riders say they are on school trips.

Overall, the chief trip purpose of regular-service weekday riders is travel to and from work. Table 69 shows that commuting to or from work is the predominant trip purpose during all periods of the day. The largest proportion of work trips can be found during the peak periods. During the morning peak 65.7% of the riders are on work trips, and during the afternoon peak 61.6% are on work trips.

It may be a standard assumption that people work 40 hours a week, 9 to 5, Monday to Friday, but the Bureau of Labor Statistics notes that there are nearly seven million Americans who work nights. These workers represent 11% of all wage and salary workers. Indeed, the third highest proportion of transit work trips on RTD can be found during the evening hours. Over 55% of these riders are going to or from work, according to the findings in Table 70.

The smallest proportion of work trips occurs during the morning and afternoon base periods, when 47.9% and 33.6% of the riders, respectively, are travelling to or from work.

School trips account for the second highest proportion of bus trips overall. Just over 21% of the riders are travelling to or from school. The largest proportion of riders on school trips is found during two periods-- the morning peak, when the proportionn is 28.7%, and the afternoon base period, when it is 29.6%. Even during the evening period, 11.4% of the riders are going to or from school.

Shopping trips account for 10.2% of the trips during the course of a day, but this proportion, too, varies by time of day. During the morning peak period only 1.2% of the riders are on shopping trips. The largest proportion of shopping trips occurs during the base period --14.9% of the trips during the morning base and 13.9% during the afternoon base. After 3:30 pm the proportion of shopping trips declines to about 9%.

Social/recreational trips, which account for 9.2% of trip purposes, overall, are low - only 3% - during the morning peak period. The proportion of social/recreational trips fluctuates throughout the remainder of the day, from 8% during the morning base, up to 12% during the afternoon base, back down to 8% during the PM peak and up once more in the evening to its highest point of the day - 15.8%.

The pattern of medical trips is different, starting from a negligible .8% during the AM peak and hitting a high of 7.1% during the AM base. The proportion of medical trips then declines throughout the days from 6.5% during the PM base, to 3.6% during the PM peak to 2.2% during the evening.

Trip purpose also varies by residence sector, as displayed in Table 70. Work as a trip purpose is less important among San Gabriel Valley and San Fernando Valley residents, where it accounts for 41.7% and 45.7% of the boardings, respectively -- than it is in East Los Angeles, downtown and the East Central sector -- where it accounts for 61% to 72% of the boardings.

School trips also vary widely in importance by sector, ranging from less than 10% of the trips among East Central residents up to 28.3% of the trips made by San Fernando Valley residents.

The proportion of riders using public transit for shopping trips is less than 8% among residents of South Bay, East Los Angeles, and Mid-Cities. The largest proportion of shopping trips is in the West Los Angeles (12.7%) and North Central (13.6%) sectors.

Overall, medical trips account for 4.7% of the transit trips. Residents of the South Bay sector report less than 3%, but above-average proportions of riders from other sectors use the bus for medical trips. The percentage of East Los Angeles residents riding the bus on medical trips is 6.8%, and the percentage of East Central residents is 8.1%. Nearly 10% of the riders from the Long Beach sector use public transit on medical trips.

Social/recreational trips, which account for 9.2% of overall trip purposes, are also reported in differing proportions by sector. The percentage of social/recreational trips reported by riders from Mid-Cities, and the Long Beach sectors are high, ranging from 18.8% to 20.6%. The proportion of social/recreational trips by residents of all other sectors is below average, ranging from 1.9% to 7.5%.

Tsble 71 shows that trip purpose varies by age. The highest median age is reported by riders on medical (33.5 years old), and shopping trips (32.8). The median age of riders commuting to or from work is 29.1, and those on social/recreational trips average 27 years old. As expected, the youngest group of riders makes school trips by transit. The median sge of student riders is 15.9.

Table 71 shows how dramatically the proportion of work trips varies by age. Whereas, only 13.5% of the riders under 19 years old use the bus on work trips, nesrly 77% of the riders in the 40 to 49 age group are on work trips. The proportion of work trips rises with age until it begins to decline to the 56% level with the 50 to 61 age group. Only 35.1% of the senior citizen riders use public transit to ride to and from work.

School trips, of course, tend to decrease with age, from 62% of the under-19 riders to less than 2% of riders over 50. Shopping and medical trips, on the other hand, tend to increase with age. Only about 7% of riders under 30 use transit for shopping trips, but 21.3% of riders between 50 and 61 and 29.1% of riders over 61 use the bus for shopping. Between 3% and 3.6% of riders under 40 use the bus for medical trips, as do 5.8% of the 40 to 49 riders, 9.3% of the 50 to 61 riders and 11.2% of those 62 or older.

Social/recreational trips account for 7.4% of trips by under-19 riders, rising to 9.6% of the trips by 19 to 29 year old riders. The proportion of social/recreational trips then declines to 8.2% among 30 to 39 year olds, and 5% to 6% among riders aged 40 through 61. The percentage rises to its highest level among senior citizens, 18.6% of whom are on social/recreational trips.

Trip purpose by gender, as shown in Table 72, varies significantly in only two aspects. The proportion of female riders using the bus for shopping trips is higher than the proportion of males -- 11.6% to 8.9%. The proportion of males on social/recreational trips is higher than the proportion of females -- 11.5% to 7.2%.

Even ethnic background can be seen to have an effect on the mix of transit trip purposes, as illustrated by table 73. Latino riders make the highest proportion of work trips, 62.7%, and American Indian riders the lowest, 26%. Indians, on the other hand, make the highest proportion of school trips, 36.1%, and Latinos the lowest, only 16.1%.

The proportion of shopping trips also varies, Indians and White riders making more of these trips (13.5% and 15.5%, respectively) than Black riders (9.1%), Latinos (7.8%) or Asian/Pacific Islanders (3.9%).

The variation in trip purpose mix by income group is shown in Table 74. the lowest median household income is reported by riders making medical trips by bus. Their income averages $6,678. Riders on shopping trips average $8,488. The median income of social/recreational riders is $10,635, and those on "other" kinds of trips report an average income of $11,310. The highest incomes are reported by riders on work trips, $12,244, and on school trips, $12,831.

The proportion of work trips tends to rise with income up to the $15,000 to $19,999 level, but then begins to decline as income level increases further. The proportion of transit work trips among riders with household incomes below $5000 is only 45.7%, and 52.5% for those whose incomes are between $5000 and $9999. From $10,000 to $19,999, the proportion of work trips is 63%. This percentage drops to 59.8% among riders with $20,000 to $24,999 incomes and to 49.4% among riders with more than $25,000 of household income.

School trips tend to decrease in proportion as income rises to the $15,000 to $19,999 level, and then to increase as income increases above $20,000. Under $5000 household income, 17.1% of the riders are on school trips. In the $5000 to $14,999 category, the percentage of riders on school trips is from 14.1% to 14.6%. Only 12.8% of the riders in the $15,000 to $19,999 category are using transit for school trips. This proportion rises to 21.6% among riders in the $20,000 to $24,999 category and, to 25.2% among riders in the top income category.

Shopping trips as a proportion of all transit trips decline as income increases. Under $10,000, 13.4% to 13.7% of the riders are on shopping trips. In the $10,000 to $14,999 category, the proportion of riders shopping is 8.7%. Between 7.4% and 7.9% of the riders with household incomes between $15,000 and $24,999 are on shopping trips. Only 6.5% of the highest income riders use the bus on shopping trips.

Similarly, medical trips decline as income increases, from 8.4% of the trips among riders whose household incomes are below $5000, to 1.5% of the riders with $25,000 or greater earnings.

Social/recreational trips tend to decline in importance as income level increases, until the $25,000 or more category, at which point the proportion of these trips reaches its highest point. Of the riders in the under $5,000 category, 10.7% use the bus to make these trips. This percentage declines to 5.1% among riders in the $20,000 to $24,999 category, but rises to 13.9% among those earning more than $25,000.

Although work trips predominate as the chief trip purpose among riders on the RTD system, the share of all work trips served by RTD is relatively small. In fact, there is evidence to show that the share of work trips served by RTD may be diminishing. According to Bureau of the Census figures shown in the Appendix (Table A-XVII) the proportion of work trips in the Los Angeles area served by public transit declined from 6% to 5.3% from 1970 to 1977. These figures are five years old, however - too old to reflect the effects of the 1979 energy crisis and subsequent increases in petroleum prices.

Table A-XVII in the Appendix describes work trip characteristics by mode of transportation to work. This table demonstrates one of the reasons for public transit's low share of L.A. County work trips. The median distance from home to work reported by transit riders is 14.3% to 25.8% less, respectively, than the distance reported by commuters who drive alone or those who carpool. The median travel time to work reported by transit riders is 64.8% greater than that reported by commuters who drive alone and 49.8% greater than that reported by carpoolers.

TABLE 67
TRIP PURPOSE
BY BUS LINE

Bus Line	Work	School	Shopping	Medical	Social/ Recrea- tional	Other	Total	Number of Respondents
12	47.0%	13.7%	12.0%	4.3%	15.5%	7.7%	100.20%	117
18	32.4	47.9	8.5	2.8	-	8.5	100.10	71
29	49.2	19.8	13.5	5.6	8.0	4.0	100.10	126
32	70.3	17.1	8.1	1.8	1.8	.9	100.00	111
44	54.2	15.5	13.3	4.5	9.1	3.4	100.00	264
47	70.3	5.9	9.9	5.0	6.0	3.0	100.10	101
73	30.6	40.3	14.5	1.6	6.4	6.5	99.90	62
81	43.5	24.5	9.0	4.5	13.0	5.5	100.00	200
86	61.1	11.7	11.1	3.3	5.6	7.2	100.00	180
88	37.1	25.8	11.3	4.1	17.5	4.1	99.90	97
89	46.6	18.1	18.5	2.0	11.2	3.6	100.00	249
91	65.7	9.5	10.1	4.7	8.3	1.8	100.10	169
96	15.0	55.0	-	10.0	15.0	5.0	100.00	20
114	30.5	41.8	11.8	4.1	5.4	6.4	100.00	220
152	49.2	25.4	5.9	5.1	8.4	5.9	99.90	118
155	26.5	38.2	14.7	8.8	8.8	2.9	99.90	34
156	48.9	34.5	6.5	-	4.4	5.8	100.10	139
157	37.0	33.6	6.8	2.7	13.7	6.2	100.00	146
160	28.3	51.7	10.0	5.0	5.0	-	100.00	60
164	49.0	16.7	7.3	7.3	8.3	11.5	100.10	96
165	46.7	31.1	10.0	2.2	4.4	5.6	100.00	90
166	49.4	27.7	12.0	1.2	6.0	3.6	99.90	83
168	29.9	49.3	6.0	1.5	7.5	6.0	100.20	67
169	48.2	31.6	5.7	4.7	4.1	5.7	100.00	193
175	56.9	22.0	5.5	1.8	11.0	2.8	100.00	109
210	48.5	20.9	8.7	7.7	9.7	4.6	100.10	196
354	36.2	32.8	10.3	3.4	13.8	3.4	99.90	58
424	45.6	42.2	1.1	4.4	5.5	1.1	99.90	90
425	42.1	33.9	9.0	4.5	4.5	5.9	99.90	221
431	42.7	30.0	9.1	2.7	8.1	7.3	99.90	110
435	38.7	35.9	14.4	1.1	4.5	5.5	100.10	181
451	40.3	35.1	9.1	7.8	2.6	5.2	100.10	77
452	29.0	48.4	3.2	3.2	16.1	-	99.90	31
453	23.8	52.4	19.0	4.8	-	-	100.00	21
454	17.9	52.2	11.9	4.5	4.5	9.0	100.00	67
484	25.4	49.2	12.7	3.2	7.9	1.6	100.00	63
488	55.7	12.8	10.1	9.4	8.1	4.0	100.10	149
813	67.6	7.0	8.5	1.4	12.7	2.8	100.00	71
821	39.0	34.1	14.6	4.9	7.2	-	99.80	41
822	67.7	13.8	6.2	6.2	4.6	1.5	100.00	65
826	64.9	9.6	8.5	7.4	5.3	4.3	100.00	94
831	30.4	47.8	13.0	4.3	-	4.3	99.80	69
840	64.3	15.2	3.6	4.5	9.8	2.7	100.10	112
844	40.2	46.3	3.7	1.8	4.9	3.0	99.90	164
846	44.2	26.3	4.5	2.7	16.5	5.8	100.00	224
861	41.4	42.9	5.7	2.1	2.8	5.0	99.90	140
867	62.2	21.4	5.1	6.1	4.1	1.0	99.90	98
869	39.6	45.3	3.8	.6	4.4	6.3	100.00	159
871	47.2	12.1	10.1	5.5	17.0	8.0	99.90	199
872	37.1	21.0	19.4	4.8	8.1	9.7	100.10	62
OVER-ALL	50.3%	21.2%	10.5%	4.7%	9.2%	4.1%	100.00%	5884

Response Rate: 45.3%

TABLE 68
TRIP PURPOSE
BY TYPE OF FARE

Type of Fare	Work	School	Shopping	Medical	Social/ Recrea-tional	Other	Total	Number of Respon-dents
Cash, Ticket or Transfer	50.3%	17.0%	9.4%	5.7%	12.0%	5.6%	100.0%	3024
Regular Pass	80.0	4.0	6.8	2.2	4.6	2.4	100.0	1010
Express Pass	76.5	13.0	4.6	2.7	.7	2.5	100.0	191
Student Pass (under 19)	9.1	73.2	7.9	1.5	4.5	3.8	100.0	663
College/Vocational Pass	21.3	69.7	4.1	1.4	3.0	.3	99.8	246
Senior Citizen Pass	22.8	2.5	39.5	13.3	17.2	4.6	99.9	300
Handicap Pass	21.3	8.2	33.9	9.5	20.1	7.0	100.0	70
Tourist Pass	-	-	-	-	-	-	-	15*
Other	51.7	23.3	7.1	1.4	14.8	1.7	100.0	60
OVERALL	50.3%	21.2%	10.5%	4.7%	9.2%	4.1%	100.0	5579
Response Rate:	42.9%							

* Sample size too small to allow valid statistical comparison

TABLE 69
TRIP PURPOSE
BY TIME OF DAY

Time Period	Work	School	Shopping	Medical	Social/ Recreational	Other	Total	Number of Respondents
AM Peak	65.7%	28.7%	1.2%	.8%	2.9%	.8%	100.1%	1122
AM Base	47.9	18.4	14.9	7.1	8.2	3.6	100.1	1096
PM Base	33.6	29.6	13.9	6.5	11.5	4.8	99.9	1736
PM Peak	61.6	13.4	8.7	3.6	8.1	4.6	100.0	1638
Evening	55.4	11.4	8.5	2.2	15.8	6.7	100.0	291
OVERALL	50.3%	21.2%	10.2%	4.7%	9.2%	4.1%	99.7%	5883

Response Rate: 45.3%

TABLE 70
TRIP PURPOSE
BY RESIDENCE SECTOR

Residence Sector	Work	School	Shopping	Medical	Social/ Recreational	Other	Total	Number of Respondents
San Fernando Valley	45.7%	28.3%	10.0%	3.7%	7.1%	5.2%	100.0	851
North Central	54.0	13.5	13.6	5.7	7.0	6.3	100.1	174
San Gabriel Valley	41.7	36.8	9.1	3.9	4.9	3.6	100.0	545
West Los Angeles	58.0	14.7	12.7	4.6	7.5	2.6	100.1	732
South Central	51.11	24.3	9.2	4.2	4.4	6.8	100.0	543
East Central	71.8	9.6	6.8	8.1	1.9	1.7	99.9	118
East Los Angeles	61.7	22.9	5.0	6.8	3.3	.3	100.0	120
Mid-Cities	50.7	18.9	7.4	4.0	18.8	.2	100.0	177
South Bay	56.7	26.4	4.7	2.7	5.9	3.6	100.0	474
Downtown L.A.	-	-	-	-	-	-	-	38 *
Long Beach	50.7	8.6	9.6	9.6	20.6	.8	99.9	58
North L.A. County	-	-	-	-	-	-	-	4 *
Orange County	-	-	-	-	-	-	-	12 *
San Bernardino County	-	-	-	-	-	-	-	11 *
Ventura County	-	-	-	-	-	-	-	1 *
OVERALL	50.3%	21.2%	10.5%	4.7%	9.2%	4.1%	100.0%	3858
Response Rate:	29.7%							

* Sample size too small to allow valid statistical comparison

TABLE 71
TRIP PURPOSE
BY RIDER AGE

Age	Work	School	Shopping	Medical	Social/ Recreational	Other	Total	Number of Respondents
Under 19	13.5%	61.9%	7.3%	3.0%	7.4%	6.9%	100.0%	1509
19 - 29	62.4	14.1	7.4	3.5	9.6	3.0	100.0	1827
30 - 39	69.7	7.6	8.6	3.6	8.2	2.2	99.9	675
40 - 49	76.5	3.2	6.0	5.8	5.1	3.4	100.0	345
50 - 61	55.8	1.1	21.3	9.3	5.9	6.5	99.9	369
62 or older	35.1	1.7	29.1	11.2	18.6	4.3	100.0	340
OVERALL	50.3%	21.2%	10.5%	4.7%	9.2%	4.1%	100.0%	5065
MEDIAN AGE	29.1	15.9	32.8	33.5	27.0	23.2	27.4	

Response Rate: 39.0%

TABLE 72
TRIP PURPOSE
BY GENDER

Gender	Work	School	Shopping	Medical	Social/ Recreational	Other	Total	Number of Respondents
Male	50.5%	21.3%	8.9%	4.2%	11.5%	3.5%	99.9%	2447
Female	50.5	21.3	11.6	4.8	7.2	4.7	100.1	3262
OVERALL	50.3%	21.2%	10.5%	4.7%	9.2%	4.1%	100.0%	5709

Response Rate: 43.9%

TABLE 73
TRIP PURPOSE
BY ETHNIC BACKGROUND

Ethnic Background	Work	School	Shopping	Medical	Social/ Recreational	Other	Total	Number of Respondents
White	48.0%	18.0%	13.5%	4.7%	11.5%	4.3%	100.0%	2382
Black	46.0	27.1	9.1	5.4	8.2	4.1	99.9	1438
Latino	62.7	16.1	7.8	4.0	5.8	3.5	100.1	1326
Asian or Pacific Islander	46.0	33.4	3.9	1.9	11.3	3.6	100.1	322
Indian	26.0	36.1	15.5	4.4	5.1	12.8	99.9	75
Other	29.9	30.7	11.8	1.3	13.8	12.6	100.1	49
OVERALL	50.3%	21.2%	10.5%	4.7%	9.2%	4.1%	100.0%	5592
Response Rate:	43.0%							

TABLE 74
TRIP PURPOSE
BY ANNUAL HOUSEHOLD INCOME

Annual Household Income	Work	School	Shopping	Medical	Social/ Recreational	Other	Total	Number of Respondents
Under $5000	45.7%	17.1%	13.4%	8.4%	10.7%	4.7%	100.0%	795
$5000-$9999	52.5	14.1	13.7	6.6	9.6	3.5	100.0	698
$10000-$14999	63.0	14.6	8.7	3.7	8.1	3.9	102.0	639
$15000-$19999	63.0	12.8	7.4	3.3	8.6	5.0	100.1	460
$20000-$24999	59.8	21.6	7.9	1.9	5.1	3.8	100.1	387
$25000 or more	49.4	25.2	6.5	1.5	13.9	3.5	100.0	692
OVERALL	50.3%	21.2%	10.5%	4.7%	9.2%	4.1%	100.0	3671
MEDIAN INCOME	$12,244	$12,831	$8,488	$6,678	$10,635	$11,310	$11,066	
Response Rate	28.2%							

Riders Rate RTD Service

Overall, more than 76% of the respondents view RTD service "somewhat" favorably (47.4%), or "very" favorably (28.9%). Table 75 indicates that satisfaction levels do vary by line. The proportion of respondents giving RTD service a "very favorable" rating ranges from 19.1% on the 210 line to 58.3% on the 452 line. Similarly, "somewhat favorable" ratings range from a low of 32.9% of the line 451 riders to a high of 55.7% of the 73 line riders.

"Somewhat unfavorable" ratings range from 4.8% on line 822 up to 26.1% on the 96. The proportion of riders giving the "very unfavorable" rating to RTD service ranges from 1.2% on the 166 to 15.7% on the 18 line.

A "satisfaction index" ranging from 1 to 4, has been calculated for each line. The index number is an average point, based on the mean of the scores given RTD service by the respondents. An index number of 1 would indicate a rating of 4 would indicate "very favorable" opinion. The satisfaction index by line ranges from a low of 1.4 on the 826 line up to 3.5 on the 152 and 452 lines. Overall, the system-wide satisfaction index is 3.0, indicating a generally favorable opinion of RTD service among regular-service riders.

Table 76 shows how riders in different fare categories rate RTD service. The best overall rating is given by Express and Senior Citizen pass users. The satisfaction index of these group is 3.1. The poorest ratings come from riders using the student pass and the college/vocational or handicapped pass. Only 18.8% to 21.3% of the riders in these three categories rate RTD service as "very favorable." The satisfaction index is 2.8.

Table 77 shows little variation in satisfaction index by time of day. The index is 3.0 throughout the day.

The service ratings given by riders are shown by residence sector in Table 78. There is variation by sector, from the low satisfaction indices of 2.9 among riders from South Central L.A. and downtown to the high index of 3.4 found among riders from Mid-Cities.

Age also seems to have an effect on rider ratings of RTD service, as shown in Table 79. Generally, the level of satisfaction tends to improve as riders get older. The satisfaction index for riders under 40 is 2.9 to 3.0, but this rises to 3.1 among riders between 40 and 61 and to 3.2 among those over 62.

Table 80 shows that men and women are equally satisfied with RTD service.

Ratings of RTD service by different ethnic groups differ as indicated in Table 81. The percentage of "very favorable" opinions ranges from only 10.7% among riders in the "other" category to 36.5% among Latinos, and 37.0% among Asians and Pacific Islanders.

The satisfaction index of 3.2 shows that Latinos and Asian/Pacific Islanders rate RTD service somewhat more favorably than any other group. White riders score a satisfaction index of 3.0, but Blacks score only 2.8.

Ratings of RTD service by income group are shown in Table 82. Riders with annual household incomes below $10,000 tend to view RTD service somewhat more favorably than those earning more. Among riders with incomes below $10,000 the satisfaction index is 3.0 to 3.1. Riders earning $10,000 to $14,999 have an index of 2.9, and riders earning $15,000 to $24,999 have an index of 2.8. The satisfaction index of the highest income group goes up to 3.0.

TABLE 75
RIDERS RATE RTD SERVICE
BY BUS LINE

Bus Line	Very Favorable	Somewhat favorable	Somewhat UnFavorable	Somewhat UnFavorable	Total	Satis-faction Index	Number of Respondents
12	34.4%	41.0%	18.0%	6.6%	100.00	3.0	122
18	21.4	50.0	12.9	15.7	100.00	2.8	70
29	29.8	45.5	13.2	11.6	100.10	2.9	121
32	43.0	43.0	10.3	3.7	100.00	3.3	107
44	24.3	49.3	19.6	6.8	100.00	2.9	280
47	39.2	47.4	10.3	3.1	100.00	3.2	97
73	21.3	55.7	14.8	8.2	100.00	2.9	61
81	30.9	50.7	10.1	8.2	99.90	3.0	207
86	32.8	47.5	18.1	1.7	100.10	3.1	177
88	22.2	48.5	25.3	4.0	100.00	2.9	99
89	24.4	47.7	18.7	9.2	100.00	2.9	262
91	24.2	47.2	21.9	6.7	100.00	2.9	178
96	26.1	39.1	26.1	8.7	100.00	2.8	23
114	41.5	45.4	9.6	3.5	100.00	3.2	229
152	34.2	52.6	11.4	1.8	100.00	3.5	114
155	35.3	52.9	8.8	2.9	99.90	3.2	34
156	26.1	54.3	10.1	9.4	99.90	3.1	138
157	36.5	50.6	10.3	2.6	100.00	3.2	156
160	20.0	50.0	20.0	10.0	100.00	2.8	60
164	26.3	53.7	11.6	8.4	100.00	3.0	95
165	24.4	54.4	16.7	4.4	99.90	3.0	90
166	34.1	45.9	18.8	1.2	100.00	3.1	85
168	44.1	48.5	5.9	1.5	100.00	3.3	68
169	37.6	48.5	10.3	3.6	100.00	3.2	194
175	39.7	49.1	7.8	3.4	100.00	3.1	116
210	19.1	51.5	19.1	10.3	100.00	2.8	204
354	24.1	50.0	22.4	3.4	99.90	2.9	58
424	35.6	46.0	10.3	8.0	99.90	3.1	87
425	37.4	45.7	10.9	6.1	100.10	3.1	230
431	42.1	48.2	6.1	3.5	99.90	3.3	114
435	39.9	47.9	9.0	3.2	100.00	3.2	188
451	45.6	32.9	8.9	12.7	100.10	3.1	79
452	58.3	33.3	5.6	2.8	100.00	3.5	36
453	36.4	50.0	9.1	4.5	100.00	3.2	22
454	31.9	49.3	14.5	4.3	100.00	3.1	69
484	29.0	43.5	21.0	6.5	100.00	3.0	62
488	36.4	45.0	11.9	6.6	99.90	3.1	151
813	37.3	50.7	9.0	3.0	100.00	3.2	67
821	52.3	38.6	6.8	2.3	100.00	3.4	44
822	55.6	34.9	4.8	4.8	100.10	3.4	63
826	44.2	38.9	8.4	8.4	99.90	1.4	95
831	29.7	45.3	18.8	6.3	100.10	3.0	64
840	31.5	49.1	14.8	4.6	100.00	3.1	108
844	37.5	49.3	10.5	2.6	99.90	3.2	152
846	27.1	53.0	14.4	5.5	100.00	3.0	236
861	36.7	45.3	14.4	3.6	100.00	3.2	139
867	46.2	40.9	9.7	3.2	100.00	3.3	93
869	34.2	48.7	9.5	7.6	100.00	3.1	158
871	26.3	49.3	15.8	8.6	100.00	2.9	209
872	50.8	39.3	6.6	3.3	100.00	3.4	61
OVER-ALL	28.9%	47.4%	16.8%	6.9%	100.00%	3.0	5972

Response Rate: 45.9%

TABLE 76
RIDERS RATE RTD SERVICE
BY TYPE OF FARE

Type of Fare	Very Favorable	Somewhat Favorable	Somewhat Unfavorable	Very Unfavorable	Total	Satisfaction Index	Number of Respondents
Cash, Ticket or Transfer	30.9%	48.1%	14.8%	6.2%	100.0%	3.0	3046
Regular Pass	26.3	45.7	21.3	6.7	100.0	2.9	1038
Express Pass	32.4	43.0	22.5	2.2	100.1	3.1	178
Student Pass (under 19)	18.8	51.6	22.4	7.2	100.0	2.8	666
College/Vocational Pass	21.3	49.0	17.4	12.3	100.0	2.8	273
Senior Citizen Pass	36.2	47.3	10.2	6.3	100.0	3.1	316
Handicap Pass	19.3	55.3	15.4	10.0	100.0	2.8	79
Tourist Pass	-	-	-	-	-	-	15*
Other	44.1	44.6	1.0	10.3	100.0	3.2	62
OVERALL	28.9%	47.4%	16.8%	6.9%	100.0%	3.0	5673
Response Rate:	43.6%						

*Sample size too small to allow valid statistical comparison

TABLE 77
RIDERS RATE RTD SERVICE
BY TIME OF DAY

Time Period	Very Favorable	Somewhat Favorable	Somewhat Unfavorable	Very Unfavorable	Total	Satisfaction Index	Number of Respondents
AM Peak	32.3%	45.9%	14.2%	7.7%	100.1%	3.0	1100
AM Base	30.5	47.9	15.0	6.5	99.9	3.0	1133
PM Base	28.1	47.6	17.1	7.2	100.0	3.0	1785
PM Peak	26.9	48.7	17.9	6.5	100.0	3.0	1671
Evening	30.8	42.5	20.0	6.7	100.0	3.0	282
OVERALL	28.9%	47.4%	16.8%	6.9%	100.0%	3.0	5971

Response Rate: 45.9%

TABLE 78
RIDERS RATE RTD SERVICE
BY RESIDENCE SECTOR

Residence Sector	Very Favorable	Somewhat Favorable	Somewhat Unfavorable	Very Unfavorable	Total	Satisfaction Index	Number Respondents
San Fernando Valley	31.1%	50.9%	14.1%	3.9%	100.0%	3.1	870
North Central	32.7	48.4	16.0	2.9	100.0	3.1	182
San Gabriel Valley	40.8	43.7	10.4	5.1	100.0	3.2	567
West Los Angeles	26.9	49.1	19.5	4.5	100.0	3.0	759
South Central	28.0	44.2	17.9	9.9	100.0	2.9	573
East Central	39.6	41.7	6.8	11.9	100.0	3.1	123
East Los Angeles	33.4	55.2	11.0	.4	100.0	3.2	128
Mid-Cities	54.2	33.1	10.0	2.7	100.0	3.4	173
South Bay	30.4	44.0	20.0	5.6	100.0	3.0	483
Downtown L.A.	26.5	43.6	19.3	10.6	100.0	2.9	40
Long Beach	39.5	52.5	6.5	1.4	99.9	3.3	59
North L.A. County	-	-	-	-	-	-	4*
Orange County	-	-	-	-	-	-	14*
San Bernardino County	-	-	-	-	-	-	11*
Ventura County	-	-	-	-	-	-	1*
OVERALL	28.9%	47.4%	16.8%	6.9%	100.0%	3.0	3987
Response Rate:	30.7%						

*Sample size too small to allow valid statistical comparison

TABLE 79
RIDERS RATE RTD SERVICE
BY RIDER AGE

Age	Very Favorable	Somewhat Favorable	Somewhat Unfavorable	Somewhat Unfavorable	Total	Satisfaction Index	Number of Respondents
Under 19	25.6%	52.1%	15.4%	7.0%	100.1%	3.0	1517
19 to 29	24.4	49.2	19.5	6.9	100.0	2.9	1879
30 to 39	28.1	45.5	21.2	5.2	100.0	3.0	702
40 to 49	41.7	37.6	13.0	7.7	100.0	3.1	356
50 to 61	32.5	48.1	14.6	4.8	100.0	3.1	371
62 or older	41.3	43.0	8.6	7.0	99.9	3.2	356
OVERALL	28.9%	47.4%	16.8%	6.9%	100.0	3.0	5181
MEDIAN AGE	28.5	25.7	26.2	25.8			

Response Rate: 39.9%

TABLE 80
RIDERS RATE RTD SERVICE
BY GENDER

Gender	Very Favorable	Somewhat Favorable	Somewhat Unfavorable	Very Unfavorable	Total	Satisfaction Index	Number of Respondents
Male	30.0%	46.1%	17.2%	6.7%	100.0%	3.0	2499
Female	27.5	49.1	16.2	7.2	100.0	3.0	3316
OVERALL	28.9%	47.4%	16.8%	6.9%	100.0%	3.0	5815
Response Rate:		44.7%					

TABLE 81
RIDERS RATE RTD SERVICE
BY ETHNIC BACKGROUND

Ethnic Background	Very Favorable	Somewhat Favorable	Somewhat Unfavorable	Very Unfavorable	Total	Satisfaction Index	Number of Respondents
White	28.9%	48.8%	16.8%	5.5%	100.0%	3.0	2417
Black	21.8	46.0	20.2	12.0	100.0	2.8	1483
Latino	36.5	46.3	13.5	3.7	100.0	3.2	1335
Asian or Pacific Islander	37.0	47.4	13.2	2.4	100.0	3.2	323
Amer. Indian	29.3	42.9	16.5	11.4	100.1	2.9	80
Other	10.7	51.6	29.4	8.2	99.9	2.6	53
OVERALL	28.9%	47.4%	16.8%	6.9%	100.0%	3.0	5691

Response Rate: 43.8%

TABLE 82
RIDERS RATE RTD SERVICE
BY ANNUAL HOUSEHOLD INCOME

Annual Household Income	Very Favorable	Somewhat Favorable	Somewhat Unfavorable	Very Unfavorable	Total	Satisfaction Index	Number of Respondents
Under $5000	34.7%	42.4%	14.5%	8.4%	100.0%	3.0	856
$5000-$9999	28.3	52.0	16.2	3.5	100.0	3.1	717
$10000-$14999	24.0	48.6	21.3	6.1	100.0	2.9	658
$15000-$19999	22.9	45.0	25.0	7.2	100.1	2.8	454
$20000-$24999	17.6	52.2	25.1	5.1	100.0	2.8	398
$25000 or more	26.7	51.5	16.7	5.1	100.0	3.0	707
OVERALL	28.9%	47.4%	16.8%	6.9%	100.0%	3.0	3790
MEDIAN INCOME	$9,292	$11,472	$12,825	$10,863	$11,066		
Response Rate:	29.2%						

LINKED TRIP ORIGINS AND DESTINATIONS

The latest available data at the time of the on-board survey in 1981 indicated that over 1.2 million daily boardings were made on Regular-Service lines. The survey of riders on a sample of fifty of these lines has shown that the average rider uses 1.8 buses to complete a one-way linked trip from origin to destination. We find, then, that approximately 675,000 one-way linked trips are made each day on Regular-Service lines.

Table 83 shows that the West Los Angeles sector is by far the primary trip generator among RTD's Regular-Service patrons. This sector serves as either origin or destination for 48% of all the linked trips made on Regular-Service lines. Nearly 325,000 trips either begin or end in the West Los Angeles sector. Assuming that most riders make a round trip on the bus each day, the number of linked trips originating in the West Los Angeles sector would be over 162,000 per day.

Three other sectors serve as major trip generators. The South Central sector, the Central Business District and the San Fernando Valley each account for 22% to over 25% of the linked trips made on Regular-Service lines. The South Central sector generates nearly 172,000 linked trips each day. This sector would serve as origin for 86,000 trips. The CBD and the San Fernando Valley each account for nearly 149,000 linked trips, or as the origin of nearly 75,000 trips per day.

Figure 1 provides a visual display of linked trips made on Regular-Service lines within and between sectors, and Table 84 provides the detailed data based on the responses of over 4400 bus riders. It is notable that 22% of all linked trips, nearly 149,000, occur entirely within the West Los Angeles sector, and another 16%, or 111,000 trips, occur within the San Fernando Valley. Trips within and among the four major trip-generating sectors -- West LA, South Central, the CBD and the San Fernando Valley -- together account for 75.6% of all linked trips made on Regular-Service lines. That these four sectors account for nearly 511,000 linked trips out of the system-wide total of 675,000 is especially remarkable when one considers that these sectors contain only 43% of the County population and a like proportion of County land area. These four sectors receive about 57% of the service provided by RTD, measured in terms of bus miles.

Table 85 provides population and service measures by sector, as well as measures of bus use. This table shows, for example, that RTD provides 206 daily bus miles of service per square mile of area in Los Angeles County. The level of service in each sector varies widely from this overall figure, however, ranging from 95 bus miles per square mile in the Mid-Cities sector to over 7,400 bus miles per square mile in the CBD. The overall level of service provided per resident is .041 bus miles. This measure, too, varies by sector, from .016 bus miles per person in Mid-Cities to .752 bus miles per person in the CBD.

The level of transit use also varies by sector. While the overall number of daily linked transit trips per person in the County is .093, the number of trips per person in the Long Beach sector is only .005, and the number of trips per person in the CBD is 6.7. Of course, the level of transit use in the CBD is distorted because the calculation is based on the resident population instead of on the weekday worker population. (Based on an estimated worker population of 200,000, the number of linked trips per person in the CBD would drop to .743, still the highest average among all the sectors). Data for the other three major trip-generating sectors show that RTD Regular-Service lines are delivering .266 linked trips per person in the West Los Angeles sector, .221 trips per person in the South Central sector and .132 trips per person in the San Fernando Valley. In terms of this measure of transit use, the East Los Angeles sector ranks fifth, accounting for .111 linked trips per person.

Linked trip data based on planning sectors is rather broad for analytical purposes, however. In order to provide more precise analyses of the trip needs being served by RTD Regular-Service lines, Market Research has divided the five-county RTD service area into 86 smaller sub-sectors, as shown in Figure 2.

Linked trips originating or terminating in each of the eleven major planning sectors have been analyzed and the results presented in the following series of maps and tables in order of precedence according to trip volume.

TABLE 83
LINKED TRIP ORIGINS AND DESTINATIONS BY SECTOR

Sector	Number	Percent	Percent Intra-Sector Trips
West LA	324,950	48.1%	51.98%
South Central	171,595	25.4	28.44
Central Business District	148,626	22.0	7.76
San Fernando Valley	148,626	22.0	74.92
South Bay	43,912	6.5	28.88
San Gabriel Valley	30,401	4.5	75.87
North Central	29,050	4.3	4.82
East LA	29,050	4.3	20.13
East Central	21,618	3.2	39.47
Mid-Cities	14,863	2.2	29.09
Long Beach	2,027	.3	16.91
Total*	964,718	142.8%	
Base	675,571	100.0%	

*Totals exceed Base due to double counting of trips originating and terminating in different sectors.

FIGURE 1
LINKED TRIPS
AS PERCENT OF ALL TRIPS ON REGULAR-SERVICE LINES

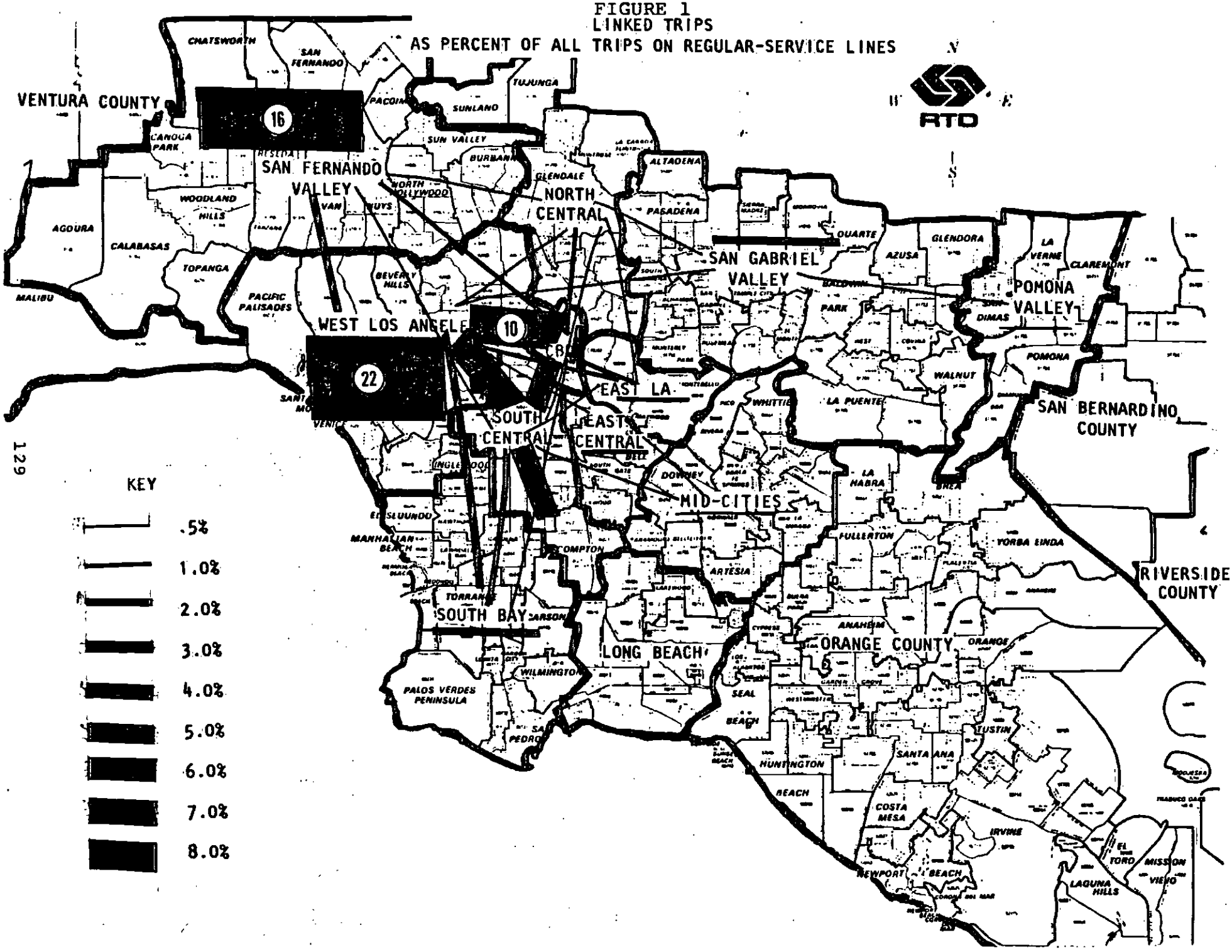


TABLE 84

LINKED TRIPS AS PERCENT OF ALL TRIPS ON REGULAR-SERVICE LINES

	West LA	SFV	So. Cen	CBD	So. Bay	SGV	No. Cen	ELA	E. Cen	Mid Cit	Pom Vly	Long Bch	SBdo Cty	Total
West LA	21.9%	3.0%	8.2%	10.1%	1.9%	.5%	.7%	1.2%	.5%	.1%	-	-	-	48.1%
San Fernando Valley	-	16.4	.7	1.3	-	.1	.5	-	-	-	-	-	-	19.0%
So.Central	-	-	6.5	6.0	1.7	.3	.6	.6	.3	.4	-	.1	-	16.5%
CBD	-	-	-	1.5	.6	.3	1.0	.8	.1	.1	.1	.1	-	4.6%
South Bay	-	-	-	-	1.8	-	.1	-	.2	.2	-	-	-	2.3%
SGV	-	-	-	-	-	2.0	.6	.1	-	-	.6	-	-	3.3%
No.Central	-	-	-	-	-	-	.3	.5	-	-	-	-	-	.8%
ELA	-	-	-	-	-	-	-	.8	.2	.1	-	-	-	1.1%
E.Central	-	-	-	-	-	-	-	-	1.3	.6	-	-	-	1.9%
Mid-Cities	-	-	-	-	-	-	-	-	-	.7	-	-	-	.7%
Pomona Vly	-	-	-	-	-	-	-	-	-	-	.8	-	.1	.9%
Long Bch	-	-	-	-	-	-	-	-	-	-	-	.1	-	.1%
Total	21.9%	19.4%	15.4%	18.9%	6.0%	3.2%	3.8%	4.0%	2.6%	2.2%	1.5%	.3%	.1%	99.3%

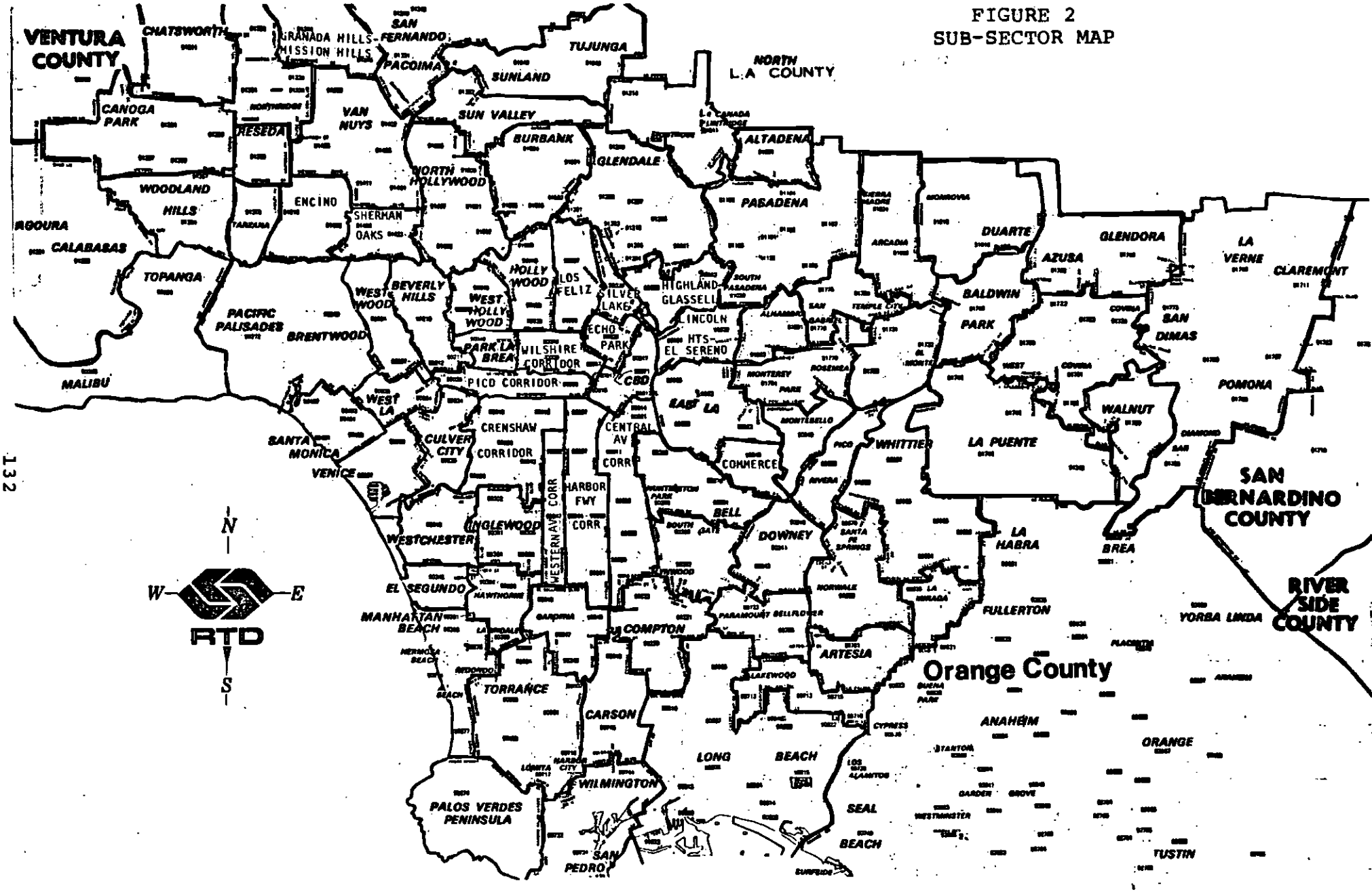
TABLE 85
POPULATION AND BUS USE BY SECTOR

Sector	Population	Square Miles	Density	Bus Miles*	Daily Boardings*	Linked Trips	Bus Miles Per Sq.Mile	Bus Miles Per Person	Boardings Per Person	Linked Trips Per Person
WLA	1221950	257.60	4743.5	67967	419992	324950	263.85	.056	.344	.266
So.Central	778174	66.59	11686.0	44665	278448	171595	670.75	.057	.358	.221
CBD	22064	2.24	9836.8	16596	193090	148626	7408.93	.752	8.751	6.736
SFV	1122941	316.73	3545.4	39371	106143	148626	124.30	.035	.095	.132
So. Bay	785212	140.70	5580.6	20988	48653	43912	149.17	.027	.062	.056
SGV	1361391	349.01	3900.7	36318	84533	30401	104.06	.027	.062	.022
No.Central	410126	81.45	5035.1	15279	53698	29050	187.59	.037	.131	.071
ELA	261391	31.00	8432.0	14022	71731	29050	452.32	.054	.274	.111
E.Central	268657	29.15	9217.0	9657	37117	21618	331.29	.036	.138	.080
Mid-Cities	625445	106.31	5883.3	10056	16148	14863	94.59	.016	.026	.024
Long Beach	431183	65.15	6618.3	22789	46178	2027	349.79	.053	.107	.005
Overall**	7288534	1445.93	5040.7	297708	1355751	675571	205.89	.041	.186	.093

*Figures from 1980 Service Allocation Study by SCRTD Service Analysis Section include Peak-Hour Express, Park and Ride, BEEP and Subscription Lines in addition to Regular-Service Lines.

**Overall figures do not include the North LA County sector (Lancaster, Palmdale, Santa Clarita Valley,etc.)

FIGURE 2
SUB-SECTOR MAP



LINKED TRIPS ORIGINATING OR TERMINATING IN WEST LOS ANGELES SECTOR

Hollywood is the primary trip generator in the West Los Angeles sector. Over 27% of the linked trips beginning or ending in the West Los Angeles sector, some 88,000 trips daily, originate or terminate in the Hollywood area. The Wilshire Corridor and West Hollywood each account for about 20% of the West LA trips. Each of these sub-sectors serves as origin or destination for up to 66,000 linked trips daily.

The Pico Corridor generates over 47,000 linked trips daily, and the Park La Brea sub-sector and the Los Feliz/LACC area each serve up to 38,000 trips. Table 86 indicates that the remaining twelve sub-sectors each serve less than 9% of the West Los Angeles sector linked trips.

The first map in the series is Figure 3, which shows a plot of linked trips beginning or ending in the West Los Angeles sector. This sector generates approximately 325,000 linked trips daily. Within the West Los Angeles sector, eighteen distinct sub-sectors have been identified. The map shows that six of these sub-sectors serve as the primary trip generators within the West Los Angeles sector. These sub-sectors -- Hollywood, the Wilshire Corridor, West Hollywood, Pico Corridor, the Park La Brea area and the Los Feliz/LACC area -- together serve as origin or destination of 74% of all West Los Angeles linked trips. These six sectors, located between the CBD and Beverly Hills, account for nearly 240,000 linked trips, or more than a third of all linked trips served by Regular-Service lines throughout the entire RTD service area.

Table 87 indicates that 52% of West Los Angeles linked trips, up to 169,000 trips, are made entirely within the sector. Major trip generators outside the boundaries of the West Los Angeles sector are the Los Angeles CBD which attracts nearly 14% of the linked trips (up to 44,000 trips) and the Crenshaw sub-sector accounting for almost 10% of the West LA trips, or 32,000 trips.

TABLE 86

SUMMARY OF LINKED TRIPS TO OR FROM WEST LOS ANGELES SECTOR BY SUB-SECTOR OF ORIGINATION OR DESTINATION

Sub-Sector	Percent of West L.A. Trips	Estimated Number of Trips
Hollywood	27.07%	87,964
Wilshire Corridor	20.30	65,965
West Hollywood	20.12	65,380
Pico Corridor	14.54	47,248
Park La Brea	11.56	37,565
Los Feliz/LACC	11.10	36,069
Beverly Hills	8.24	26,776
Inglewood	7.54	24,501
Westwood	4.34	14,103
Echo Park	4.13	13,420
Culver City/Palms	3.71	12,056
Westchester/LAX	3.17	10,301
Santa Monica	1.73	5,622
Venice/MarVista	1.22	3,964
Brentwood	1.16	3,769
Malibu/Topanga	1.06	3,444
West Los Angeles	.51	1,657
Century City	-	-
Total	141.50%*	459,804*
Base	100.00%	324,950

*Totals exceed base due to double counting of trips originating and terminating in different sub-sectors

FIGURE 3
LINKED TRIPS ORIGINATING OR TERMINATING IN WEST LOS ANGELES SECTOR
AS PERCENT OF WEST LOS ANGELES TRIPS
ON REGULAR-SERVICE LINES

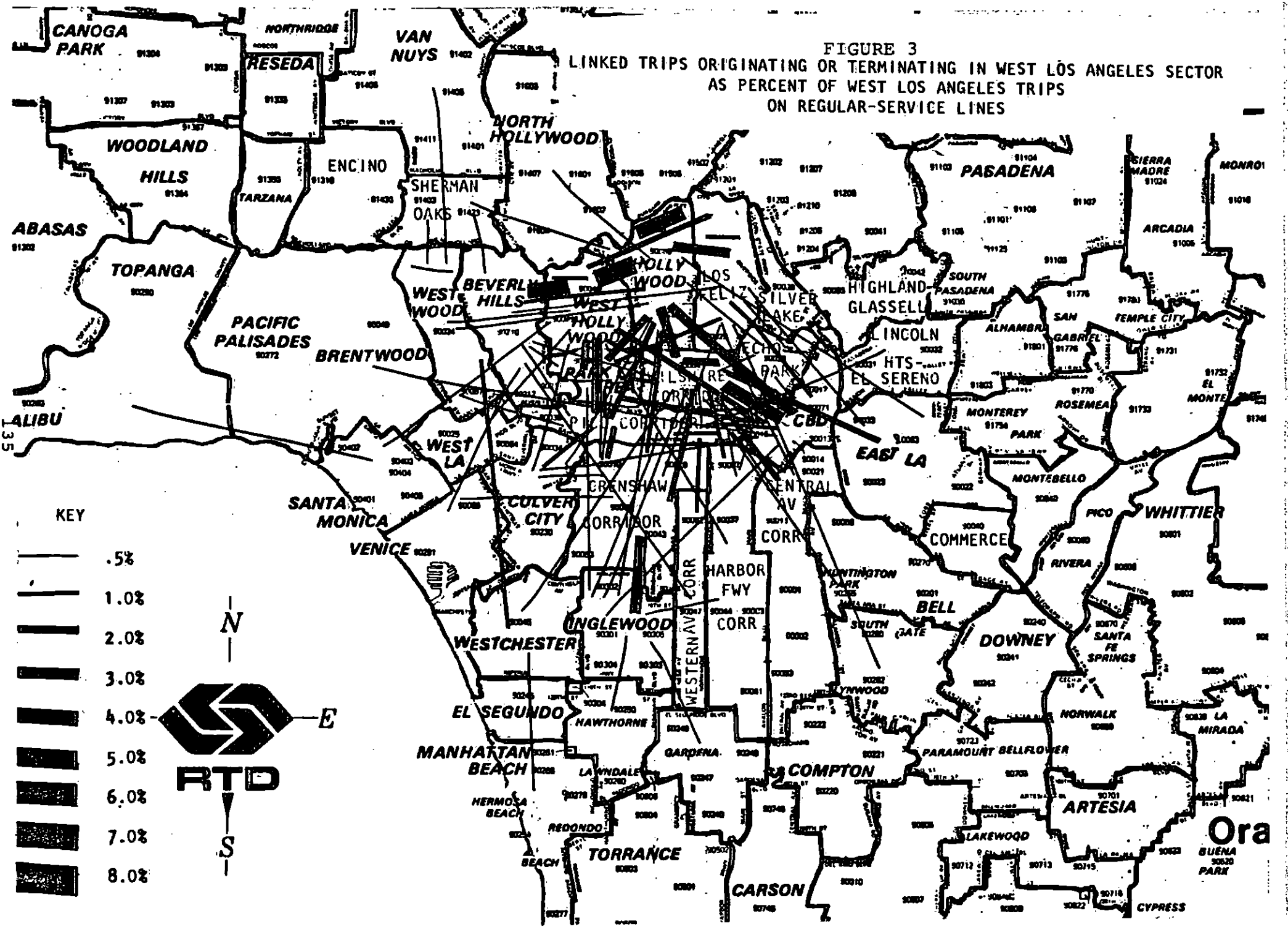


TABLE 87

LINKED TRIPS ORIGINATING OR TERMINATING IN WEST LOS ANGELES SECTOR AS PERCENT OF WEST LOS ANGELES TRIPS ON REGULAR-SERVICE LINES

	Wil-shire Corr	Pico Corr	Echo Park	Los Feliz	Hly-wood	W.Hly wood	Park La Brea	Bev Hills	West-wood	Brent-wood	WLA	Ven-ice	Sta Mon-ica	Mal-ibu	West-chest-er	Cul-ver City	Ingle-wood	Total
Wilshire Corr	1.80%	.60%	.53%	.19%	2.5%	1.05%	1.09%	.52%	-	-	-	.02%	.01%	-	.30%	-	.27%	8.88%
Pico Corr		1.26	-	.16	1.4	2.07	.79	.34	.52%	-	.09%	.05	.02	.04%	.09	1.11%	.30	8.24
Echo Park			.41	.52	.61	-	.28	.26	-	-	-	-	-	-	.02	.27	-	2.37
Los Feliz				.77	2.62	1.45	.98	.52	-	-	-	-	.04	-	-	.16	-	6.54
Hollywood					3.78	4.76	2.03	1.12	.35	-	-	-	.08	-	.09	.40	.66	13.27
W. Hollywood						.83	1.97	3.70	.26	-	.26	.26	-	-	-	.32	.15	7.75
Park La Brea							.59	.26	-	-	-	.08	-	-	-	.14	.27	1.34
Beverly Hills								-	-	-	-	.26	-	.01	-	-	.09	.36
Westwood									.42	-	-	-	-	.01	.84	.21	-	1.48
Brentwood										.08	-	.01		.04	-	-	-	.13
West L.A.											-	-	-	.03	-	-	-	.03
Venice												-	-	.01	.01	.08	.01	.11
Santa Monica													-	.46	.11	-	-	.57
Malibu														.16	-	-	.01	.17
Westchester															.11	.02	.11	.24
Culver City																-	-	-
Inglewood																	.50	.50
Century City																		-
CBD	3.66	1.21	.54	1.23	2.50	1.55	1.35	-	.15	.51	-	.08	-	-	.19	.38	.31	13.66
Crenshaw	1.45	1.57	.17	.55	1.04	.42	.45	.18	.09	-	.13	.28	-	.01	.14	.31	2.86	9.65
Western Ave.	-	1.16	-	.02	.08	-	.14	.51	-	-	-	-	-	-	.02	-	-	1.93
Harbor Fwy	1.18	.46	.27	-	.23	.52	-	-	-	-	-	-	-	-	.09	-	.27	3.02
Central Ave	1.51	.38	-	.49	-	.08	.02	-	.19	-	-	.05	-	.01	-	-	-	2.73
Compton	.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.03	.08
Vernon/HP/Bell	.50	.03	-	-	-	.08	.16	-	-	-	-	-	-	-	-	-	-	.77
Lynwood/So.Gate	-	-	-	.26	-	-	-	-	-	-	-	-	-	-	-	-	-	.26
East L.A.	1.64	.09	-	.26	.41	-	.14	-	-	-	-	-	-	-	.04	-	-	2.54
Commerce	.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.01
Montebello	.01	-	-	-	.01	-	-	-	-	-	-	-	-	-	-	-	-	.02
Lincoln Hts	-	.39	-	.08	-	-	-	-	.11	-	-	-	-	-	.14	-	-	.72
Highland Park	.02	-	-	-	.11	-	-	-	-	-	-	-	-	-	-	-	-	.13
Silverlake	.04	0	.14	.08	-	-	-	-	-	-	-	-	.11	.26	-	-	-	.63
Glendale	-	-	-	.04	.08	.08	.14	-	-	-	-	-	-	-	-	-	-	.34
Sunland/Tuj	-	-	-	-	-	-	-	-	.01	-	-	-	-	-	-	-	-	.01
Burbank	.15	-	-	.17	.08	-	-	-	-	-	-	-	.11	-	-	-	-	.51
N.Hollywood	.09	.05	-	.09	.46	.16	.05	-	.14	-	-	-	.11	-	-	.09	.14	1.38
Van Nuys	.14	-	-	-	.23	-	.03	.01	.27	.12	-	-	.24	-	-	-	-	1.04
Sherman Oaks	.09	.05	.05	.12	.36	.05	.05	.26	.32	.05	-	-	.11	-	.11	-	-	1.62
Encino	-	-	-	.05	.13	-	-	-	-	-	-	-	-	.01	-	-	-	.19
Tarzana	.05	-	-	-	.17	-	-	-	-	-	-	-	-	-	-	-	-	.22
Woodland Hills	.09	-	-	.05	.22	-	-	.09	-	-	-	-	-	-	-	-	.05	.50
Canoga Park	-	-	-	-	.05	-	-	-	-	-	-	-	-	-	-	-	-	.05
Pacoima	-	-	-	-	.03	-	-	-	.06	-	-	-	.03	-	.11	.11	-	.34
Granada Hills	.02	-	-	-	.03	-	-	-	.11	-	-	-	.15	-	-	-	-	.31
Northridge	.02	-	-	.05	-	-	.05	-	.05	-	-	-	-	-	.03	-	.05	.25
Altadena	-	-	-	-	-	-	.14	-	-	-	-	-	-	-	-	-	-	.14
Pasadena	-	-	-	-	-	.01	.01	-	-	.26	-	-	-	-	.02	-	-	.30
Baldwin Park	.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.01
Covina	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.02	-	-	.02
El Monte	-	-	-	.02	-	-	-	-	.11	-	-	-	-	-	-	-	.01	.14
La Puente	-	.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.01
Monterey Park	-	-	.02	-	.09	-	-	-	-	-	-	-	.14	-	-	-	-	.25
Alhambra	.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.02
Pomona Valley	-	-	-	-	-	-	.02	-	-	-	-	-	-	-	-	-	-	.02
Whittier	.01	-	-	-	-	-	.14	-	-	-	-	-	-	-	-	-	-	.15
Norwalk	.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.05	.06
Bellflower	-	-	-	-	-	-	-	-	-	-	-	-	-	.02	-	-	-	.02
El Segundo	-	.09	-	-	-	-	-	-	.11	-	-	-	-	-	.18	.02	.04	.44
Gardena	.05	.09	-	.09	.18	-	-	-	-	.09	-	-	.01	-	-	-	.40	.91
Hawthorne	.09	.09	-	-	.05	.09	.09	.11	.01	-	-	-	-	-	.01	-	.64	1.18
Beach Cities	.06	.02	-	.04	.04	-	.02	-	-	-	-	.01	-	-	.29	.09	.15	.72
Palos Verdes	.15	-	-	-	-	-	-	-	-	-	-	-	-	-	.04	-	-	.19
Torrance	.15	.01	.04	-	.09	-	-	-	-	-	-	.01	-	-	-	-	.17	.47
Carson	.15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.15
Long Beach	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.02	-	-	.02
Orange County	-	-	-	-	-	-	.08	-	-	-	-	-	-	-	-	-	-	.08
TOTAL																		100.19

LINKED TRIPS ORIGINATING OR TERMINATING IN SOUTH CENTRAL SECTOR

Table 88 shows that the Crenshaw sub-sector is the primary trip generator in the South Central sector. This area accounts for over 42% of the linked trips beginning or ending in this sector. In other words, of the 172,000 linked trips in this sector, 73,000 of them begin or end in the Crenshaw area. The Central Avenue Corridor generates 29% of the linked trips, or over 50,000 trips a day, and the Harbor Freeway Corridor generates 22% of the trips, or 37,000. The proportion of South Central linked trips to or from the Western Avenue Corridor is about 14%, or 24,000 trips. The Compton/Willowbrook sub-sector accounts for only 8% of the linked trips, about 13,000 trips daily.

Figure 4 plots linked trips beginning or ending in the South Central Sector. Table 89 data indicate that 28% of the trips beginning or ending in this sector are made entirely within the boundaries of the sector. These 49,000 intra-sector trips are nearly equalled by the 43,000 trips that are made between the South Central sector and the Los Angeles CBD. Other major trip generators outside the South Central sector are the Wilshire Corridor, which attracts about 8%, or 13,000 of the trips, and the Pico Corridor, which attracts 7%, or 11,000 linked trips. The Inglewood area draws about 10,000 linked trips daily, 6% of trips to or from the South Central Sector.

TABLE 88
SUMMARY OF LINKED TRIPS TO OR FROM SOUTH CENTRAL SECTOR
BY SUB-SECTOR OF ORIGINATION OR DESTINATION

Sub-Sector	Percent of South Central Trips	Estimated Number of Trips
Crenshaw	42.31%	72,602
Central Ave Corridor	29.25	50,192
Harbor Fwy Corridor	21.70	37,236
Western Ave Corridor	13.92	23,886
Compton	7.58	13,007
Total*	114.76	196,923
Base	100.00%	171,595

*Totals exceed base due to double counting of trips originating and terminating in different sub-sectors.

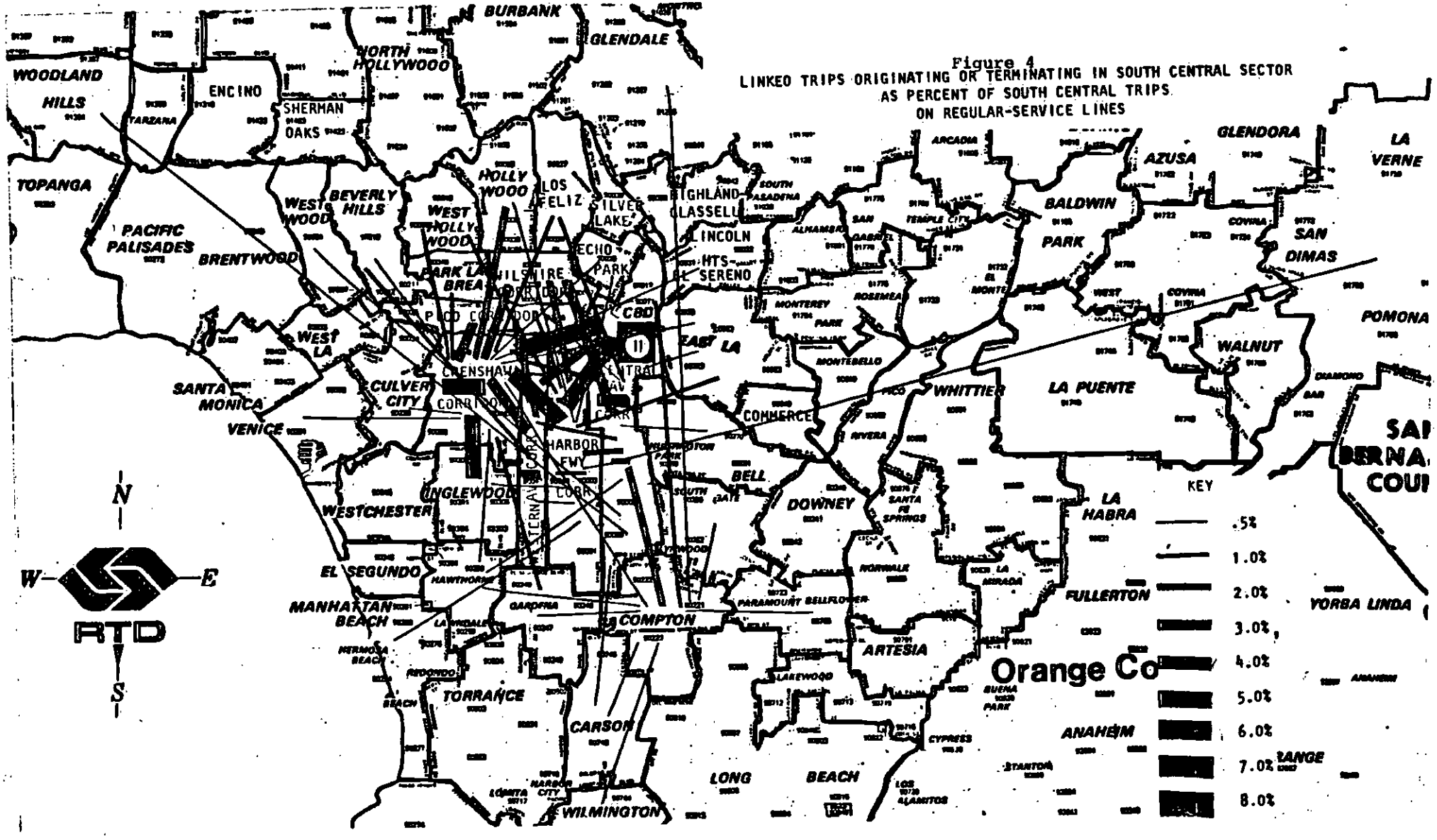


Figure 4
LINKED TRIPS ORIGINATING OR TERMINATING IN SOUTH CENTRAL SECTOR
AS PERCENT OF SOUTH CENTRAL TRIPS
ON REGULAR-SERVICE LINES

TABLE 89

LINKED TRIPS ORIGINATING OR TERMINATING IN SOUTH CENTRAL SECTOR AS PERCENT OF SOUTH CENTRAL TRIPS ON REGULAR-SERVICE LINES

	Crenshaw	Western Ave	Harbor Fwy	Central Ave	Compton	Total
Crenshaw	4.86	3.20	4.60	1.50	.34	14.5%
Western Ave Corr	-	2.93	.28	1.25	-	4.46
Harbor Fwy Corr	-	-	1.05	1.65	.18	2.88
Central Ave Corr	-	-	-	3.77	1.80	5.57
Compton	-	-	-	-	1.03	1.03
CBD	5.62	2.27	4.83	11.44	.81	24.98
Wilshire Corr	2.66	-	2.18	2.77	.09	7.71
Pico Corr	2.90	2.14	.85	.71	-	6.60
Echo Park	.31	-	.50	-	-	.81
Los Feliz	1.01	.03	-	.90	-	1.94
Hollywood	1.92	.15	.42	-	-	2.49
W.Hollywood	.77	-	.95	.15	-	1.86
Park La Brea	.83	.25	-	.03	-	1.11
Beverly Hills	.34	.95	-	-	-	1.28
Westwood	.17	-	-	.36	-	.53
West L.A.	.25	-	-	-	-	.25
Venice	.52	-	-	.08	-	.60
Malibu	.02	-	-	.02	-	.05
Westchester	.25	.04	.17	-	-	.45
Culver City	.56	-	-	-	-	.56
Inglewood	5.27	-	.50	-	.05	5.83
Vernon/HP/Bell	-	.03	.16	.31	-	.50
Lynwood/So.Gate	.17	.01	.04	-	.32	.54
East L.A.	.27	-	.79	.58	-	1.64
Commerce	.02	-	.02	-	-	.05
Montebello	-	-	.02	-	-	.02
Lincoln Hts	.28	-	.25	.08	-	.61
Highland Park	-	.03	.03	-	-	.06
Glendale	-	-	-	-	.36	.36
Burbank	.08	.03	.48	.08	-	.66
N.Hollywood	.16	-	-	-	-	.16
Van Nuys	.17	.03	.05	-	-	.25
Sherman Oaks	.11	-	-	-	-	.11
Tarzana	.08	-	-	-	-	.08
Woodland Hills	.08	-	.08	.36	-	.52
Canoga Park	-	-	.03	.11	-	.14
Pacoima	-	.05	-	.19	-	.25
Northridge	.08	-	-	-	-	.08
Reseda	.10	-	-	-	-	.10
Altadena	-	-	.02	-	-	.02
El Monte	.25	-	-	-	-	.25
La Puente	-	-	.25	-	-	.25
Monterey Park	.17	-	.02	-	-	.18
San Gabriel	.25	-	-	-	-	.25
Pomona Valley	-	-	.28	-	.01	.29
Downey	-	-	-	.25	.19	.44
Whittier	-	-	.02	.05	-	.07
La Mirada	.09	-	-	-	-	.09
Norwalk	-	-	.08	.03	.28	.40
Pico Rivera	-	-	-	.02	-	.02
Bellflower	-	.08	.01	.01	.40	.50
El Segundo	.17	-	-	-	-	.17
Gardena	.08	-	.17	.08	.27	1.37
Hawthorne	.65	.12	.09	.26	.58	1.71
Beach Cities	.07	.05	.33	-	.13	.58
Palos Verdes	-	-	.11	.02	.02	.15
Torrance	.17	-	.07	-	-	.24
San Pedro	-	-	.04	-	.36	.39
Carson	.04	-	.01	.38	.33	.77
Long Beach	.10	-	.09	.01	.03	.24
Total						100.0%

LINKED TRIPS ORIGINATING OR TERMINATING IN LOS ANGELES CBD

The Central Business District serves as origin or destination for 22% of all linked trips made on the RTD system, making this small sector one of the major trip generators in the County. As shown earlier in Table 85, the CBD is served by over 7,400 bus miles of service per square mile, eleven times more than any other sector. Buses operating in the CBD provide 6.736 linked trips per resident and .743 per worker, the highest level of service utilization to be found anywhere in the RTD system.

Only about 8% of the linked trips in the CBD both originate and terminate within this sector -- most trips are between the CBD and other sectors. The major trip generator is the West Los Angeles sector, which accounts for over 47% of linked trips to or from the CBD.

The South Central sector accounts for over 23% of the CBD linked trips. The sub-sectors generating the largest proportion of trips are the Wilshire Corridor (15.26% or 22,680 linked trips per day), the Central Avenue corridor (10.74% or 16,000 trips) and Hollywood (8.51% or nearly 13,000 trips).

Figure 5 illustrates linked trips generated in the CBD, and Table 90 provides data.

FIGURE 5
LINKED TRIPS ORIGINATING OR TERMINATING IN LOS ANGELES CBD
AS PERCENT OF CBD TRIPS
ON REGULAR-SERVICE LINES

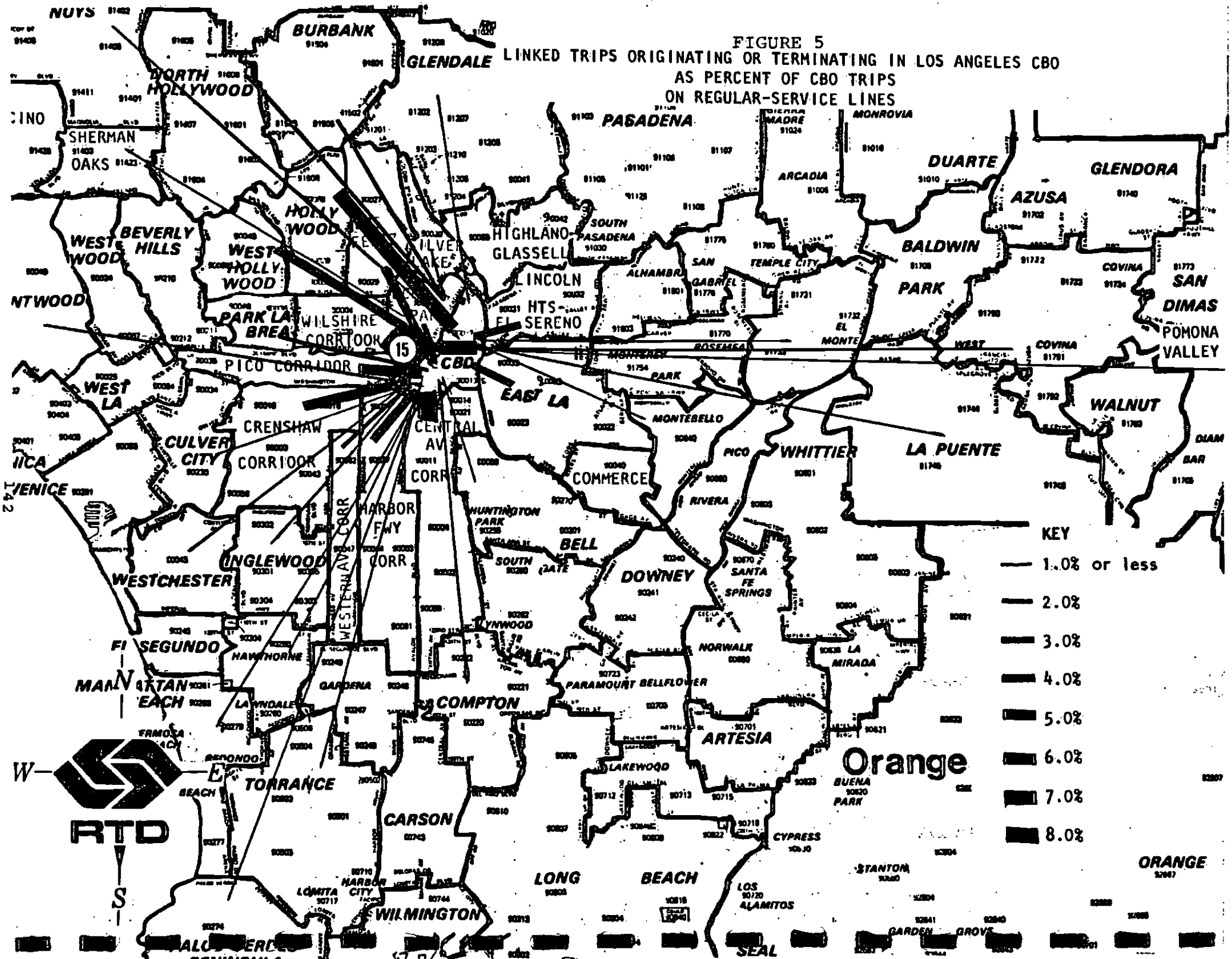


TABLE 90
LINKED TRIPS ORIGINATING OR TERMINATING IN CENTRAL BUSINESS DISTRICT AS PERCENT OF CENTRAL BUSINESS DISTRICT TRIPS ON REGULAR-SERVICE LINES

CBD	7.76	Sherman Oaks	.26
Wilshire Corr	15.26	Encino	.16
Pico Corr	5.54	Tarzana	.08
Echo Park	2.99	Woodland Hills	.08
Los Feliz	5.00	Canoga Park	.03
Silver Lake	.43	Pacoima	.20
Hollywood	8.51	Granada Mission Hills	.05
W. Hollywood	4.74	Northridge	.03
Park La Brea	2.33	Chatsworth	.04
Westwood	.25	Reseda	.09
Brentwood	.89	Pasadena	.03
Venice	.14	Baldwin Park	.15
Westchester	.34	Covina	.48
Culver City	.65	El Monte	.91
Inglewood	.53	La Puente	.26
Crenshaw	5.28	Monterey Park	.10
Western Ave Corr	2.13	San Gabriel	.05
Harbor Fwy Corr	4.54	Walnut	.03
Central Ave Corr	10.74	Alhambra	.03
Compton	.76	Pomona Valley	.45
Vernon/HP/Bell	.62	Downey	.22
Lynwood/So.Gate	.01	La Mirada	.08
East L.A.	4.30	Pico Rivera	.02
Montebello	.33	Bellflower	.02
Lincoln Hts	3.70	El Segundo	.07
Highland Park	.13	Hawthorne	.26
Glendale	.69	Beach Cities	.33
Sunland	.05	Palos Verdes	.80
Sun Valley	.14	Torrance	.98
Burbank	1.62	San Pedro	.08
N. Hollywood	1.81	Carson	.03
Van Nuys	1.19	Long Beach	.25
Total			100.05

LINKED TRIPS ORIGINATING OR TERMINATING IN SAN FERNANDO VALLEY

Table 91 shows that among sub-sectors in the San Fernando Valley, there are four which serve as primary trip generators, and four which serve as secondary generators. The Van Nuys area accounts for nearly 34% of the linked trips beginning or ending in the Valley, or 50,000 trips daily. North Hollywood is origin or destination for a quarter of the linked trips -- 37,000 trips a day. The Pacoima/San Fernando and Canoga Park sub-sectors each account for between 14% and 16% of the linked trips made in the Valley, or 21,000 to 23,000 trips.

The four secondary trip generators in the Valley account for about 9% to 10% of the linked trips made on Regular-Service lines on weekdays. Burbank, the Granada Hills/Mission Hills sub-sector, Reseda and Sherman Oaks each serve as origin or destination for 13,000 to 15,000 linked trips each day.

Figure 6 illustrates the linked trip patterns in the San Fernando Valley. Table 92 provides the data on which Figure 6 is based. The Valley is unusual in one respect; 75% of the linked trips are made entirely within its boundaries. This is an unusually high proportion of intra-sector trips, matched only by the intra-sector travel that occurs in the San Gabriel Valley.

The major trip generators outside the San Fernando Valley are the Los Angeles CBD (which attracts approximately 6% of the trips, or 9,400 trips a day), Hollywood and Westwood (each of which attract about 3% of the trips, or some 5,000 a day).

TABLE 91
SUMMARY OF LINKED TRIPS TO OR FROM SAN FERNANDO VALLEY
BY SUB-SECTOR OF ORIGINATION OR DESTINATION

Sub-Sector	Percent of San Fernando Valley Trips	Estimated Number of Trips
Van Nuys	33.64%	49,998
North Hollywood	24.88	36,978
Pacoima/San Fernando	15.56	23,126
Canoga Park	14.18	21,075
Burbank	9.81	14,580
Granada Hills/ Mission Hills	9.27	13,778
Reseda	9.09	13,510
Sherman Oaks	8.69	12,916
Northridge	6.92	10,285
Encino	5.33	7,922
Woodland Hills	4.82	7,164
Chatsworth	3.11	4,622
Sun Valley	2.83	4,206
Tarzana	1.61	2,393
West SFV	.08	119
TOTAL*	149.82%	202,672
Base	100.0%	148,626

*Totals exceed base due to double counting of trips originating and terminating in different sub-sectors.

FIGURE 6
LINKED TRIPS ORIGINATING OR TERMINATING IN SAN FERNANDO VALLEY
AS PERCENT OF SAN FERNANDO VALLEY TRIPS
ON REGULAR-SERVICE LINES

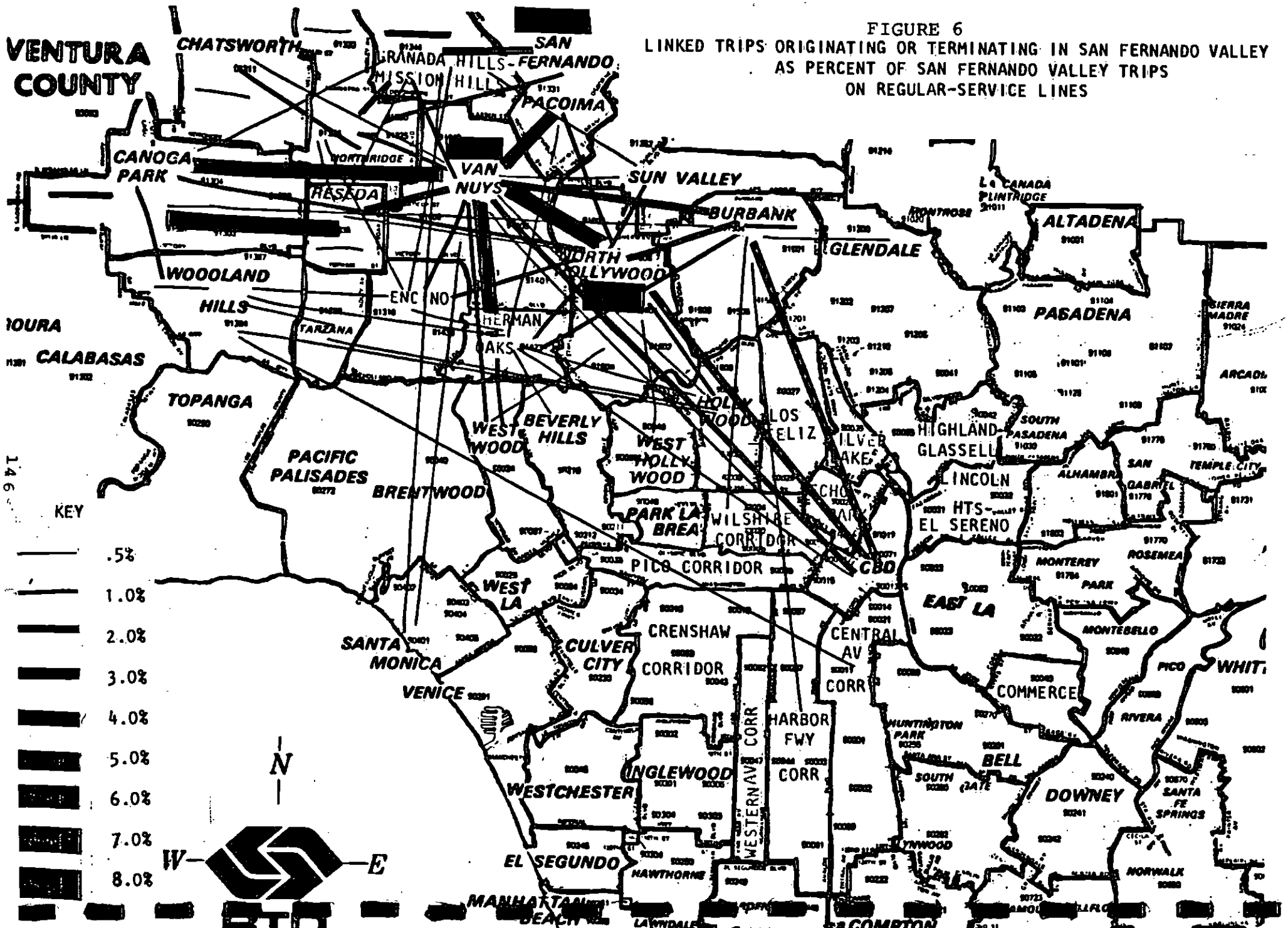


TABLE 92
LINKED TRIPS ORIGINATING OR TERMINATING IN SAN FERNANDO VALLEY
AS PERCENT OF SAN FERNANDO VALLEY TRIPS ON REGULAR SERVICE LINES

	Sun Vly	Bur-bank	So. Holly-wood	Van Nuys	Sher-man Oaks	Enc-ino	Tar-zana	Wood-land Hills	Can-oga Park	San Fern/ Paco-ima	Gran-ada Hills	North-ridge	Chats-worth	Res-eda	West SFV	Total
Sun Valley	.11	.10	1.04	.36	.03	-	-	-	-	.16	.48	-	-	.11	-	2.39
Burbank		.83	1.35	1.94	.20	.16	-	-	.61	.05	.16	-	.10	.16	-	5.58
N.Hollywood			7.55	4.59	.73	1.03	.16	.25	1.20	.96	.16	-	.05	.89	-	16.97
Van Nuys				6.21	2.08	.78	.11	.13	3.97	3.52	1.04	1.23	.63	1.95	-	21.65
Sherman Oaks					.05	.51	.08	.33	-	.36	.21	-	.25	.03	.08	1.90
Encino						.20	.08	.42	.08	.21	.47	.57	.08	.16	-	2.27
Tarzana							-	.42	.20	-	-	-	-	-	-	.62
Woodland Hills								.62	.87	-	-	.03	-	.22	-	1.74
Canoga Pk									1.38	.19	.45	.13	.13	4.47	-	6.75
Pacoima										5.36	1.82	1.17	.24	.16	-	8.75
Granada Hills											1.41	1.50	.24	.67	-	3.82
Northridge												.52	.91	.29	-	1.72
Chatsworth													.43	-	-	.43
Reseda														.35	-	.35
West SFV															-	-
CBD	.15	1.8	2.0	1.3	.28	.17	.08	.08	.03	.21	.06	.03	.05	.10	-	6.34
Wilshire Corr		.27	.17	.27	.17		.08	.17		.03	.03					1.19
Pico			.08		.08											.16
Echo Park					.08											.08
Los Feliz		.31	.17		.23	.08		.08				.08				.95
Silver Lake		.08	.10	.05												.23
Hollywood		.15	.86	.43	.68	.25	.32	.42	.10	.05	.06					3.32
W.Hollywood			.30		.08											.38
Park La Brea			.08	.05	.08							.08				.29
Beverly Hills				.03	.49			.17								.69
Westwood			.27	1.25	.99	.05				.11	.21	.08				2.96
Brentwood-Pac Palis				.23	.08											.31
West L.A.																0
Venice																0
Sta Monica		.20	.20	.45	.20					.05	.27					1.37
Malibu						.03										.03
Westchester					.20					.20		.05				.45
Culver City			.17							.20						.37
Inglewood			.25					.08				.08				.41
Crenshaw		.08	.16	.17	.11		.08	.08				.08		.10		.86
Western Ave Corr		.03		.03						.05						.11
Harbor Fwy Corr		.49	.05				.08	.08	.03							.65
Central Ave Corr		.08						.37	.11	.20						.76
Compton																0
Vernon-HP/Bell		.08	.16													.24
Lynwood/So. Gate																0
East L.A.																0
Commerce																0
Montebello																0
Lincoln Hts		.08									.03					.11
Highland Pk				.11												.11
Glendale		.26	.18	.10					.10							.64
La Canada			.05													.05
Sunland	.25	.11	.14	.33						.24				.03		1.10
Altadena		.03														.03
Arcadia																0
Monrovia																0
Pasadena			.08													.08
Azusa																0
Baldwin Pk																0
Covina																0
El Monte				.19												.19
La Puente																0
Monterey Pk												.05				.05
Whittier		.10														.10
La Mirada																0
Norwalk			.08	.03												.11
Pico Rivera																0
Artesia			.02													.02
Bellflower												.01				.01
Lakewood																0
El Segundo	.04															.04
Carson									.03							.03
Long Beach									.10	.05						.15
No. LA Cty																
Orange Cty																
San B'do Cty																
Riverside																.03
Ventura Cty				.03												
Total																99.88%

LINKED TRIPS ORIGINATING OR TERMINATING IN SOUTH BAY

The South Bay sector accounts for about 6.5% of all linked trips made on RTD Regular-Service lines, or about 44,000 linked trips a day. Of the eight sub-sectors that comprise the South Bay sector, three are major trip generators, as shown in Table 93. Hawthorne serves as origin or destination for over 24% of the South Bay trips, about 11,000 trips a day. The Beach Cities sub-sector (Manhattan, Hermosa and Redondo) account for 23%, or 10,000 of the linked trips, and Gardena for 22%, or 9,500 trips.

Torrance and the Palos Verdes Peninsula serve as secondary trip generators, each being origin or destination for 12% to 13% of the South Bay trips, or between 5,200 and 6,000 trips. The fact that Gardena and Torrance rank rather high as South Bay trip generators is somewhat surprising because each of these cities operates its own municipal bus system. Nearly 70% of the transit trips involving these two sub-sectors are inter-sector trips. Of the 9,500 trips to or from Gardena, 6,400 go to or originate in other sub-sectors. Of the 5,900 Torrance trips, 4,000 are to or from other sub-sectors.

South Bay linked trips are plotted on the map in Figure 7. Supporting data appear in Table 94. About 29%, nearly 13,000 trips, are intra-sector--entirely within the boundaries of the South Bay sector. The major trip generators outside the South Bay sector are the Los Angeles CBD, Inglewood, the Crenshaw sub-sector, Compton and the Wilshire Corridor. Up to 5,000 linked trips a day are made between South Bay and the CBD, and another 4,700 involve travel to and from Inglewood. The Crenshaw sub-sector accounts for about 3,600 linked trips a day, and Compton for about 3,100. The Wilshire Corridor serves as origin or destination for about 2,200 linked trips to or from South Bay.

TABLE 93
SUMMARY OF LINKED TRIPS TO OR FROM SOUTH BAY
BY SUB-SECTOR OF ORIGINATION OR DESTINATION

Sub-Sector	Percent of South Bay Trips	Estimated Number of Trips
Hawthorne	24.42%	10,723
Beach Cities	22.77	9,968
Gardena	21.55	9,463
Torrance	13.48	5,919
Palos Verdes	11.91	5,230
San Pedro/ Wilmington	8.29	3,640
El Segundo	7.05	3,096
Carson	6.27	2,753
Total*	115.74	50,792
Base	100.0%	43,912

*Totals exceed base due to double counting of trips originating and terminating in different sub-sectors.

FIGURE 7
LINKED TRIPS ORIGINATING OR TERMINATING IN SOUTH BAY SECTOR
AS PERCENT OF SOUTH BAY TRIPS
ON REGULAR-SERVICE LINES

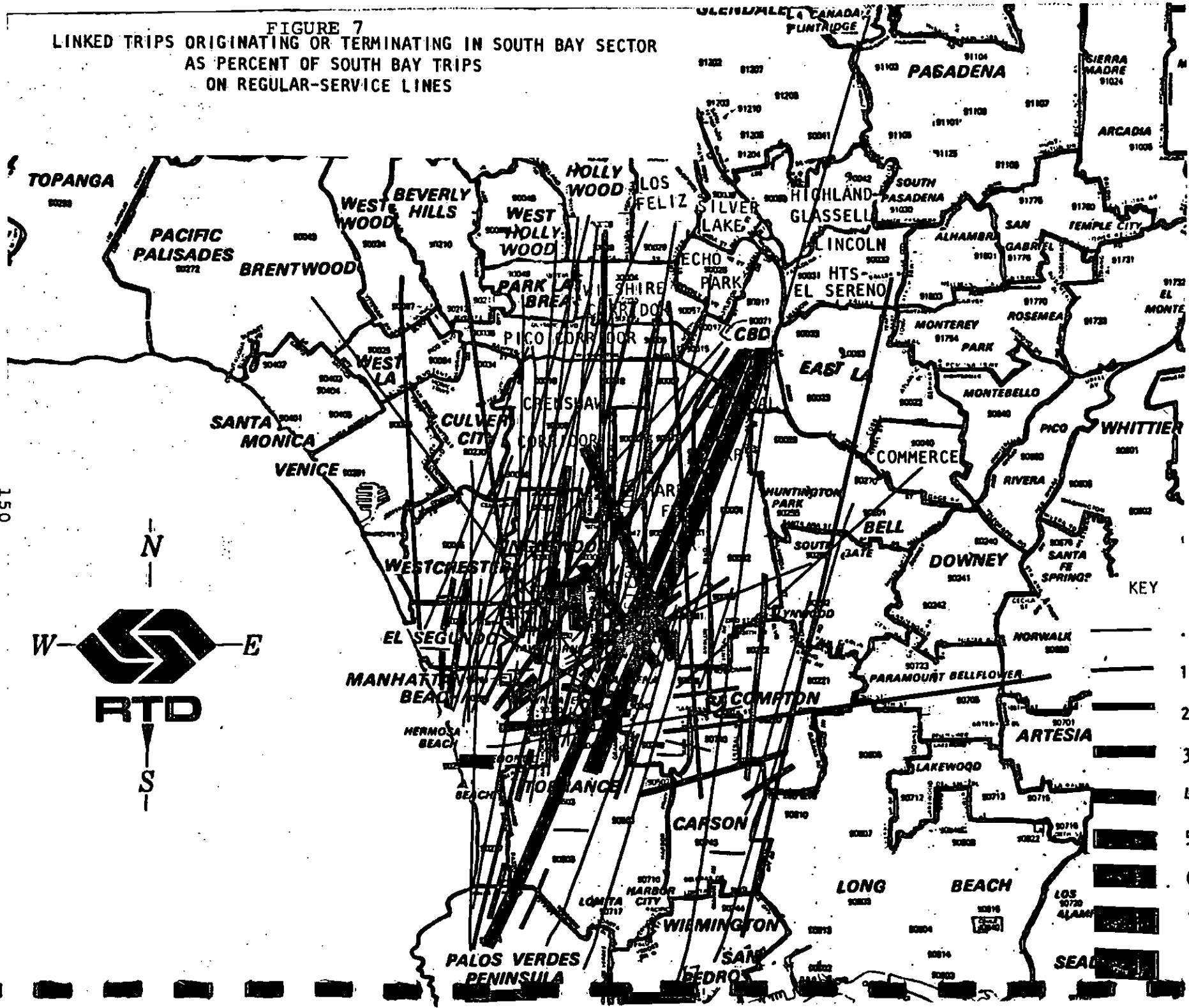


TABLE 94
LINKED TRIPS ORIGINATING OR TERMINATING IN SOUTH BAY
AS PERCENT OF SOUTH BAY TRIPS ON REGULAR-SERVICE LINES

	El Segundo	Gardena	Hawthorne	Beach Cities	Palos Verdes	Torrance	San Pedro	Carson	Total
El Segundo	.45%	.35%	-	1.31%	.21%	.10%	-	-	2.42%
Gardena		.57	2.22%	2.25	-	1.13	-	.48%	6.65
Hawthorne			.73	2.60	.29	.39	-	-	4.01
Beach Cities				3.53	1.40	1.26	.11%	.34	6.64
Palos Verdes					2.98	.97	.10	-	4.05
Torrance						.34	.10	.13	.57
San Pedro/ Wilmington							4.29	-	4.29
Carson								.27	.29
CBD	.30		1.17	1.49	3.58	4.35	.34	.11	11.34
Wilshire Corr		.42	.70	.44	1.15	1.16		1.13	5.0
Pico Corr	.70	.70	.73	.15		.09			2.37
Echo Park						.29			.29
Los Feliz		.70		.30					1.00
Hollywood	.15	1.40	.35	.30		.70			2.90
W.Hollywood			.70						.70
Park La Brea			.73	.15				.04	.92
Beverly Hills			.81						.81
Westwood	.81		.10						.91
Brentwood/ Pac Palisades		.70							.70
Venice				.10		.10			.20
Sta Monica		.10							.10
Westchester	1.36		.06	2.22	.30				3.94
Culver City	.15			.71					.86
Inglewood	.31	3.05	4.97	1.14		1.33			10.8
Crenshaw	.70	3.57	2.73	.30		.70		.19	8.19
Western Ave Corridor			.51	.20					.71
Harbor Fwy Corridor		.69	.39	1.38	.44	.29	.15	.04	3.38
Central Ave Corridor		.35	1.08		.10			1.61	3.14
Compton		1.13	2.42	.53	.10		1.50	1.39	7.07
Vernon/HP/Bell				.14			.65		.79
Lynwood/So.Gate			.74	.04				.39	1.17
East L.A.				.15					.15
Commerce		.65							.65
Lincoln Hts							1.05		1.05
La Canada					.29				.29
Sun Valley	.15								.15
Canoga Pk								.10	.10
Norwalk		1.04				.05			1.09
Artesia				.09					.09
Bellflower		.05		.05				.05	.14
Orange Cty				.09					.09
Total									100.01

LINKED TRIPS ORIGINATING OR TERMINATING IN SAN GABRIEL VALLEY

Table 95 shows that among sub-sectors in the San Gabriel Valley, there are three which serve as primary trip generators and four secondary generators. The Pomona Valley, encompassing the communities of Pomona, La Verne, Claremont and San Dimas, is the foremost generator of linked transit trips. Over 37% of the San Gabriel Valley trips begin or end in the Pomona Valley sub-sector. This sub-sector alone accounts for nearly 11,400 linked trips per day.

The second highest ranking trip generator is the Pasadena area, which accounts for almost 29% of the linked trips. Close to 8,700 linked trips originate or terminate in the Pasadena sub-sector each day.

El Monte is the third major trip generator in the San Gabriel Valley. Over 5,200 linked trips begin or end in El Monte -- over 17% of San Gabriel Valley linked trips.

The four secondary trip generators each account for 7.5% to 8.0% of the San Gabriel Valley linked trips. The Monterey Park/Rosemead sub-sector, Walnut, the San Gabriel/Temple City sub-sector and the Covina/West Covina sub-sector each serve as origin or destination for 2,300 to 2,500 linked trips on an average weekday.

Figure 8 shows a plot of linked trips beginning or ending in the San Gabriel Valley. The supporting figures in Table 96 indicate that 75.87% of the linked trips both begin and end within the boundaries of the San Gabriel Valley. This high proportion of intra-sector trips is matched only by the similar proportion of such trips noted in the San Fernando Valley.

At least 20% of San Gabriel Valley trips occur entirely within the boundaries of the Pomona Valley sub-sector. In other words, nearly 6,100 linked trips occur within this sub-sector. The Pasadena sub-sector, too, boasts a high proportion of linked trips whose origin and destination are both within the sub-sector. Nearly 14% of the San Gabriel Valley trips, or nearly 4,200 trips both begin and end in the Pasadena sub-sector.

Figure 8 also indicates a relatively high proportion of linked trips between the Pomona Valley and Walnut sub-sectors. Up to 7% of the San Gabriel Valley trips, some 2,100 trips daily, are between these two sub-sectors.

Two sub-sectors outside the San Gabriel Valley stand out as major trip generators. The Los Angeles Central Business District accounts for just over 7% of the San Gabriel Valley trips, serving as origin or destination for over 2,100 trips on Regular-Service lines daily. The Lincoln Heights/El Sereno sub-sector draws nearly 5% of the San Gabriel Valley trips, or nearly 1,400 linked trips a day.

The Crenshaw sub-sector, the Highland Park/Glassell Park sub-sector and the Brentwood/Pacific Palisades sub-sector each account for 725 to 760 linked trips a day, about 2.5% of the San Gabriel Valley trips.

TABLE 95
SUMMARY OF LINKED TRIPS TO OR FROM SAN GABRIEL VALLEY
BY SUB-SECTOR OF ORIGINATION OR DESTINATION

Sub - Sector	Percent of San Gabriel Valley Trips	Estimated Number of Trips
Pomona Valley	37.35	11,355
Pasadena	28.53	8,673
El Monte	17.15	5,214
Monterey Park/ Rosemead	8.02	2,438
Walnut	7.77	2,362
San Gabriel/ Temple City	7.69	2,338
Covina/West Covina	7.47	2,271
La Puente	5.52	1.678
Altadena	4.32	1,313
Arcadia/Sierra Madre	3.98	1,210
Baldwin Park	2.90	882
Azusa/Glendora	1.95	593
Alhambra	1.36	413
Monrovia/Duarte	.49	149
Total*	134.50%	40,889
Base	100.0%	30,401

*Totals exceed Base due to double counting of trips originating and terminating in different sub-sectors.

Figure 8
LINKED TRIPS ORIGINATING OR TERMINATING IN SAN GABRIEL VALLEY/POMONA VALLEY
AS PERCENT OF SAN GABRIEL VALLEY/POMONA VALLEY TRIPS
ON REGULAR-SERVICE LINES

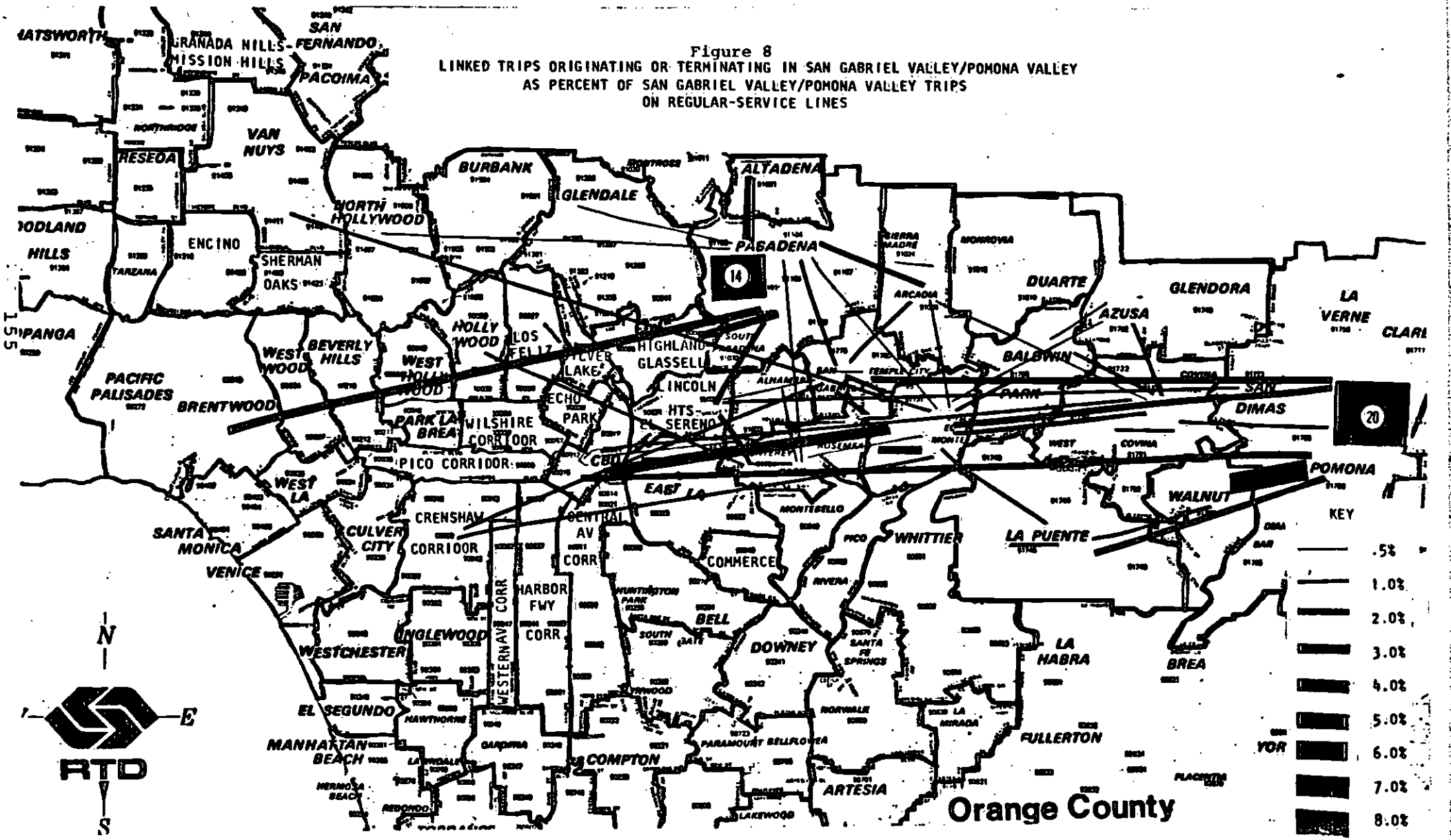


TABLE 96

LINKED TRIPS ORIGINATING OR TERMINATING IN SAN GABRIEL VALLEY
AS PERCENT OF SAN GABRIEL VALLEY TRIPS ON REGULAR-SERVICE LINES

	Alta-dena	Arc-adia	Mon-rovia	Pasa-dena	Azusa	Bald-win Park	Cov-ina	El Monte	La Puente	Mont-erey Park	San Gab-riel	Wal-nut	Alham-bra	Pom-ona Valley	Total
Altadena	.47	.20	-	3.33	-	-	-	-	-	.16	-	-	-	-	4.16
Arcadia		.50		1.48			.30	.60	-	-	.90	-	-	-	3.78
Monrovia			-	-	-	.13	-	.18	-	-	.08	-	-	-	.39
Pasadena				13.73	.08	-	.13	.50	.10	.62	.80	-	.16	-	16.12
Azusa						.40	.94	.40	.13	-	-	-	-	-	1.87
Baldwin PK						.13	.81	.94	-	-	.10	-	.13	.13	2.24
Covina							1.21	1.61	-	-	-	-	.13	.97	3.92
El Monte								2.42	1.15	.63	.20	-	-	2.07	6.47
La Puente									.97	.18	-	.97	-	2.02	4.14
Monterey PK										1.21	1.50	-	.44	.18	3.33
San Gabriel PK											.63	-	-	1.95	2.58
Walnut												-	-	6.80	6.80
Alhambra													-	-	-
Pomona Vly														20.02	20.02
CBD							1.11	3.64		.26				2.04	7.05
Wilshire Corr													.18		.18
Los Feliz								.18							.18
Hollywood										.84					.84
W.Hollywood				.08											.08
Park La Brea				.08										.20	.28
Brentwood/ Pac Palis				2.38											2.38
Crenshaw								1.25			1.25				2.50
Vernon/HP/ Bell										.18					.18
Lynwood/ So.Gate						.13									.13
East L.A.			.10	.16				.36		.41			.16		1.19
Montebello							.13								.13
Lincoln Hts				1.56				.18		1.41	.28		.16	.97	4.56
Highland Pk				2.42											2.42
Glendale				.41											.41
Burbank	.16														.16
N. Hlywd				.41											.41
Van Nuys								.78							.78
Norwalk								.06							.06
Pico Rivera							.13								.13
Long Beach				.10											.10
Total															100.01%

LINKED TRIPS ORIGINATING OR TERMINATING IN NORTH CENTRAL SECTOR

Table 97 shows that the major trip generator in the North Central sector is the Glendale/Eagle Rock sub-sector. This area accounts for over 35% of the linked trips in the sector, serving as origin or destination for over 10,000 transit trips daily.

The second highest proportion of linked trip origins and destinations occurs in the Silverlake sub-sector, which accounts for over 29% of the North Central trips. Nearly 8,500 trips begin or end in the Silverlake area each day.

The Highland Park/Glassell Park sub-sector serves as origin or destination for about 20% of the North Central linked trips -- 5,700 trips a day. The Sunland/Tujunga area accounts for nearly 15% of the trips, about 4,200 a day. The sub-sector consisting of La Canada, Flintridge, La Crescenta and Montrose represents only 1.5% of the linked trips made in the sector. Only about 430 trips beginnning or ending in this sub-sector were identified.

The North Central sector is unusual in that there appears to be a low proportion of intra-sector linked trips served. Only about 5%, or 1400 linked trips, are made entirely within the boundaries of the sector. Up to 95% of the trips are between the North Central sector and points outside the sector.

Figure 9 plots linked trips beginning or ending in the North Central sector. Obvious trip demand exists between Glendale and the CBD, between Sunland and the San Fernando Valley, between the Highland Park/Glassell Park sub-sector and Pasadena, and between Silverlake and the Malibu/Topanga sub-sector.

Table 98 provides data used to plot Figure 9. The primary trip generator for the North Central sector is the CBD, which accounts for nearly 17% of the linked trips. Nearly 5,000 trips a day are made between the CBD and points within the North Central sector. About 2,600 of these trips are between Glendale/Eagle Rock and the CBD, and about 1600 of the trips are between Silverlake and the CBD.

Pasadena is the next highest ranking trip generator. Nearly 9% of the trips are between points in the North Central sector and Pasadena. Over 2,500 trips are in this category each day. Most of these trips, almost 2,300, are between the Highland Park/Glassell Park sub-sector and Pasadena.

The Lincoln Heights/El Sereno area accounts for 7% of the North Central trips. This sub-sector is origin or destination for over 2,000 trips a day.

Taken as a whole, the San Fernando Valley accounts for a quarter of the trips beginning or ending in the North Central sector. Over 7% of North Central trips begin or end in Van Nuys; that's nearly 2,100 trips a day. Over half those trips -- 1,100 of them -- are between the Sunland/Tujunga sub-sector and Van Nuys. Burbank and North Hollywood each serve as origin or destination for more than 5% of the North Central trips -- between 1,500 and 1,600 a day.

Linked trips between the Silverlake district and the Malibu/Topanga sub-sector account for nearly 6% of the North Central trips. Almost 1,700 trips a day are made between these two points.

East Los Angeles also attracts about 6% of the North Central linked trips each day. Compton and Hollywood attract about 4% of the North Central trips. Each sub-sector is origin or destination for over 1,200 trips.

TABLE 97
SUMMARY OF LINKED TRIPS TO OR FROM NORTH CENTRAL SECTOR
BY SUB-SECTOR OF ORIGINATION OR DESTINATION

Sub-sector	Percent of North Central Trips	Estimated Number of Trips
Glendale/Eagle Rock	35.48%	10,307
Silverlake	29.19	8,480
Highland Pk/Glassell Park	19.69	5,720
Sunland/Tujunga	14.55	4,227
La Canada/Flintridge/ Montrose	1.49	433
Total*	100.40%	29,167
Base	100.00%	29,050

*Totals exceeed base due to double counting of trips originating and terminating in different sub-sectors.

FIGURE 9
LINKED TRIPS ORIGINATING OR TERMINATING IN NORTH CENTRAL SECTOR
AS PERCENT OF NORTH CENTRAL TRIPS
ON REGULAR-SERVICE LINES

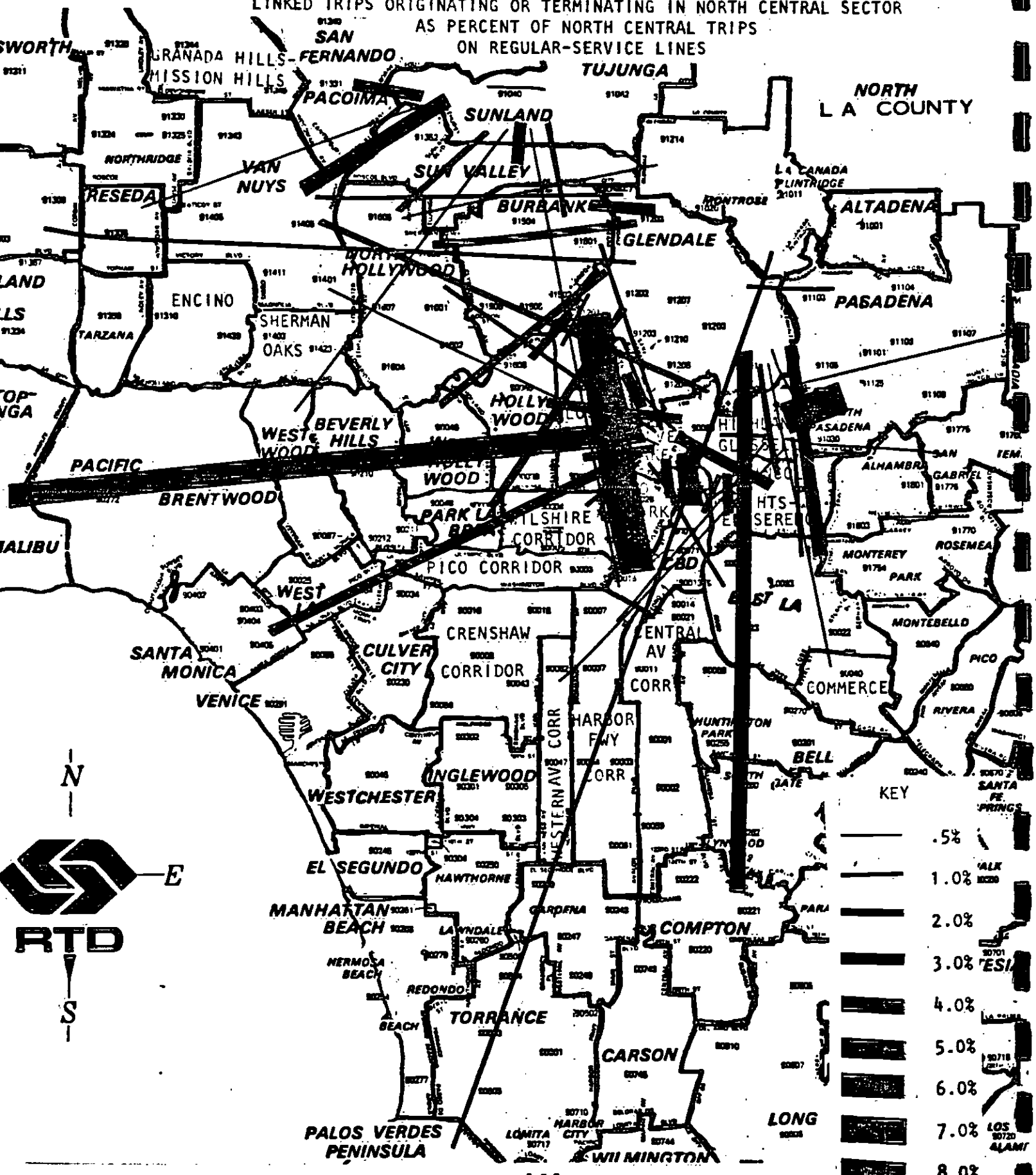


TABLE 98

LINKED TRIPS ORIGINATING OR TERMINATING IN NORTH CENTRAL SECTOR AS PERCENT OF NORTH CENTRAL TRIPS ON REGULAR-SERVICE LINES

	Silver Lake	High Land-Park	Glen-Dale	La Canada	Sunland	Total
Silverlake	3.03	-	-	-	-	3.03
Highland Pk		.76	.38	-	-	1.14
Glendale			-	-	-	-
La Canada				-	-	-
Sunland					.65	.65
CBD	5.52	1.73	8.93		.65	16.83
Wilshire Corr	.92					.92
Echo Park	3.03					3.03
Los Feliz	1.84		.92			2.76
Hollywood		2.41	1.76			4.17
W.Hollywood			1.76			1.76
Park La Brea			3.03			3.03
Westwood					.32	.32
Sta Monica	2.35					2.35
Malibu	5.76					5.76
Western Ave Corr		.38				.38
Harbor Fwy Corr		.38				.38
Compton			4.33			4.33
ELA	.92	1.14	3.65			5.71
Commerce			.30			.30
Lincoln Hts	3.03	2.65	1.30			6.98
Sun Valley					2.92	2.92
Burbank	.92		3.06		1.30	5.28
N.Hollywood	1.22		2.14	.65	1.62	5.63
Van Nuys	.65	1.33	1.22		3.90	7.10
Canoga Park			1.22			1.22
Pacoima					2.87	2.87
Reseda					.32	.32
Arcadia		.38				.38
Pasadena		7.77	1.00			8.77
San Gabriel		.38	.24			.62
Pomona Valley			.24			.24
Palos Verdes				.84		.84
Total						100.02%

LINKED TRIPS ORIGINATING OR TERMINATING IN EAST LOS ANGELES

Over 29,000 linked trips begin or end in the East Los Angeles sector each day. Table 99 indicates that most of these trips, 92%, begin or end in the East Los Angeles/Boyle Heights sub-sector. The Montebello and Commerce sub-sectors account for 9% and 4% of the linked trips, respectively.

The map in Figure 10 shows the pattern of linked trips beginning or ending in the East Los Angeles sector. The most significant trip generators are the CBD, and the Wilshire corridor. Trips within the East Los Angeles/Boyle Heights sub-sector also account for a large percentage of trips. Table 100 shows that over 29% of the trips (over 8,500 trips) are between the East LA sector and the CBD, and 18% (5,300 trips) between the Wilshire Corridor and East LA. The Lincoln Heights/El Sereno sub-sector is origin or destination for nearly 5%, or over 1,300 trips a day, as is Hollywood.

About 20% of the East Los Angeles trips are intra-sector. Over 5,800 trips are made each day entirely within the boundaries of the sector. More than 4,300 of these transit trips are made within the East Los Angeles/Boyle Heights sub-sector.

TABLE 99
SUMMARY OF TRIPS TO OR FROM EAST LOS ANGELES
BY SUB-SECTOR OR ORIGINATION OR DESTINATION

Sub-sector	Percent of East Los Angeles Trips	Estimated Number of Trips
East LA/Boyle Hts	92.12%	26,761
Montebello	8.52	2,475
Commerce	4.43	1,287
Total*	105.07%	30,523
Base	100.00%	29,050

*Totals exceed base due to double counting of trips originating and terminating in different sub-sectors.

FIGURE 10

LINKED TRIPS ORIGINATING OR TERMINATING IN EAST LOS ANGELES SECTOR
AS PERCENT OF EAST LOS ANGELES TRIPS
ON REGULAR-SERVICE LINES

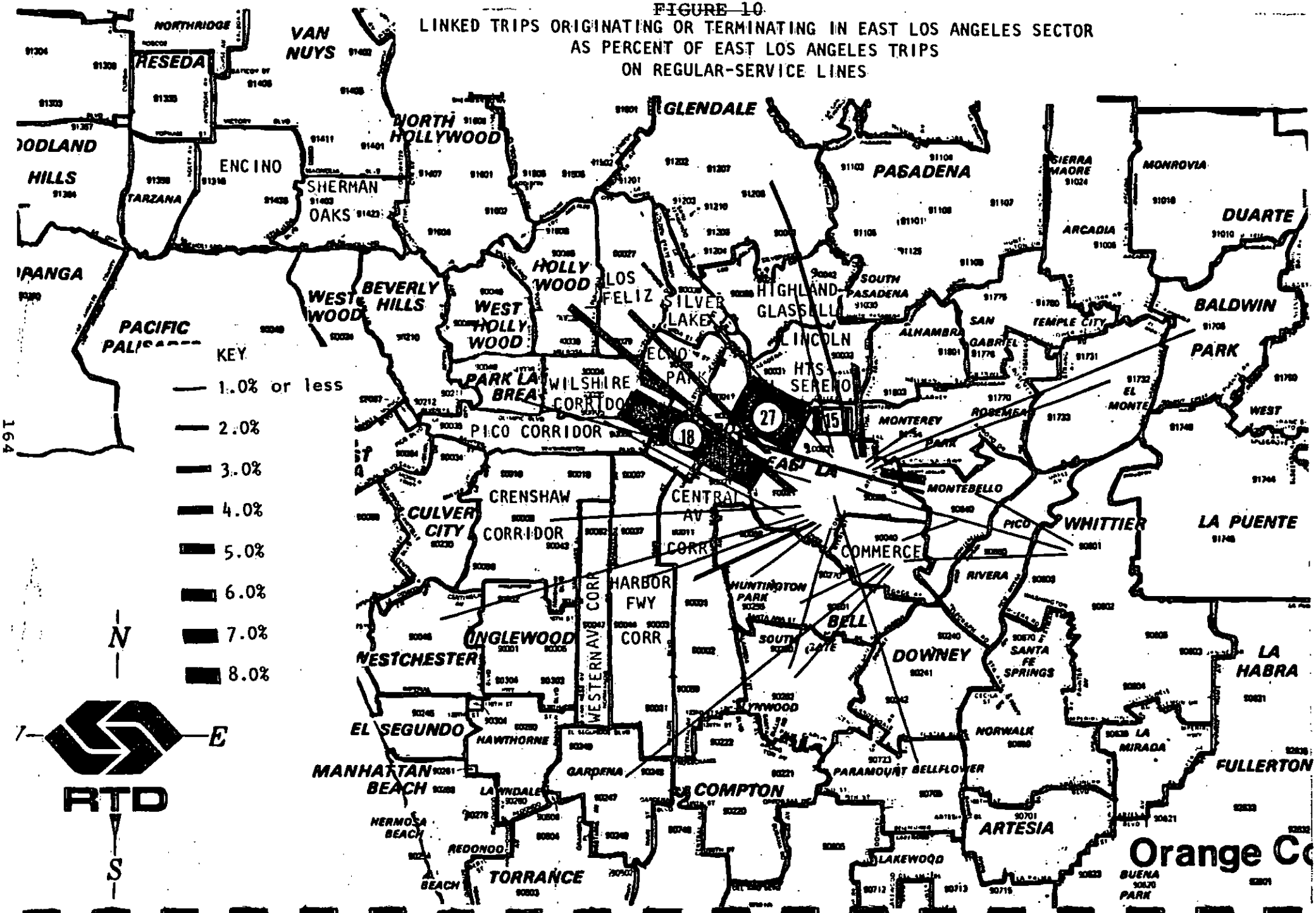


TABLE 100

LINKED TRIPS ORIGINATING OR TERMINATING IN EAST LOS ANGELES AS PERCENT OF EAST LOS ANGELES TRIPS ON REGULAR-SERVICE LINES

	East LA	Commerce	Monte-bello	Total
East LA	14.86%	-	4.97%	19.83%
Commerce		-	.30	.30
Montebello			-	-
CBD	27.28		2.10	29.38
Wilshire Corr	17.97	.15	.15	18.26
Pico Corr	.98			.98
Los Feliz	2.83			2.83
Silverlake	.45			.45
Hollywood	4.43		.15	4.59
Park La Brea	1.49			1.49
Westchester	.43			.43
Crenshaw	1.61	.15		1.75
Harbor Fwy Corr	.64	.15	.15	.93
Central Ave Corr	2.46			2.46
Vernon/HP/Bell	.93	.93		1.86
Lynwood/So.Gate	.49	.93		1.42
Lincoln Hts	4.69			4.69
Highland Park	.56			.56
Glendale	1.79	.15		1.94
Monrovia	.12			.12
Pasadena	.19			.19
Baldwin Park	.32			.32
Covina	.16		.16	.32
El Monte	.58	.15		.73
Monterey Park	.68			.68
Alhambra	.19			.19
Downey	.09			.09
Whittier	.29	.29	.29	.88
Norwalk		.15	.16	.31
Pico Rivera	.24	.15		.39
Artesia			.09	.09
Bellflower	.49			.49
Gardena		.93		.93
Beach Cities	.21			.21
Total				100.19

LINKED TRIPS ORIGINATING OR TERMINATING IN EAST CENTRAL SECTOR

The East Central sector consists of only two sub-sectors: The Vernon/Huntington Park/Bell/Maywood sub-sector and the Lynwood/Southgate sub-sector. As shown in Table 101, the Vernon/Huntington Park/Bell/Maywood sub-sector accounts for most of the linked trips generated by the East Central sector. Nearly 86% of the linked trips begin or end in this sub-sector. Only about 15% of the trips begin or end in the Lynwood/Southgate sub-sector.

Figure 11 shows a plot of East Central linked trips. Of the nearly 22,000 linked trips to or from this sector daily, a full 39%, or 8,500 trips, are intra-sector. Over 37% of the trips occur within the boundaries of the sub-sector which contains Vernon, Huntington Park, Bell and Maywood. Some 8,000 trips are made with their origins and destinations both within this sub-sector.

The single largest trip generator outside the East Central sector is Downey which attracts nearly 16% of the sector's linked trips. Almost 3,400 linked trips are made daily between the East Central sector and Downey -- 3,100 of these trips begin or end in the Vernon/Huntington Park/Bell/ Maywood area

The second major trip generator outside the East Central sector is the Wilshire Corridor. This sub-sector runs a poor second to Downey, generating only about 7%, or 1,400, of the sector's linked trips.

The East Los Angeles/Boyle Heights sub-sector and the CBD each attract about 5% of the East Central trips, 1,000 to 1,100 trips a day.

Table 102 provides detailed information on linked trips beginning or ending in the East Central sector.

TABLE 101

SUMMARY OF LINKED TRIPS TO OR FROM EAST CENTRAL SECTOR BY SUB-SECTOR OF ORIGINATION OR DESTINATION

Sub-Sector	Percent of E. Central Trips	Estimated Number of Trips
Vernon/Huntington Park/ Bell	85.87	18,563
Lynwood/Southgate	15.25	3,297
Total*	101.12	21,860
Base	100.00%	21,618

*Totals exceed base due to double counting of trips originating and terminating in different sub-sectors.

FIGURE 11
LINKED TRIPS ORIGINATING OR TERMINATING IN EAST CENTRAL SECTOR
AS PERCENT OF EAST CENTRAL TRIPS
ON REGULAR-SERVICE LINES

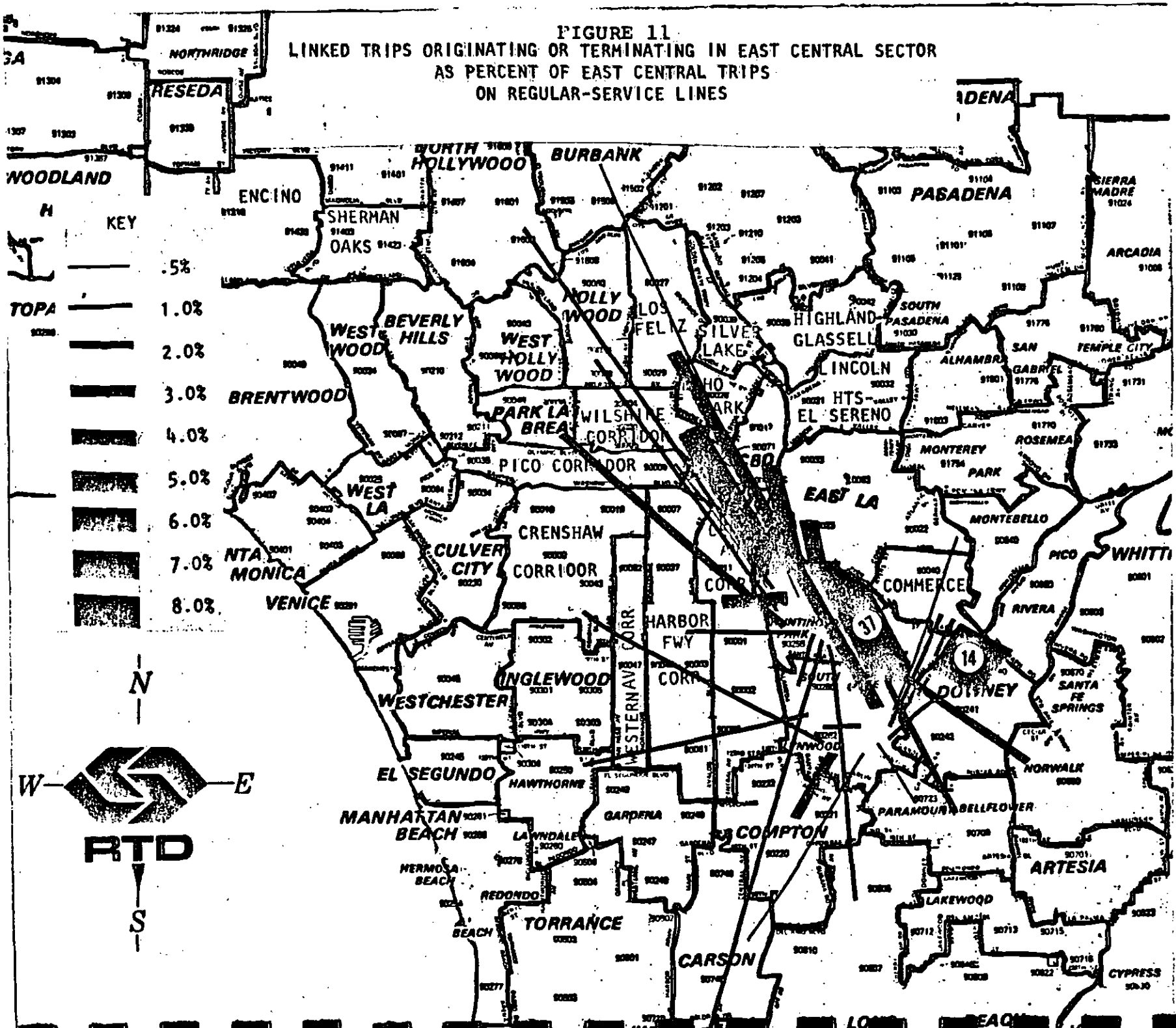


TABLE 102

LINKED TRIPS ORIGINATING OR TERMINATING IN EAST CENTRAL SECTOR AS PERCENT OF EAST CENTRAL TRIPS ON REGULAR-SERVICE LINES

	Vernon/ HP/ Bell	Lynn- wood/ Bell	Total
Vernon/HP/ Bell	37.11%	1.11%	38.22%
Lynnwood/ Southgate	-	1.25	1.25
CBD	4.65	.06	4.71
Wilshire Corr	6.56	-	6.56
Pico Corr	.44	-	.44
Los Feliz	-	3.37	3.37
Hollywood	-	.06	.06
W.Hollywood	1.11	-	1.11
Park La Brea	2.06	-	2.06
Inglewood	-	.13	.13
Crenshaw	-	1.19	1.19
Western Ave. Corridor	.22	.06	.28
Harbor Fwy Corridor	1.11	.25	1.36
Central Ave Corridor	3.32	-	3.32
Compton	-	2.29	2.29
ELA	4.43	.58	5.01
Commerce	1.11	1.11	2.22
Burbank	.54	-	.54
N.Hollywood	1.11	-	1.11
Baldwin Park	-	.19	.19
Monterey Park	.25	-	.25
Alhambra	.25	-	.25
Downey	14.39	1.17	15.56
Whittier	.17	-	.17
Norwalk	2.21	-	2.21
Bellflower	1.26	.40	1.66
Hawthorne	-	1.25	1.25
Beach Cities	.24	.06	.30
San Pedro	1.11	-	1.11
Carson	-	.66	.66
Long Beach	1.11	.06	1.17
Total			100.01%

39.47% of East Central trips are within East Central sector.

LINKED TRIPS ORIGINATING OR TERMINATING IN MID-CITIES

Nearly 15,000 linked trips begin or end in the Mid-Cities sector each day. The four major trip generators among sub-sectors in this area are Downey (36%, or 5,400 of the trips), Bellflower/Paramount (28% of the trips, or 4,200), Norwalk/Santa Fe Springs (26% or 3,800 trips) and Whittier (13% of the trips, or just under 2,000 trips). The remaining three sub-sectors in the Mid-Cities sector (La Mirada, Artesia/Cerritos and Pico Rivera) each account for only about 700 linked trips per day. Details are provided in Table 103.

Figure 12 illustrates the pattern of linked trips beginning or ending in the Mid-Cities sector, and the figures in Table 104 quantify these patterns. Over 29% of the linked trips are intra-sector trips which both begin and end in the Mid-Cities sector. The major trip generator outside the sector is the Vernon/Huntington Park/Bell/Maywood sub-sector, which draws about 26% of the linked trips. Nearly 21% of the sector's trips are between Downey and this sub-sector.

Compton is another major trip generator, accounting for almost 9% of the Mid-Cities trips. Gardena, the Central Avenue corridor and the Los Angeles CBD each attract around 4% of the linked trips, or about 550 to 600 linked trips a day.

TABLE 103
SUMMARY OF LINKED TRIPS TO OR FROM MID-CITIES
BY SUB-SECTOR OF ORIGINATION OR DESTINATION

Sub-Sector	Percent of Mid-Cities Trips	Estimated Number of Trips
Downey	36.39%	5,409
Bellflower/Paramount	28.29	4,205
Norwalk/Santa Fe Springs	25.86	3,844
Whittier	13.20	1,962
La Mirada	5.37	798
Artesia/Cerritos	5.03	748
Pico Rivera	4.72	702
Total*	118.86%	17,668
Base	100.00%	14,863

*Totals exceed base due to double counting of trips originating and terminating in different sub-sectors.

FIGURE 12
LINKED TRIPS ORIGINATING OR TERMINATING IN MID-CITIES SECTOR
AS PERCENT OF MID-CITIES TRIPS
ON REGULAR-SERVICE LINES

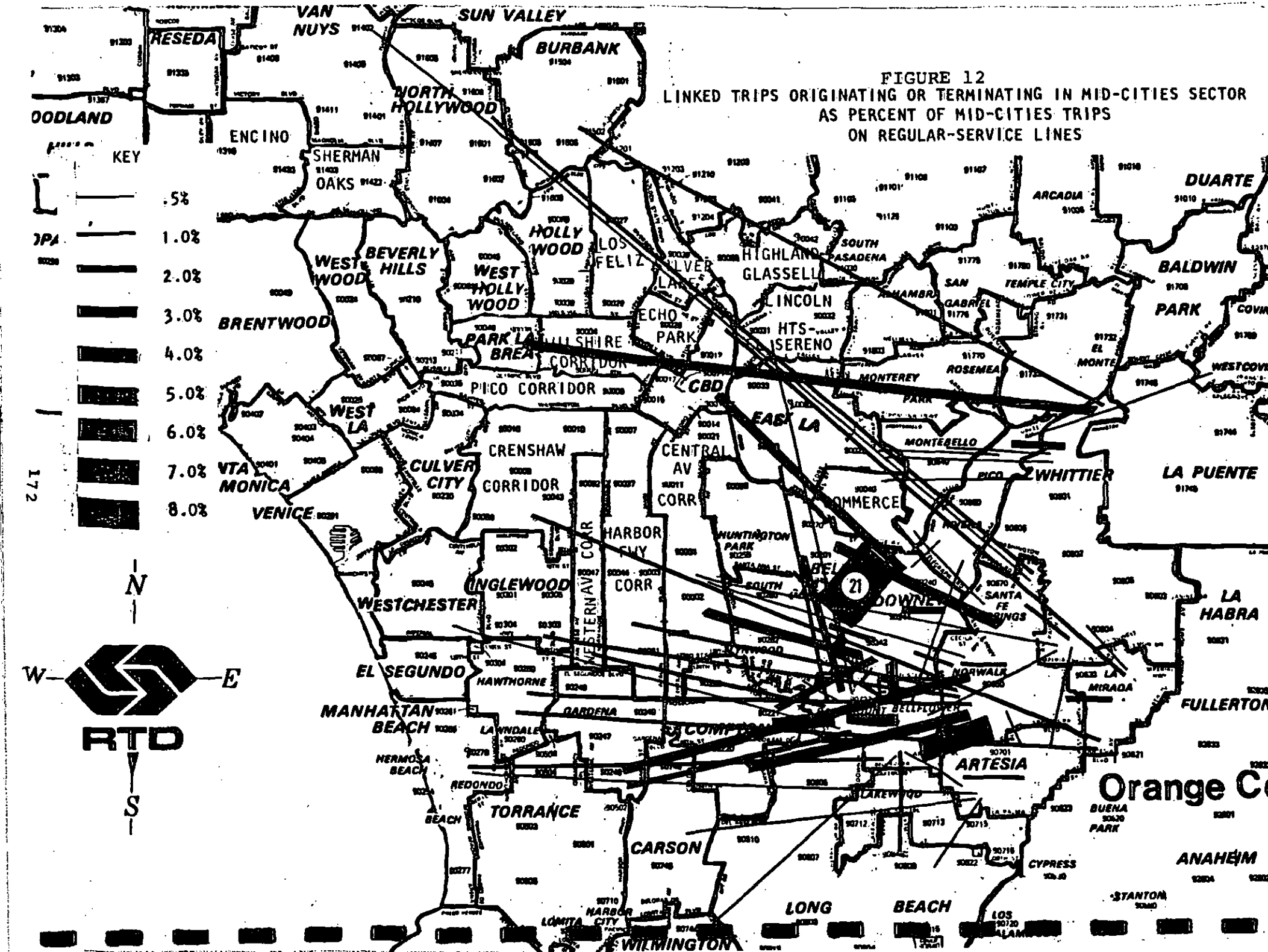


TABLE 104
LINKED TRIPS ORIGINATING OR TERMINATING IN MID-CITIES
AS PERCENT OF MID-CITIES TRIPS ON REGULAR-SERVICE LINES

	Downey	Whittier	La Mirada	Norwalk	Pico Rivera	Artesia	Bell-Flower	Total
Downey	2.03%	-	-	.95	.32	-	3.05	6.35%
Whittier		2.33	.75	.80	2.10	.64	-	6.62
La Mirada			.11	1.53	-	-	.34	1.98
Norwalk				1.12	.16	.32	6.93	8.53
Pico Rivera					-	-	.32	.32
Artesia						.98	.71	1.69
Bellflower							3.60	3.60
CBD	2.37		.84		.25		.23	3.69
Wilshire Corr		.25		.11				.36
Park La Brea		2.55						2.55
Westchester							.36	.36
Inglewood				.84				.84
Crenshaw			.96					.96
Western Ave Corr							.84	.84
Harbor Fwy Corr		.25		.84			.11	1.20
Central Ave Corr	2.55	.50		.34	.25		.23	3.87
Compton	1.89			2.85			4.06	8.80
Vernon/HP/Bell	20.74	.25		3.19			1.82	26.00
Lynwood/So.Gate	1.69						.57	2.26
ELA	.16	.50			.41		.84	1.91
Commerce		.50		.25	.25			1.00
Montebello		.50		.27			.16	.93
Lincoln Hts		.25					.32	.57
Burbank		1.03						1.03
N.Hollywood				.84		.16		1.00
Van Nuys				.30				.30
Northridge							.11	.11
Covina				.25	.55			.80
El Monte				.11				.11
Gardena				2.64			1.30	3.94
Hawthorne			.84	.84				1.69
Beach Cities						.46	.96	1.42
Torrance				.11		.23		.34
San Pedro							.27	.27
Carson						.46	.21	.67
Long Beach				.11	.11	.68	.84	2.38
Orange Cty				.16		.23	.11	.50
San B'do Cty						.16		.16
Total								99.95%

LINKED TRIPS ORIGINATING OR TERMINATING IN LONG BEACH

The Long Beach sector accounts for only about 2,000 linked trips per day on RTD Regular-Service lines.

Figure 13 shows that transit trips tend to radiate from the Long Beach sector in a sunburst pattern and tend to be relatively long-distance trips. The figures in Table 105 confirm that the major trip generator is the Los Angeles CBD. Up to 18% of the Long Beach trips operate between that sector and the CBD. Between 6% and 7% of the trips are between the Long Beach sector and either the Crenshaw Corridor or the Harbor Freeway Corridor.

Over 6% of the trips are between Long Beach and the Bellflower/Paramount sub-sector, and 5% between Long Beach and Gardena.

About 17% of the Long Beach sector trips both begin and end within the boundaries of the sector.

FIGURE 13
LINKED TRIPS ORIGINATING OR TERMINATING IN LONG BEACH SECTOR
AS PERCENT OF LONG BEACH TRIPS
ON REGULAR-SERVICE LINES

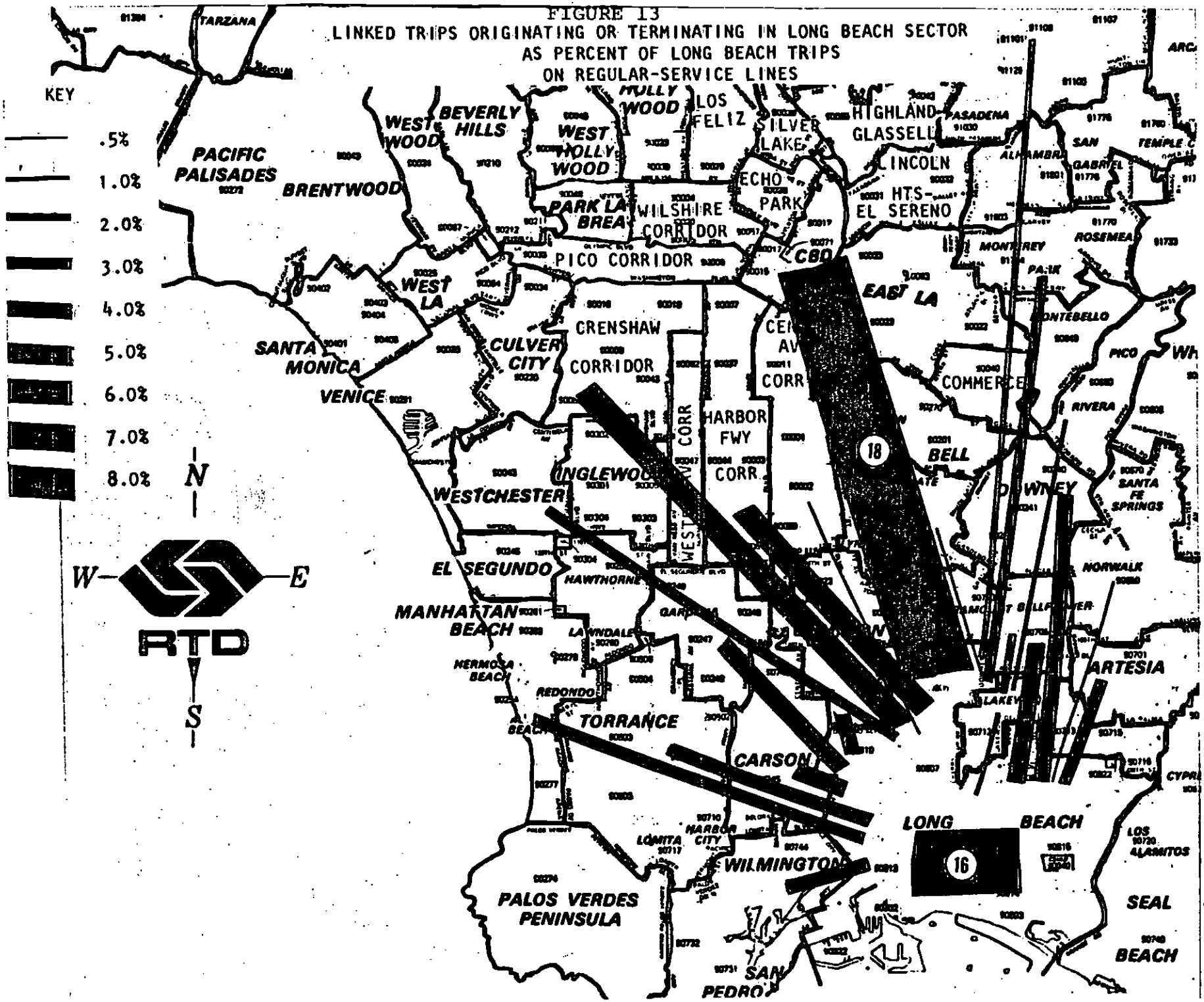


TABLE 105
LINKED TRIPS ORIGINATING OR TERMINATING IN LONG BEACH
AS PERCENT OF LONG BEACH TRIPS ON REGULAR-SERVICE LINES

	Lakewood	Long Beach	Total
Lakewood	-	1.03%	1.03%
Long Beach	-	15.88	15.88
CBD	-	17.79	17.79
Westchester	-	2.35	2.35
Crenshaw	-	6.62	6.62
Harbor Fwy Corr	-	6.03	6.03
Central Ave Corr	-	.74	.74
Compton	-	2.21	2.21
Vernon/HP/Bell	-	10.29	10.29
Lynwood/So. Gate	-	.59	.59
Pasadena	-	1.32	1.32
Monterey Park	-	2.35	2.35
Downey	-	4.12	4.12
Norwalk	-	.74	.74
Pico Rivera	1.03		1.03
Artesia	-	2.94	2.94
Bellflower	1.76	4.71	6.47
Gardena	-	4.56	4.56
Beach Cities	-	2.94	2.94
Torrance	-	3.68	3.68
San Pedro	-	3.53	3.53
Carson	-	4.26	4.26
Total			101.47

Number of Boardings

In order to obtain estimates of boarding activity by weekday riders on Regular-Service lines, the questionnaire used for the 1981 Ridership Tracking Study contained three questions pertinent to this issue. Riders were requested to indicate the number of times they board an RTD bus on an average weekday, an average Saturday and an average Sunday. Based on these factors, estimates of the number of boardings during an average month were calculated according to the formula:

$$X = (A \times 21.25)+(B \times 4.33)+(C \times 4.33)$$

Where X = Estimated number of boardings during a one month period

A = Number of boardings on an average weekday

B = Number of boardings on an average Saturday

C = Number of boardings on an average Sunday

21.25 = Average number of workdays per month

4.33 = Average number of Saturdays or Sundays per month

Table 106 shows that the mean number of boardings per day made by Regular-Service riders varies by bus line. The overall mean is 3.3 boardings per weekday, but the range is from 2.1 to 5.9 boardings. Weekday Regular-Service riders surveyed during the 1981 Ridership Tracking Study average 1.7 boardings on an average Saturday and 1.3 boarings on an average Sunday. Variation by line is seen during weekends, too. The mean number of Saturday boardings ranges from .4 to 2.7. Sunday boardings range from an average of .3 to 1.7.

Because of the variation in average boardings per day, the estimated average number of boardings per month also shows wide variation by bus line. Overall, Regular-Service riders surveyed on a weekday average 85 boardings per month. The average ranged from about 65 boardings up to 110 boardings per month.

Variations in boarding activity can also be seen by type of fare. Table 107 indicates that riders using an express pass to board Regular-Service lines tend to make the fewest boardings - about 74 a month. Cash riders also tend to be below average in the number of boardings they make - only about 77 a month.

Handicapped pass users tend to make more boardings during the month than any other group. They account for about 108 boardings per month. Riders using a base pass also account for a high number of boardings - 98 a month. College/vocational pass users, too, account for an above-average number of boardings - about 95 each month.

On average, express pass users and cash riders on Regular-Service lines board about three buses on a given weekday. Riders in other fare categories, however, board 3.4 to 4.3 buses per weekday.

Some of the variation in monthly boarding activity can be explained by differences in weekend bus use. The histograms in Figure 14 show that up to 45% of the express pass users and cash riders in the weekday regular-service line sample do not ride the bus on Saturdays . On Sundays up to 67% of the riders in these two fare categories do not ride the bus.

Riders in other fare categories are much more likely to use the bus on weekends. Fewer than 20% of the respondents using a base pass, senior citizen pass or handicapped pass do not ride the bus on Saturdays. Fewer than 35% of the base pass users, 25% of the senior citizen pass users and 18% of the handicapped pass users do not ride the bus on Sundays.

Figure 14 also indicates that the distribution of boarding activity tends to be multi-modal in all fare categories. On weekdays, most respondents board an even number of buses. Among cash riders, for example, 45% board two buses per day, 25% board four buses and nearly 12% board six or more buses. A more extreme distribution can be seen among express pass users, 55% of whom board only two buses a day, 25% board four buses and 8% board six or more.

The distribution of boarding activity on weekends is markedly different, when large proportions of weekday riders on Regular-Service lines do not ride the bus. Rather than the tri-modal distribution found among weekday riders, with peaks at two, four or six and more boardings, the distribution of Saturday boardings is quatre-modal. On Saturdays from 15% to 45% of the respondents (depending on fare category) board no buses. Boardings of other respondents who do ride the bus on Saturdays still tend to be grouped around two, four and six or more boardings, although the percentage of respondents in the latter category shrinks to under 10% in all fare categories. The distribution of boarding activity on Sundays by weekday Regular-Service line riders is again tri-modal, with peaks at zero boardings, two boardings or four boardings.

An examination of Table 108, which shows boarding activity by weekday Regular-Service riders according to the time of

day they were surveyed on the bus, indicates few differences by time period. Monthly boardings fall between 83 and 87 for riders in all time periods, with the exception of those riding during the evening hours, after 6:30 PM. Evening riders average about 93 boardings per month. Table 108 shows that the higher number of monthly boardings made by evening riders is chiefly attributable to the higher average number of weekend boardings made by this group. Whereas the range of Saturday boardings among other weekday Regular-Service riders is from 1.6 to 1.8, among evening riders the number of Saturday boardings averages 2.2. Other riders average 1.0 to 1.3 Sunday boardings; evening riders average 1.6.

Figure 15 illustrates boarding activity by day among weekday Regular-Service riders in each time period. Note that on weekdays the proportion of riders boarding two buses per day is highest during each time period except the evening, when the proportion boarding four buses is highest.

With the exception of the evening period, at least a third of the weekday riders in each time period do not ride the bus on Saturdays. Among evening riders only about a quarter do not use the bus on Saturdays. On Sundays, too, evening riders are more likely to ride the bus than are riders in other time periods.

Boarding activity also tends to vary by where bus riders live, as shown in Table 109. Weekday Regular-Service riders from the San Gabriel Valley, South Bay Sector and the Long Beach sector tend to account for the fewest boardings during the month, about 76 to 78 boardings. Riders who live in the downtown and East Los Angeles sectors account for the highest number of monthly boardings, about 98.

Although there was an insufficient number of respondents from many sub-sectors, the data in Table 109 suggest that there are wide variations in boarding activity within major sectors. Riders from the West Los Angeles sector as a whole, for example, average 88 boardings per month. Riders living in the West Hollywood and Los Feliz sub-sectors, however, average only 78 boardings, whereas those living in the Pico Corridor average 101 boardings. Similar variation can be seen within other major sectors as well.

Table 110 demonstrates the relationship between car availability and boarding activity. The number of boardings made on any given day of the week tends to decrease as the ratio of cars per person in the household increases. On weekdays, then, riders whose households do not own a car average 3.5 boardings, whereas those who have .75 or more cars for each person in the household average only 3.0 boardings.

On Saturdays, riders from households with no car average 2.1 boardings. Riders from households in which every member has a car average less than 1 boarding. On Sundays, riders who have no car available average 1.5 boardings. Those who live in households that have a car available for each resident average only .5 boardings.

Monthly boarding estimates reflect the same relationship with car availability. Riders who have no cars available average over 93 boardings a month, whereas those who have at least .75 cars per resident average only about 74 boardings.

The histograms in Figure 16 show boarding distributions by relative car availability. Especially notable is the relationship between car availability and the proportion of riders who do not use the bus on weekends. Only about one-quarter of the weekday Regular-Service riders with no car in the household do not ride the bus on Saturdays. The proportion of riders who don't use the bus on Saturdays increases as the ratio of cars to persons increases. Among riders who live in households where each resident has a car, 65% do not ride the bus on Saturdays.

The same relationship is found when Sunday boardings are considered. Among riders from households with no cars about 40% do not ride the bus on Sundays. This proportion, too, increases steadily as the car availability ratio increases. Of the riders whose households own a car for each resident, over 80% do not ride the bus on Sundays.

The relationship between rider age and boarding activity is shown in Table 111. The two age groups at the ends of the age scale exhibit unique patterns. The youngest group of riders - under 19 years old - and the oldest group - 62 or older - both average 3.2 weekday boardings, as opposed to the other age groups, which average 3.3 to 3.5 daily boardings. On Saturdays, too, the youngest and oldest weekday Regular-Service riders make fewer average boardings than riders in other age groups. Young riders average 1.6 boardings on Saturdays, senior citizens average 1.7 and all other riders average 1.8 to 1.9.

On Sundays, young riders and senior citizens exhibit levels of boarding activity not only different from that shown by other riders, but also different from each other. Whereas other rider age groups average 1.2 to 1.4 boardings on Sundays, riders under 19 years old average only .9 boardings. Senior citizens, on the other hand, are at the high end of the scale, averaging 1.6 Sunday boardings.

Overall, riders under 19 tend to make the smallest number of boardings during the month - about 78. Senior citizens average only 80 boardings per month (followed closely by riders in the 40 to 49 age group, who average 81 boardings).

Riders in the remaining age groups average 87 to 90 boardings during an average month.

The histograms in Figure 17 show the distribution of boardings among weekday Regular-Service riders in each age category. Most riders make two boardings on an average weekday, although those in the 19 to 29 and 50 to 61 age groups are about as likely to make four boardings.

With the exception of the senior citizen age group, from one third to 40% of the weekday Regular-Service riders do not usually board a bus on Saturdays. Among senior citizens, only about 25% do not use the bus on Saturdays.

Senior citizens are more likely to ride the bus on Sundays as well. From 42% to 63% of riders in other age groups do not ride on Sundays. Only about a third of the senior citizens do not ride on Sundays.

There are differences in levels of boarding activity among different ethnic groups too. Table 112 shows that Black riders on weekday Regular-Service lines tend to board more buses during a typical month than do riders in any other ethnic group. Black riders make 91 boardings a month, Latinos make about 86 and Whites and Asians make only about 80.

Figure 18 shows that White weekday Regular-Service riders are least likely to use the bus on weekends. About 44% of the White riders do not board a bus on Saturdays and over 51% do not board on Sundays.

Table 113 shows that boardings tend to decline as annual household income increases. Among riders with household incomes below $15,000, the average number of monthly boardings ranges from 89 to 93. Among riders with incomes between $15,000 and $20,000 the average number of boardings is 86 per month and among riders whose income ranges between $20,000 and $24,999 the average number of boardings is about 80. Among those with incomes above $25,000, the average number of boardings is only 72 per month.

Figure 19 shows boarding distributions by annual household income. On weekdays, the proportion of riders boarding two buses a day increases as income increases. Among low income riders 37% make just two boardings a day. Among high-income riders 47% make two boardings. The proportion of riders making six or more weekday boardings is seen to decrease as income goes up. Among low-income riders 17% board six or more buses on a typical weekday. Among high-income riders only about 8% board six or more buses.

There is also a relationship between income and bus use on weekends. Only about 16% of the low-income weekday regular

service riders do not use the bus on Saturdays. Among high-income riders, at least 60% do not ride on Saturdays.

Up to 36% of low-income riders do not use the bus on Sundays, among high-income riders, however, up to 75% do not board a bus on Sundays.

TABLE 106

AVERAGE NUMBER OF BOARDINGS PER WEEKDAY REGULAR-SERVICE RIDER BY BUS LINE

Line	Mean Number of Boardings				Number of Respondents
	Weekday	Saturday	Sunday	Per Month	
12	3.1	2.0	1.5	76.9	101
18	2.9	2.0	1.2	75.3	54
29	3.8	2.0	1.7	96.3	121
32	3.4	2.2	1.6	83.3	82
44	3.5	2.1	1.5	88.4	233
47	3.9	2.1	1.7	99.6	84
73	3.6	1.8	.9	84.0	45
81	3.6	1.6	1.2	91.3	179
86	3.2	1.6	1.0	77.9	165
88	3.0	1.5	1.2	77.4	88
89	3.6	2.0	1.6	90.6	222
91	3.0	1.9	1.4	77.9	137
96	3.3	1.5	1.1	84.6	21
114	2.8	1.6	.8	71.3	183
152	2.8	1.5	1.1	71.4	89
155	3.3	.7	.3	75.8	33
156	3.4	1.4	.6	81.0	103
157	3.5	2.0	1.3	87.3	129
160	3.6	1.4	.9	86.0	53
164	3.3	1.4	1.0	79.0	91
165	2.1	1.2	.9	75.7	63
166	2.9	1.3	.9	70.9	63
168	3.1	1.2	.6	72.5	56
169	3.3	1.4	.8	78.8	150
175	2.7	1.6	1.3	71.7	97
210	3.7	1.9	1.3	92.8	197
354	5.9	2.7	1.0	103.0	46
424	3.4	1.4	1.0	79.7	90
425	3.5	1.8	1.1	87.3	182
431	3.3	1.2	.7	77.5	88
435	3.0	1.4	.8	72.5	132
451	3.3	1.0	.6	79.2	45
452	3.1	1.0	.3	76.6	22
453	2.8	.4	.6	67.1	30
454	2.6	.8	.6	64.6	48
484	3.1	1.0	.5	74.1	50
488	2.4	1.1	.7	79.1	115
813	3.0	1.2	.8	72.9	65
821	3.3	.8	.6	73.6	37
822	3.2	1.6	.8	75.9	57
826	3.3	2.0	1.5	87.7	78
831	3.2	.9	.5	74.2	43
840	3.7	1.6	1.0	89.6	93
844	2.5	.9	.6	65.7	128
846	3.0	1.2	.8	73.0	221
861	3.0	1.2	.7	71.0	127
867	3.2	1.8	1.0	82.4	74
869	2.9	1.0	.5	66.7	131
871	4.4	1.5	.9	109.6	163
872	2.8	1.6	1.0	69.9	44
Overall	3.3	1.7	1.3	85.0	4948

TABLE 107
AVERAGE NUMBER OF BOARDINGS PER WEEKDAY REGULAR SERVICE RIDER BY TYPE OF FARE

Type of Fare	Mean Number of Boardings Per Day			Per Month	Number of Respondents
	Weekday	Saturday	Sunday		
Cash, Ticket Transfer	3.1	1.4	.9	76.5	2397
Base Pass	3.8	2.4	1.8	97.8	868
Express Pass	3.0	1.6	.8	73.5	155
Under 19 Pass	3.6	2.0	1.2	89.2	522
College/Vocational Pass	3.8	2.0	1.4	94.9	223
Senior Citizen Pass	3.4	1.9	1.8	86.8	244
Handicapped Pass	4.3	2.0	2.1	107.9	61
Tourist Pass	*	*	*	*	7
Other	*	*	*	*	43
Overall	3.3	1.7	1.3	85.0	4521

*Sample size too small to allow valid statistical comparison.

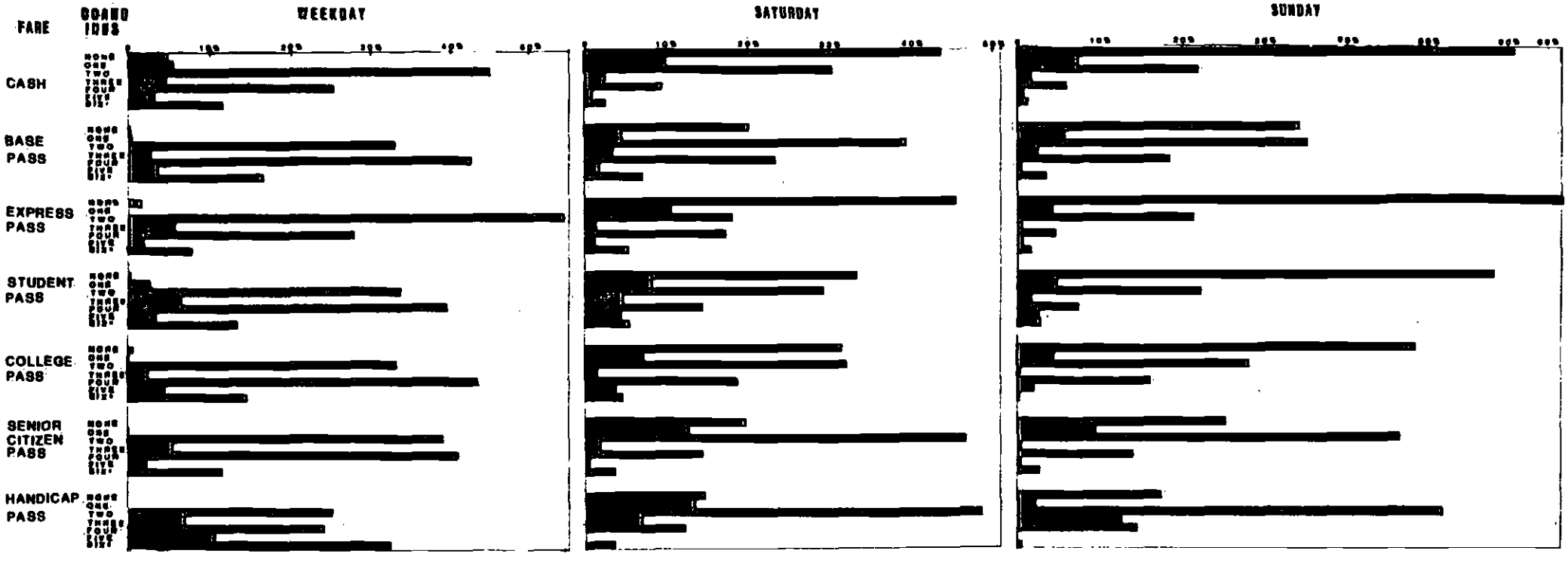


FIGURE 14
BOARDINGS PER DAY
BY TYPE OF FARE

TABLE 108
AVERAGE NUMBER OF BOARDINGS PER WEEKDAY REGULAR-SERVICE RIDER BY TIME PERIOD

Time Period	Mean Number of Boardings Per Weekday	Per Saturday	Per Sunday	Per Month	Number of Respondents
AM PEAK	3.5	1.6	1.0	86.6	905
AM BASE	3.4	1.7	1.3	83.2	918
PM BASE	3.4	1.8	1.3	84.5	1481
PM PEAK	3.3	1.8	1.2	84.1	1408
EVENING	3.5	2.2	1.6	92.5	237
OVERALL	3.3	1.7	1.3	85.0	4949

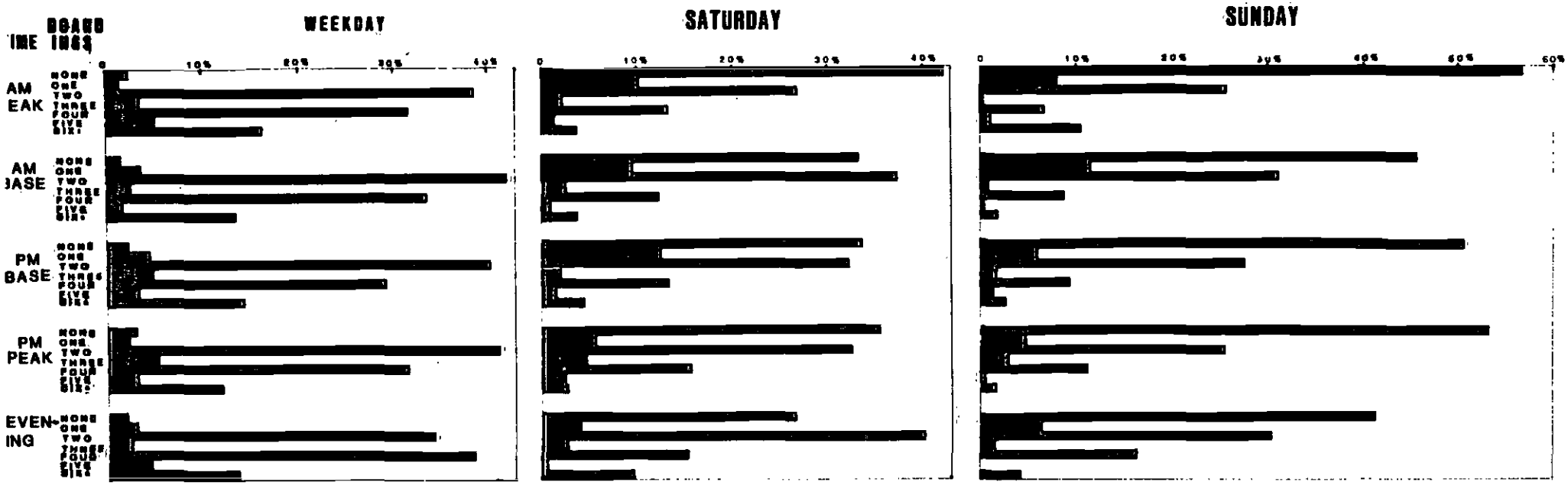


FIGURE 15
BOARDINGS PER DAY
BY TIME OF DAY

TABLE 109
AVERAGE NUMBER OF BOARDINGS PER WEEKDAY REGULAR-SERVICE RIDER
BY RESIDENCE SUB-SECTOR

Sub-Sector	Mean Number of Boardings Per Day: Weekday	Saturday	Sunday	Per Month	Number of Respondents
Downtown Sector	2.6	1.7	1.8	97.5	55
Wilshire Corr	3.1	1.6	1.1	98.7	143
Pico Corr	2.8	2.1	1.5	100.7	93
Echo Park	2.7	1.7	1.3	83.9	49
Los Feliz	2.3	1.3	.9	78.3	55
Hollywood	2.9	1.8	1.3	88.7	133
W. Hollywood	2.5	1.5	1.2	77.9	71
Park La Brea	•	•	•	•	26
Beverly Hills	•	•	•	•	9
Westwood	•	•	•	•	4
Brentwood/Pac Pal	•	•	•	•	5
West L A	•	•	•	•	7
Century City	•	•	•	•	1
Venice	•	•	•	•	15
Santa Monica	•	•	•	•	10
Malibu-Topanga	•	•	•	•	43
Westchester-LAX	•	•	•	•	17
Culver City/Palms	•	•	•	•	11
Inglewood	3.1	1.8	1.5	93.8	92
WLA Sector	2.8	1.6	1.2	88.4	784
Crenshaw Corr	3.1	1.6	.9	92.1	206
Western Ave Corr	2.6	1.4	1.2	95.6	61
Harbor Fwy Corr	2.7	1.4	.8	82.2	128
Central Ave Corr	3.6	2.5	1.5	102.3	81
Compton	2.3	1.1	.4	89.7	163
South Central Sector	3.0	1.6	1.0	91.4	639
Vernon-HP-Bell	2.9	1.6	.9	89.7	68
Lynwood/So.Gate	3.4	1.2	.9	101.7	60
East Central Sector	3.0	1.5	.9	92.0	128
ELA-Boyle Hts	3.3	1.5	.8	98.5	119
Commerce	•	•	•	•	1
Montebello	•	•	•	•	11
ELA Sector	3.3	1.5	.8	97.8	131
Linc Ht/El Sereno	2.4	1.6	1.0	71.9	74
Highland/Glassel	•	•	•	•	42
Glendale/Eagle Rk	•	•	•	•	28
La Canada/La Crant	•	•	•	•	7
Sunland/Tujunga	•	•	•	•	21
Silverlake	•	•	•	•	16
North Central Sector	3.0	1.7	1.2	84.2	188
Sun Valley	•	•	•	•	35
Burbank	•	•	•	•	81
N. Hollywood	2.8	1.1	.7	79.1	146
Van Nuys	2.6	1.3	.9	79.8	200
Sherman Oaks	•	•	•	•	35
Encino	•	•	•	•	39
Tarzana	•	•	•	•	12
Woodland Hills	•	•	•	•	29
Canoga Park	2.6	.8	.7	74.3	86
West SFV	•	•	•	•	6
Pacoima/Sn Fern	2.3	1.2	.8	82.7	126
Granada/Mission	3.0	.9	.4	89.1	55
Northridge	•	•	•	•	36
Chatsworth	•	•	•	•	17
Reseda	•	•	•	•	42
SFV Sector	2.7	1.1	.7	80.9	905
Altadena	•	•	•	•	38
Arcadia/Sra Madre	•	•	•	•	16
Monrovia/Duarte	•	•	•	•	8
Pasadena/S. Pas	2.6	1.2	.5	84.7	123
Azusa/Glendora	•	•	•	•	14
Baldwin Park	•	•	•	•	17
Covina/W. Covina	•	•	•	•	33
El Monte	2.8	.6	.4	67.6	52
La Puente	•	•	•	•	21
Montry Pk/Rosemd	2.0	1.4	.7	77.8	57
San Gab/Templ	•	•	•	•	26
Walnut/Industry	•	•	•	•	3
Alhambra	•	•	•	•	14
Pomona Vly	2.4	.8	.3	74.0	165
SGV Sector	2.5	1.0	.4	76.3	587
Downey	•	•	•	•	22
Whittier	•	•	•	•	38
La Mirada	•	•	•	•	8
Norwalk/Stafespgs	•	•	•	•	18
Pico Rivera	•	•	•	•	21
Artesia/Cerritos	•	•	•	•	23
Bellflwr/Paramt	2.7	1.5	.9	81.5	52
Mid-Cities Sector	3.1	.9	.5	82.4	182
El Segundo	•	•	•	•	24
Gardena	•	•	•	•	35
Hawthorne/Lwndale	1.7	.7	.4	71.0	95
Beach Cities	3.0	.8	.5	85.9	141
Palos Verdes	•	•	•	•	48
Torrance/Lomita	•	•	•	•	36
Sn Pedro/Wlmgtn	•	•	•	•	46
Carson	•	•	•	•	44
South Bay Sector	2.6	1.0	.4	77.7	469
Lakewood	•	•	•	•	6
Long Beach	3.3	1.3	.9	88.7	59
Long Beach Sector	3.0	1.2	.7	78.4	65
Overall	3.3	1.7	1.3	85.0	4133

TABLE 110

AVERAGE NUMBER OF BOARDINGS PER WEEKDAY REGULAR-SERVICE RIDER BY NUMBER OF CARS PER PERSON IN HOUSEHOLD

Number of Cars Per Person	Mean Number of Boardings Per Day			Per Month	Number of Respondents
	Weekday	Saturday	Sunday		
None	3.5	2.1	1.5	93.2	1626
Under .25	3.3	1.7	1.1	81.8	359
.25 + .49	3.2	1.4	.8	77.8	930
.50 + .74	3.2	1.1	.6	76.7	1143
.75 + .99	3.0	1.0	.6	73.5	189
1.00 or more	3.0	.9	.5	74.0	432
Overall	3.3	1.7	1.3	85.0	4679

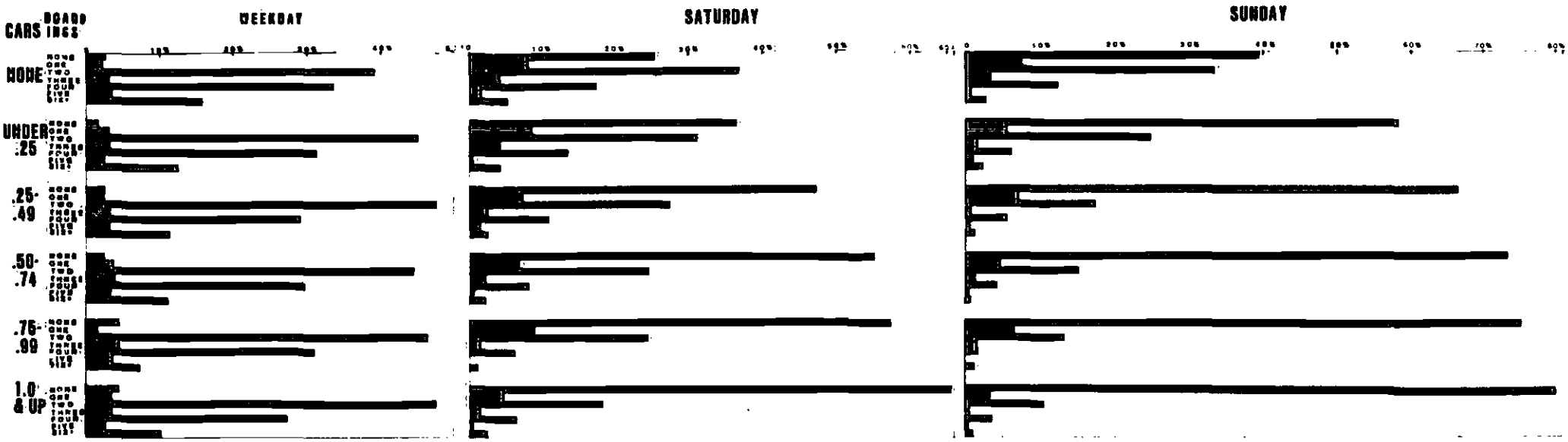


FIGURE 16
BOARDINGS PER DAY
BY NUMBER OF CARS PER PERSON IN HOUSEHOLD

TABLE 111

AVERAGE NUMBER OF BOARDINGS PER WEEKDAY REGULAR-SERVICE RIDER BY AGE GROUP

	Weekday	Saturday	Sunday	Per Month	Number of Respondents
Under 19	3.2	1.6	.9	77.7	1270
19 to 29	3.4	1.9	1.3	88.1	1620
30 to 39	3.5	1.8	1.4	89.9	618
40 to 49	3.3	1.8	1.2	80.9	317
50 to 61	3.5	1.8	1.4	86.8	326
62 or Older	3.2	1.7	1.6	80.0	287
Overall	3.3	1.7	1.3	85.0	4438

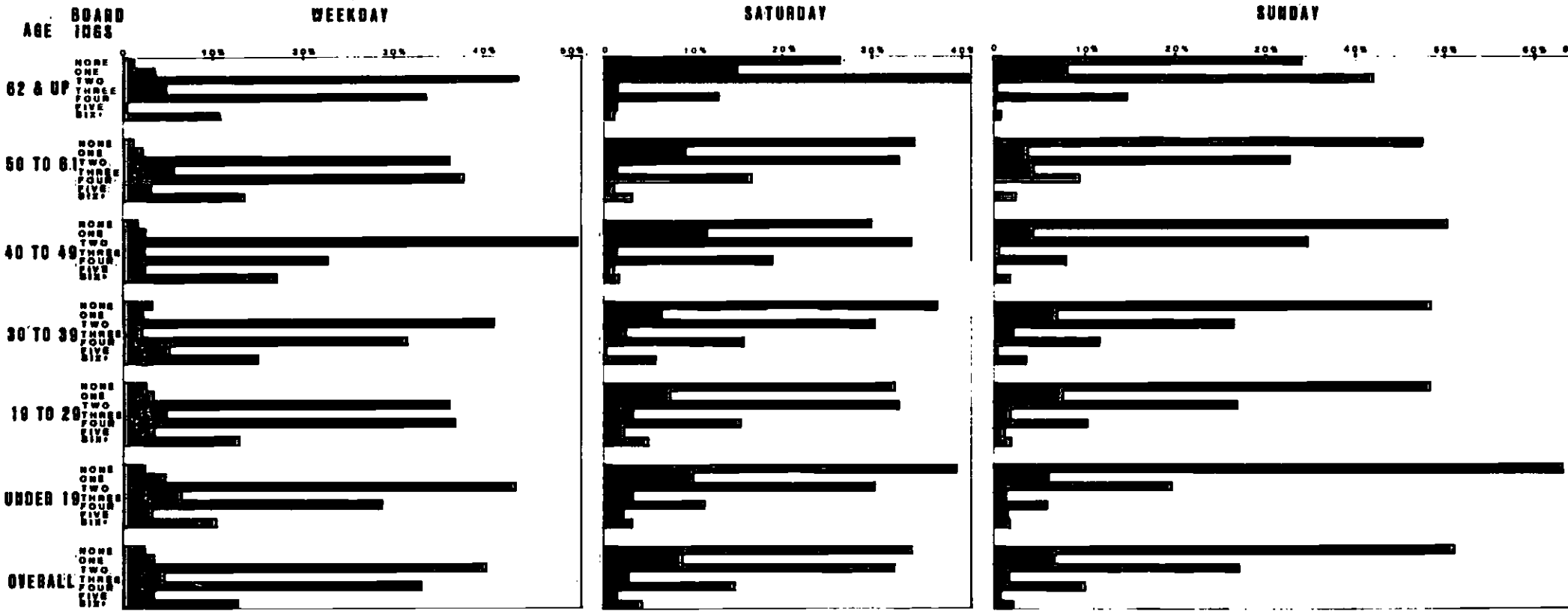


FIGURE 17
BOARDINGS PER DAY
BY AGE GROUP

TABLE 112
AVERAGE NUMBER OF BOARDINGS PER WEEKDAY REGULAR-SERVICE RIDER BY ETHNIC BACKGROUND

	Mean Number of Boardings Per Day				
	Weekday	Saturday	Sunday	Per Month	Number of Respondents
White	3.2	1.5	1.1	79.8	2015
Black	3.6	1.9	1.2	90.7	1221
Latino	3.4	2.1	1.7	86.4	1112
Asian/Pacific Islander	3.3	1.5	1.1	79.8	268
Indian	3.3	2.1	1.4	88.3	66
Other	*	*	*	*	42
Overall	3.3	1.7	1.3	85.0	4724

*Sample size too small to allow valid statistical comparison

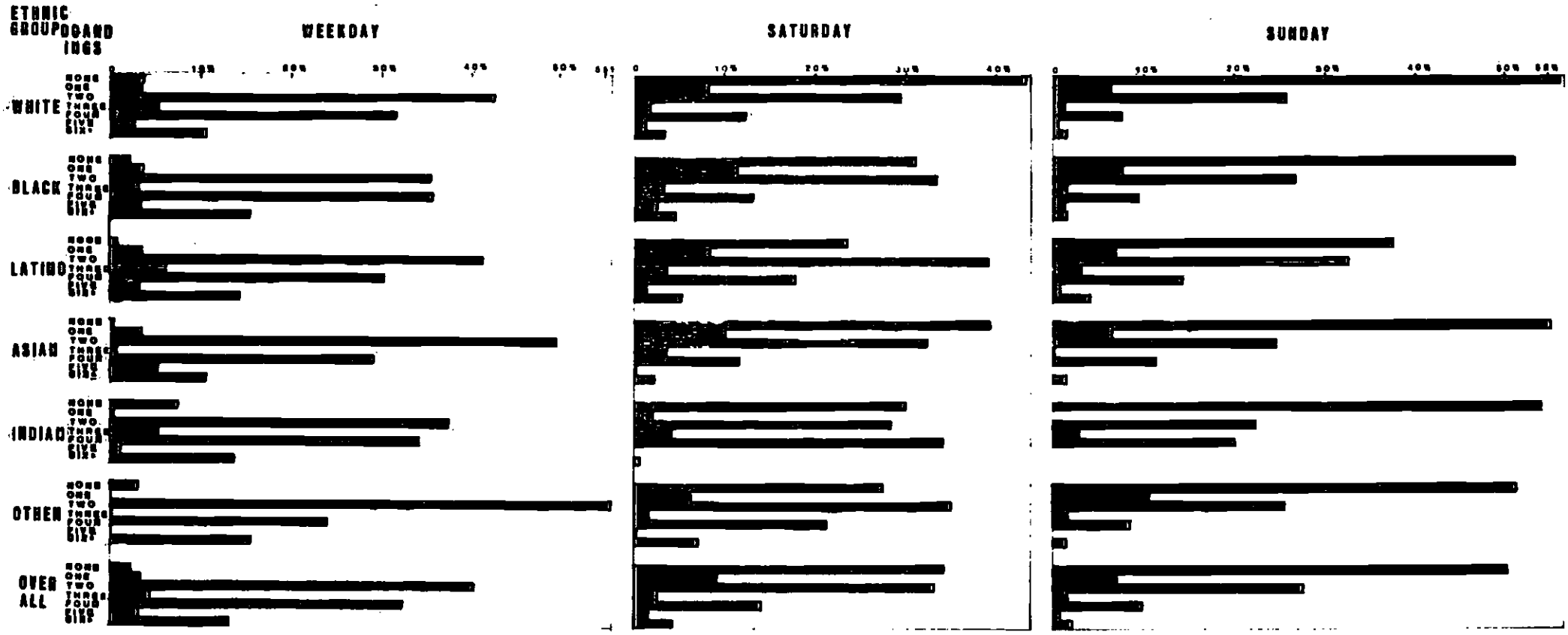


FIGURE 18
BOARDINGS PER DAY
BY ETHNIC GROUP

TABLE 113

AVERAGE NUMBER OF BOARDINGS PER WEEKDAY REGULAR-SERVICE RIDER BY ANNUAL HOUSEHOLD INCOME

	Mean Number of Boardings Per Day				
	Weekday	Saturday	Sunday	Per Month	Number of Respondents
Under $5,000	3.5	2.3	1.7	88.7	753
$5,000-$9,999	3.6	2.2	1.6	92.8	649
$10,000-$14,999	3.5	1.9	1.5	89.2	612
$15,000-$19,999	3.4	1.7	1.1	86.1	426
$20,000-$24,999	3.3	1.1	.6	79.7	361
$25,000 or more	2.9	1.0	.6	72.3	627
Overall	3.3	1.7	1.3	85.0	3428

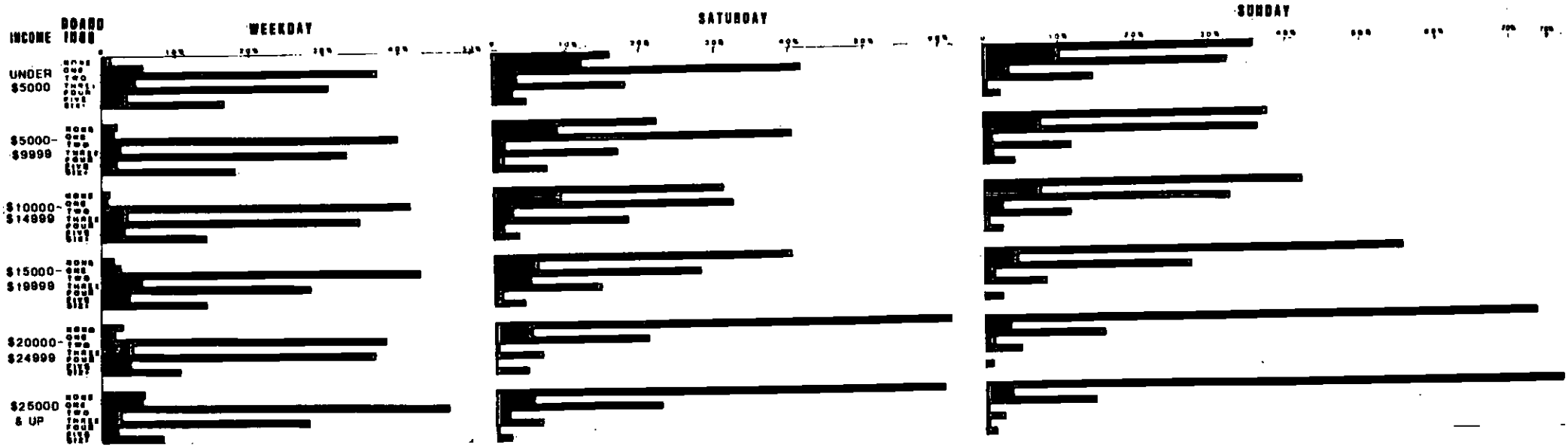


FIGURE 19
BOARDINGS PER DAY
BY ANNUAL HOUSEHOLD INCOME

METHODOLOGY

The 1981 Ridership Tracking Study represents the continuing efforts of the SCRTD to measure the market for public transit in the Los Angeles area. The on-board surveys conducted to collect ridership data for this study are but the latest link in a chain of surveys extending back to 1975, when a professional Market Research Unit was first installed at RTD. Early on, it was ascertained that a comprehensive program of ridership surveying was needed to collect data on the demographic and trip-making characteristics of RTD patrons and on their attitudes and opinions regarding pertinent transit issues. The short-term need for these types of data was to provide insights into the effects of changes in service levels or fares. Over the long term, the data obtained from these on-board surveys contributed to the SCRTD Ridership Data Base, allowing the longitudinal study of changes in the demographic composition of ridership, in trip needs or in attitudes and opinions.

One of the first steps in developing an on-board survey methodology at RTD was to analyze survey activity at the agency prior to 1975. In previous years a limited number of small-scale on-board surveys had been conducted to collect data to support implementation of service changes. Reports on these surveys and samples of the questionnaires used were gathered together by Market Research for analysis. Examination of these pre-1975 surveys led to three main conclusions:

1) Whenever faced with the need for data relating to a particular project, the project managers tended to design a questionnaire "from scratch", so that a wide variety of questionnaires were used -- practically a different questionnaire for each project.

2) This "re-inventing" of the survey instrument for each project resulted in distinct questionnaires with only a few similarities, and these probably more coincidence than the result of coordination. The similarities in the different questionnaires centered around questions relating to a small group of variables which were repeated on nearly every questionnaire -- albeit in different form. These "core variables" which appeared on most, if not all, the on-board surveys before 1975 included:

Rider Age	Trip Origin
Rider Gender	Trip Destination
Household Income	Boarding Point
Number of Cars in Household	Alighting Point
Bus Use Frequency	Mode of Access
Trip Purpose	Mode of Egress
Type of Fare	

Although most of the questionnaires designed before 1975 sought information pertaining to many of these core variables, the questions were posed in different language on each questionnaire, and multiple-choice answers to these questions were categorized into different intervals. The effects of such inconsistent and arbitrary questionnaire design were to nullify any attempts at long-term analysis of ridership trends.

3) There was an obvious lack of training and professional experience in the fields of sampling, questionnaire design, development and implementation of survey methodology and the analysis of survey results. These tasks would normally lie outside the range of duties performed by the employees who conducted on-board surveys prior to 1975, just as their duties might be foreign to a schedule maker or a marketer.

As a result of its analysis of previous survey work conducted at RTD, and after a series of meetings with personnel of the Planning and Marketing Departments, Market Researach designed a stanardized on-board questionnaire. This questionnaire includes the "core variables" already identified as being almost universally required by either department, plus other important variables. To say that the questionnaire was standardized does not imply that it was cast in concrete. Rather, it is a flexible instrument to which other questions can be added when they are necessary to the needs of a particular research project. The standardization of the questionnaire does indicate, however, that whenever an on-board survey is conducted at this agency, information about the important core variables will be collected and that the answer categories relating to these variables will not change arbitrarily from one survey to the next. This level of standardization allows information pertinent to the study at hand to be gathered, while at the same time providing data on core variables that are comparable over time.

A large-scale on-board survey such as the 1981 Ridership Tracking Study is a relatively complex undertaking. the flow chart designated as Figure 20 indicates the large number of tasks which must be completed in the research process. It is not a strictly linear process. The successful administration of such a complex project often requires that work be conducted on seveal tasks simultaneously. An explanation of the major tasks in the on-board surveying process should be illustrative of its complexities.

Define Purpose of Survey

Before embarking on a research project, the researcher must have clearly in mind the specific objectives to be achieved. Only when the problem is carefully and precisely defined can research be designed to provide pertinent information. Each project should have one or more objectives, and the researcher should not proceed to the other steps in the process until these objectives can be explicitly stated. The objectives of the 1981 Ridership Tracking Study numbered five:

1) To compare demographic characteristics and trip needs of RTD riders by type of service -- Peak-Hour Express, Subscription, and Regular-Service lines.

2) To obtain measurements of change in the demographic profile and trip needs of RTD riders since the previous major on-board survey in 1978.

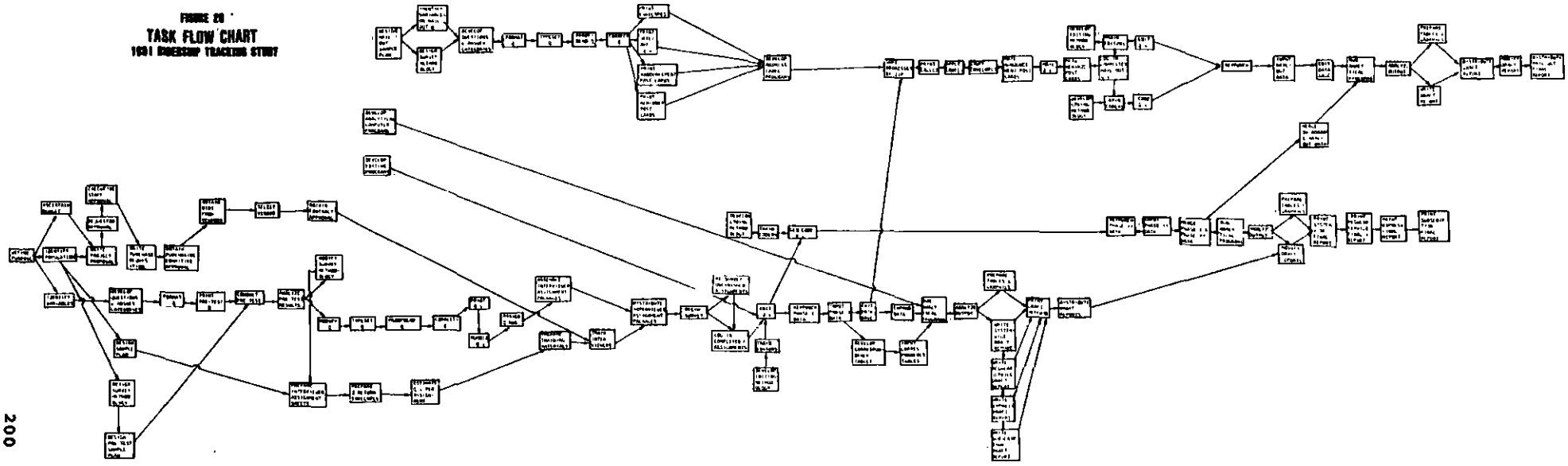
3) To measure rider attitude and opinions concerning proposed levels of increased fares and discount fare levels available to students and senior citizens.

4) To provide base data against which to measure the effects of subsequent fare changes. A mail-out survey to respondent households six months after the 1981 fare increase was designed to measure the effects of that increase.

FIGURE 20

TASK FLOW CHART

1991 RIDESHARE TRACKING STUDY



5) To maintain a base of comparable data so that long-term trends in ridership characteristics and trip needs can be tracked longitudinally.

Identify Population To Be Surveyed

The population to be surveyed for the 1981 Ridership Tracking Study consisted of weekday riders on RTD Regular-Service lines, Peak-Hour Express lines and Subscription lines. Patrons of Park and Ride lines would not be surveyed because a survey had been conducted on these lines as recently as 1980. BEEP lines and special service lines such as the race track or Hollywood Bowl lines were not to be included in the population to be surveyed.

Ascertain Budget

The budget for the 1981 Ridership Tracking Study was set at around $11,000, excluding RTD staff time and in-house expenses. The major expense was the data collection phase of the survey. Interviewers logged nearly 1,000 hours on board RTD buses distributing and collecting questionnaires. At the time of the survey, in May, 1981, the cost of interviewers was $7 per hour, including supervision charges. Total labor cost for interviewers was $6,608. Table 114 shows questionnaire distribution costs by line. Costs per respondent varied from a low of 46¢ to a high of $2.23. The mean cost per respondent was 94¢, the median cost 91¢.

Table 115 looks at the distribution of interviewer labor costs per respondent. The table shows that on 54% of the Regular-Service lines surveyed labor costs were under $1.00 per respondent. Ninety-two percent of the time, labor costs were under $1.50 per respondent.

Additional costs were incurred for interviewer mileage and travel time to and from the point where they boarded the bus to begin their assignments. These costs were $1,456.86, or an additional 21¢ per respondent, on average. These costs could not be allocated by bus line. Total cost for data collection on fifty weekday Regular-Service bus lines, then was $8,064.86.

Questionnaire distribution and collection on the Regular-Service lines was carried out by interviewers employed by the market research firm of Integrity Research. Distribution and collection of questionnaires on Peak-Hour Express lines and on Subscription lines was handled by the RTD drivers. There was no additional expense for data collection on these lines, therefore.

TABLE 114
QUESTIONNAIRE DISTRIBUTION COST

Line	Hours	Mins.	Labor at $7/Hr. $	Number of Questionnaires Distributed	Number of Respondents	Response Rate	Labor Cost Per Boarding $	Labor Cost Per Respondent* $
12	49	8	343.93	479	154	32.2%	.72	2.23
18	10	35	74.08	120	101	84.2	.62	.73
29	44	26	311.03	678	181	26.7	.46	1.72
32	9	54	69.30	240	133	55.4	.29	.52
44	40	54	286.30	817	338	41.4	.35	.85
47	22	54	160.30	310	116	37.4	.52	1.38
73	11	26	80.03	103	78	75.7	.78	1.03
81	20	28	143.27	323	220	68.1	.44	.65
86	21	46	152.37	431	200	46.4	.35	.76
88	12	23	86.68	358	118	33.0	.24	.73
89	21	18	149.10	596	322	54.0	.25	.46
91	41	50	292.83	322	183	56.8	.91	1.60
96	5	23	37.68	52	27	51.9	.72	1.40
114	20	46	145.37	394	285	72.3	.37	.51
152	21	07	147.82	298	133	44.6	.50	1.11
156	20	34	143.97	171	151	88.3	.84	.95
157	21	40	151.67	320	173	54.1	.47	.88
155/160	21	41	151.78	254	107	42.1	.60	1.42
164/165	22	00	154.00	367	218	59.4	.42	.71
166/168	22	59	160.88	293	172	58.7	.55	.94
169	20	51	145.95	318	233	73.3	.46	.63
175	20	16	141.87	153	120	78.4	.93	1.18
210	45	00	315.00	540	238	44.1	.58	1.32
354	9	12	64.40	92	68	73.9	.70	.95
424	22	04	154.47	231	110	47.6	.67	1.40
425	21	12	148.40	500	276	55.2	.30	.54
431	21	00	147.00	264	142	53.8	.56	1.04
435	19	58	139.77	341	237	69.5	.41	.59
451/453	20	41	144.78	208	126	60.6	.70	1.15
452/454	21	06	147.70	172	114	66.3	.86	1.30
484	8	49	61.72	255	78	30.6	.24	.79
488	21	23	149.68	288	171	59.4	.52	.88
813	21	43	152.02	87	75	86.2	1.75	2.03
822	9	57	69.65	91	80	87.9	.77	.87
826	20	20	142.33	181	97	53.6	.79	1.47
821/831	20	49	145.72	226	133	58.8	.64	1.10
840	10	54	76.30	226	137	60.6	.34	.56
844	20	08	140.93	276	195	70.7	.51	.72
846	23	48	166.60	352	259	73.6	.47	.64
861	21	19	149.22	246	169	68.7	.61	.88
867	21	56	153.53	188	118	62.8	.82	1.30
869	22	57	160.65	292	190	65.1	.55	.85
871	23	42	165.90	436	219	50.2	.38	.76
872	11	51	82.95	112	69	61.6	.74	1.20
TOTAL	943	56	$6,608.00	13,001	7,064	54.3%	.51	.94

* Mileage and miscellaneous charges were $1,456.86, or an additional 21 cents per respondent.

TABLE 115
DISTRIBUTION OF INTERVIEWER LABOR COST PER RESPONDENT

Interviewer Labor Cost Per Respondent	Number of Lines	Percent of Lines	Cumulative Percent
Less than 50¢	1	2.0%	2.0%
50¢ - 59¢	5	10.0	12.0
60¢ - 69¢	3	6.0	18.0
70¢ - 79¢	8	16.0	34.0
80¢ - 89¢	6	12.0	46.0
90¢ - 99¢	4	8.0	54.0
$1.00 - $1.09	2	4.0	58.0
$1.10 - $1.19	6	12.0	70.0
$1.20 - $1.29	1	2.0	72.0
$1.30 - $1.39	5	10.0	82.0
$1.40 - $1.49	5	10.0	92.0
$1.50 - $1.59	0	-	92.0
$1.60 - $1.69	1	2.0	94.0
$1.70 - $1.79	1	2.0	96.0
$1.80 - $1.89	0	-	96.0
$1.90 - $1.99	0	-	96.0
$2.00 - $2.09	1	2.0	98.0
$2.10 - $2.19	0	-	98.0
$2.20 - $2.29	1	2.0	100.0%
Total	50	100.0%	

Another important budget item to be considered is the cost of questionnaire editing and coding, operations which must be completed before the data reduction phase of the study can begin. Temporary as-needed personnel were hired to code and edit questionnaires and provide assistance with other tasks. The cost of these temporary data technicians in FY82 was $8.32 per hour. In spite of the enormity of the coding and editing tasks with which Market Research was faced, the Personnel Department would allow the hiring of only one full time and one part-time data technician. This unnecessary restriction on personnel availability lengthened the amount of time needed to perform the coding and editing to well over a year (and actually prevented the full completion of geo-coding on Peak-Hour Express and Subscription Lines). Due to the fact that the temporary data technicians were also required to work on other tasks and projects during the time they were at the District, it is difficult to ascertain precisely the amount of time actually spent on coding and editing questionnaires collected on weekday Regular-Service lines.

Data reduction of the questionnaires collected on Regular-Service lines was conducted by RTD's own keypunch department. This in-house service was not included in the project budget.

Write Project Proposal

Before Market Research can proceed on any project, the researcher must write a brief Project Proposal. This proposal contains a section which explains the Problem and Background and a section describing the Method and Project Design to be used to approach that problem. The researcher also estimates the project Costs and Timing. Figure 21 shows the original Project Proposal for the 1981 Ridership Tracking Study. This project Proposal had to be approved by the requesting department, Scheduling, as well as by the Manager of Planning and Marketing before the project design could be begun.

Write Purchase Requisition

The next step in the project approval process was to write a Purchase Requisition, to be submitted to Purchasing. The study of weekday ridership was being paid out of the requesting department's budget. Costs of data collection were to be under $8,000, as shown in Figure 22.

FIGURE 21

MARKET RESEARCH PROJECT PROPOSAL APPROVAL

Requested by : Ed Vandeventer Date : Jan. 22, 1981

Title : 1981 Fare Change Evaluation

Problem & Background That RTD's fare structure will be adjusted in July is a foregone conclusion. If Proposition A survives court challenges the base fare will be slashed to 50¢, a considerable 15¢ cut. If Prop A does not prevail, the base fare might be increased to as much as 85¢. No matter what the direction and magnitude of fare adjustment, however, data will be needed for an evaluation of its effects in five categories: 1) Number of boardings 2) Fare distribution 3) Fare elasticities 4) Trip patterns 5) Rider attitudes. Both Service Analysis and Market Research will contribute to the data pool needed for the evaluation.

Method & Design The tasks to be done by Market Research center around a "tracking study" of rider attitudes, demographics and trip patterns before and after the fare adjustment. The first phase of the study would be a series of on-board surveys to establish benchmark data for weekday, Saturday and Sunday ridership before the adjustment. The attached draft questionnaire includes the core group of major demographic and trip variables contained on the standard on-board questionnaire plus attitudinal variables. Representative samples of bus lines, stratified by type of service, area served and day, will be surveyed.
The second phase would require a post-fare-change follow-up study of the riders who responded to the first phase on-board survey. Follow-up would be effected by a survey mailed to these riders at the home addresses noted on the on-board questionnaires.

Costs & Timing

On-board survey of weekend service will be conducted in March as authorized under Phase 2 of weekend service evaluation. Weekday on-board surveys to be conducted in May. Follow-up mail-out surveys to be conducted in September. Project costs $19,390, excluding RTD staff time and in-house expenses. (See attached breakdown of cost estimates).

Comments. Planning and Scheduling to share costs of the project.
In addition to serving as an evaluation of the effects of the fare change, this study will provide current system-wide ridership data to illustrate changes that have occurred in transit market since 1978, when the last major series of system-wide surveys was completed. To ensure that follow-up survey will be sent to same respondents who completed on-board questionnaires, we need to collect their names and addresses. Suggest motivation such as drawing for free bus passes be used to stimulate on-board survey response and collection of names.

Approved by: _____
G. L. McDonald

_____
Ed Vandeventer

_____

Return to: J. Matosian, Market Research

37-1
10/77 FIGURE 22

PURCHASE REQUISITION

SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

SCRTD

Office: 361 E. 55th St.
L. A. Calif. 90011
(213) 972-6150

Invoice Address:
P. O. Box 2296
Terminal Annex
L. A. Calif. 90051

P. O. No. _____

Reqn. NO. 1-4300-

ACCOUNT NO.	A.F.E. NO.	WORK ORDER	RESOLUTION NO.	DATE
50304				April 21, 198

Supplier

Please ship to:
375 East 55th St.
L.A. Calif. 90011

XXX
SCRTD
Market Research
425 South Main
Los Angeles, Ca 9001

UNIT NO.	EQUIP TYPE	TERMS	F.O.B.	DELIVERY SCHEDULE

DATE REC'D	QUANTITY	PART NO., CODE AND/OR DESCRIPTION ORDER ONLY ONE CLASS OF MATERIAL ON A REQUISITION	PRICE	PER	EXTENS
		Survey of transit ridership to determine the			
		Effects of the 1981 Fare Increase.			
		Require the services of market research			
		surveyors to distribute and collect on-board			
		questionnaires and keep trip records.			
		NOT TO EXCEED $8,000.			

REMARKS _____

APPROVAL OF DEPARTMENT HEAD Ted Woodhull ORIGINATOR _____

RECEIVED BY _____

BUYER _____ DATE _____

APPROVED BY _____
E. R. Stanley-Director of Purchasing & Stores

SUB TOTAL $ _____
TAX $ _____
DELIVERY $ _____
TOTAL $ _____

APPROVAL REQUIRED Under Paragraph 8 District Regulations	DATE	CHECK IF APPROVAL
General Counsel		
General Manager		
Board Approval		
Staff Purchasing Committee		

SEND SEVEN (7) COPIES DIRECT TO PURCHASING DEPARTMENT
APPROVALS WILL BE OBTAINED AFTER PRICING

Obtain Purchasing Committee Approval

After the head of the requesting department approved the Purchase Requisition, Market Research had to write a Purchase Request Memorandum to the chairman of the Purchasing Committee, as shown in Figure 23, and request a date to appear before that committee. This committee is composed of representatives of the following RTD departments: General Counsel, EEO, Safety, Bus Facilities Engineering, Operations, Accounting and Purchasing. The Purchasing Committee evaluates the adequacy of justification for the project or purchase, reviews the technical aspects of the requested project or purchase and ensures that the project or purchase meets the District's legal and safety requirements. At the April 29, 1981 meeting of the committee, the 1981 Ridership Tracking Study was recommended for approval. Following the approval by the committee, the Project Requisition was approved by the General Counsel and the General Manager.

Obtain Bids From Vendors

Because of the necessity to collect on-board survey data before the end of May, an informal bidding procedure was approved. Five potential vendors were slated for telephone contact by the researcher, as shown in Figure 24. These vendors were contacted. Two of them submitted bids for the data collection phase of the project.

Select Vendor

After the bids were obtained, they were evaluated by Market Research. The vendor selected to collect weekday data on Regular-Service lines was Integrity Research, the low bidder.

Contract Approval

The final preparatory administrative step to be completed before the survey work got under way was for the Legal Department to write up a formal contract with the vendor, based on information supplied by Market Research. After the contract was signed, the survey could begin. A copy of the contract appears as Figure 25.

Identify Variables

Another primary step in the on-board survey process is to develop a questionnaire that will extract from the population being surveyed the data necessary to meet the project objectives. As discussed above, RTD on-board surveys since 1975 have included a set of "core variables" which meet the basic informational needs of the Planning and

RTD 17-11
REV. 3/65

FIGURE 23
DEPARTMENTAL

SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

425 SOUTH MAIN STREET
LOS ANGELES

DO NOT INCLUDE MORE THAN ONE SUBJECT IN THIS COMMUNICATION

DATE: April 21, 1981

TO: Maynard Walters

FROM Jackie Matosian

SUBJECT: Purchase Request: 1981 Fare Change Evaluation

When RTD increased bus fares in 1978, Market Research conducted a series of on-board surveys on a representative sample of 40 bus lines. The purpose of these surveys was to measure the impact of the fare increase on various groups of riders, such as the elderly, students and the poor. The surveys provided extensive data describing the demographics of RTD riders, their transit use patterns and their attitudes concerning RTD and its service.

The 1978 on-board surveys were the first major comprehensive attempt to provide important benchmark data about weekday ridership. After three years, however, the data are not relevant to 1981 ridership patterns. Market Research has again been requested to evaluate the effects of the fare change scheduled for July 1, 1981. It is imperative, therefore, that fresh ridership data be collected in three main areas of interest:

1) Elasticity of ridership demand by market segment,
2) Recovery rates for various market segments after the fare change. How soon do lost riders return? Are some riders lost forever? How many riders diminish riding levels, permanently or temporarily? At what rate does RTD gain new riders?
3) Linked trip descriptions by market segment for weekdays and weekends. How many buses are ridden per trip? How many transit trips per day are made? Can a model of the pass buying decision be made?

The first phase of the fare change evaluation will require on-board surveys to be conducted on 50 RTD bus lines in weekday service, in order to establish current market descriptions, trip

FIGURE 23 Cont'd

patterns and attitudinal profiles. This information, collected before the fare change, will provide the basis for the later evaluation of changes which occur as a result of the change in fares.

In order to collect the data, surveyors will be needed to ride one randomly-selected bus run on each of the 50 lines during mid-May. Surveyors will be required to distribute questionnaires to every boarding passenger, collect completed questionnaires from disembarking passengers and maintain accurate trip records. When passengers refuse to fill out a questionnaire, surveyors will be required to note on the questionnaire that passenger's gender, ethnic background and boarding point.

It is estimated that about 800 manhours of surveyor services will be required. The cost is expected to be below $8,000.

This information must be collected before the end of May. As a result, the time frame is rather short. We are requesting that an informal bidding process be used, both because of the time constraints and because the task is a straightforward, uncomplicated one. A list of proposed vendors is attached for your convenience.

Att

FIGURE 24
PROPOSED VENDORS FOR 1981 RIDERSHIP TRACKING STUDY

Vendor	Bid
Garsen Research, Inc. 5711 Rawlings Avenue Woodland Hills, Ca.	This firm no longer does field work, but only focus groups, telephone interviews, etc.
Integrity Research 7219 Canby Avenue Reseda, Ca.	$7 per interviewer hour (including supervision) & 22¢ per mile
Southern California Interviewing Service 17200 Ventura Boulevard Encino, Ca.	Too busy to bid on another project
National Marketing Research of California 347 South Ogden Drive Los Angeles, Ca.	$9 per interviewer hour (including supervision)
Weiser Research Consultants 6219 Van Nuys Boulevard Van Nuys, Ca.	No Answer

FIGURE 25
AGREEMENT

between

INTEGRITY RESEARCH
7219 Canby Avenue, Suite F
Reseda, California 91335

and

SOUTHERN CALIFORNIA RAPID
TRANSIT DISTRICT

TO PROVIDE SERVICES TO EVALUATE
THE JULY 1, 1981 FARE CHANGE

The Southern California Rapid Transit District (District) and Integrity Research (Consultant), the parties to this contract, hereby agree as follows:

1. SCOPE OF WORK

Consultant shall distribute, Monday through Friday, approximately 20,000 District-supplied questionnaires to every boarding passenger on fifty District bus lines. The times and lines will be designated by the Project Manager upon Consultant's commencement of work. Consultant shall collect completed questionnaires from disembarking passengers and maintain accurate trip records. Consultant shall note on each incompletely filled out questionnaire the passenger's gender, ethnic background and boarding point. Consultant shall return the collected questionnaires to the District's Project Manager at mutually agreed upon intervals during the survey period.

2. TIME OF PERFORMANCE

Consultant shall begin the survey on May 18, 1981, and return to District all collected questionnaires by June 12, 1981.

3. DISTRICT PERSONNEL

The District's Project Manager is the Marketing Analyst from the Marketing Department.

4. PAYMENT

District shall pay Consultant an amount not-to-exceed $8,000.00, to be billed at the rate of $7.00 per hour. Consultant shall invoice the District upon project completion detailing the number of hours expended on each bus line.

5. CONSULTANT'S RELATIONSHIP TO DISTRICT

It is expressly understood that Consultant's relationship to District shall be that of an independent contractor.

INTEGRITY RESEARCH

By: Pat Ansel
(Signature)

Pat Ansel
(Type or Print Name)

Co-Owner
(Title)

Date: May 26, 1981

SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

Richard T. Powers
Acting General Manager

APPROVED AS TO FORM:

Suzanne B. Gifford
Acting General Counsel

Date: May 15, 1981

Marketing Departments (and other deparatments and agencies as well, which often require the types of information obtained from on-board surveys).

Because one of the objectives of the 1981 Ridership Tracking Study is to provide base data against which to measure the effects of subsequent fare changes, additional attitudinal variables were included on the questionnaire. These variables were decided upon after a series of discussions with appropriate department managers and executive staff members.

The variables included on the on-board questionnaire in 1981 were:

Demographic Variables:	Rider gender
	Rider Age
	Annual Household Income
	Ethnic Background
	Number of Persons in Household
	Number of Cars in Household
Trip Variables:	Initial Mode of Access to RTD System
	Mode of Access to Survey Bus
	Mode of Egress from Survey Bus
	Linked Trip Bus Lines Ridden
	Trip Origin
	Trip Destination
	Home Address
	Point of Boarding Survey Bus
	Point of Alighting from Survey Bus
	Type of Fare
	Amount of Cash or Ticket Fare
	Frequency of Bus Use
	Average Number of Weekday Boardings
	Average Number of Saturday Boardings
	Average Number of Sunday Boardings
	Trip Purpose
Attitudinal Variables:	Rating of RTD Service
	Reason For Not Using RTD Monthly Pass
	Preference For Service Cuts vs. Fare Increase
	Preferred Senior Citizen Fare Levels
	Preferred High School student Fare Levels

Preferred College Student Fare Levels
Prediction of Riding Levels by Proposed Fares
Opinion of Increased Headways
Opinion of Evening Service Cuts
Opinion of Saturday Service Cuts
Opinion of Sunday Service Cuts
Opinion About General Fare Increases
Preference For Increases in Discount Fares
Opinion About Elimination of Transfers

Develop Question and Answer Categories

As stated above, one of the objectives of on-board surveying at RTD has been to develop a base of data comparable over time so that long-term trends in ridership characteristics and trip needs can be tracked. To this end, questions and answer categories were kept as consistent as possible from survey to survey. This consistency simplifies questionnaire design immeasurably. The striving for consistency does not preclude the possibility of improvement in question design or response categorization. It does prevent arbitrary change for its own sake, however.

There are several conventions which have been followed in the design of the on-board questionnaire used by RTD:

1) All questions and response categories are stated as clearly and concisely as possible, in simple language. The key is simplicity. Because many of the respondents surveyed on RTD buses appear to have some difficulty reading, short words are used instead of long words.

2) Response to questions is made as easy as possible. To answer most questions on the questionnaire the respondent need only to check the appropriate category. Other questions require the respondent to write in a number, such as the number of people in their household or the number of buses they board during an average weekday. The most difficult questions for some respondents may require them to list the buses they ride on their linked trip or to write in their boarding and alighting points and trip origins and destinations.

3) All questionnaires are produced in both English and Spanish because of the large proportion of Spanish-speaking residents living in the SCRTD service area.

4) Response categories are mutually exclusive and encompass all reasonable alternative answers to the question.

Format Questionnaire

When the basic on-board questionnaire was being designed in the mid-1970's, a series of meetings were held with the Planning and Marketing Departments to ascertain their data needs. Out of these meetings grew a relative ranking of questions on the questionnaire in their order of importance to the District. The questions which appear near the beginning of the questionnaire describe the nature of the transit trip being taken by the respondent. These questions include mode of access and egress, boarding and alighting points, trip origin and destination, a listing of all buses ridden to complete a one-way linked trip, frequency of bus use and type of fare used to board the bus. These trip-related variables were deemed as being the most important information to be obtained from riders, for they describe the kinds of trips being served by the bus system.

The on-board questionnaire was divided into two columns in order to accommodate all the variables. The variables in the second column were deemed secondary in importance to the trip-related variables -- they describe the demographic characteristics of the riders and quantify riders' opinions about certain transit-related issues. At the top of the second column were placed the gender and ethnic background questions. These questions were printed here so that the interviewer could indicate the sex and race of those riders who refuse to take a questionnaire. The purpose of collecting data on these two variables by means of interviewer observation was two-fold: 1) to provide a more complete analysis of ridership in terms of these two important questions (the "response rate" was over 90% on these two items), and 2) to provide data against which to check for the effects of non-response bias. To find out, in other words, if riders who refuse to answer a questionnaire differ in some identifiable way from those who do cooperate.

A sample of the questionnaire used for the 1981 Ridership Tracking Study follows, in both the English-language and Spanish versions, in Figure 26.

FIGURE 26

PASSENGER SURVEY

The RTD is surveying passengers on this bus line in order to find out what your transit needs are and how we can best respond to your needs. All replies are completely confidential, so please answer all the questions as accurately as possible. Thank you for your help.

PLEASE ANSWER ALL THE QUESTIONS AND RETURN THIS FORM TO THE RTD REPRESENTATIVE

№ 073692 (1-8)

1. How did you get to the first RTD bus you boarded today?

   Drove ☐ 9-1 | Was Driven ☐ 9-3
   Walked ☐ -2 | Other ☐ -4 ______ (PLEASE SPECIFY)

   How did you get to this bus?

   Drove ☐ | Was Driven ☐
   Walked ☐ | Other ☐
   Rode bus line number ______ (SPECIFY) ☐ | ______ (PLEASE SPECIFY)

QUESTIONS 2 AND 3 DEAL WITH YOUR RIDE ON THE BUS YOU ARE ON NOW.

2. Where did you get on this bus? (Indicate nearest cross-street)

   ______ (Major Street) and ______ (Nearest Cross-Street) (10-16)

3. Where will you get off this bus? (Indicate nearest cross-street)

   ______ (Major Street) and ______ (Nearest Cross-Street) (17-23)

4. After you get off this bus, you will:

   Drive ☐ | Be Driven ☐
   Walk ☐ -2 | Other ☐ -4
   Transfer to bus line number ______ (SPECIFY) -3 | ______ (PLEASE SPECIFY)

QUESTIONS 5, 6 AND 7 DEAL WITH YOUR ENTIRE TRIP, NOT JUST THE RIDE ON THIS BUS. THESE QUESTIONS DEFINE YOUR ONE-WAY TRIP FROM START TO FINISH.

5. Where did you start this trip? (26-32)

   ______ (Major Street) and ______ (Nearest Cross-Street)

6. Where are you going on this trip? (33-37)

   ______ (Major Street) and ______ (Nearest Cross-Street)

7. Please write the numbers of all the bus lines you must ride to take this trip from start to finish. (Include the bus you are on now.)

First Bus	Second Bus	Third Bus	Fourth Bus	Fifth Bus
(38-40)	(41-43)	(44-46)	(47-49)	(50-52)

8. How many days a week do you usually ride the bus?

   Seven ☐ 53-1 | Three ☐ 53-5
   Six ☐ -2 | Two ☐ -6
   Five ☐ -3 | One ☐ -7
   Four ☐ -4 | Less Than One ☐ -8

9. What type of fare did you use to get on this bus? (60-61)

   Cash Fare of ______¢ (SPECIFY AMOUNT) (54-56) ☐ -1
   Ticket Fare of ______¢ (SPECIFY AMOUNT) (57-59) ☐ -2
   Used a Transfer ☐ -3
   $6 Senior Citizen Pass ☐ -4
   $6 Handicapped Pass ☐ -5
   $16 Student Pass ☐ -6
   $20 Student Pass ☐ -7
   $26 Regular Monthly Pass ☐ -8
   $______ Monthly Express Pass ☐ -9
   (62-63)
   $______ Tourist Pass ☐ -10
   (64-65)
   Other ______ (PLEASE SPECIFY) ☐ -11

10. What is the purpose of this trip? Are you going to or from:

   Work ☐ | Visiting ☐
   School ☐ -2 | Recreation ☐ -6
   Shopping or Errands ☐ -3 | Church ☐ -7
   Doctor or Dentist ☐ -4 | Other ______ (PLEASE SPECIFY) ☐ -8

11. What is your impression of RTD service?

   Very favorable ☐ | Somewhat unfavorable ☐
   Somewhat favorable ☐ -2 | Very unfavorable ☐ -4

12. What is your home address?

   Number | Street | Apartment Number | City | Zip Code

13. You are: Male ☐ | Female ☐

14. To which ethnic group do you belong?

   White ☐ | Asian or Pacific Islander ☐
   Black or Negro ☐ | American Indian ☐
   Latino or Hispanic ☐ | Other ______ ☐

15. What is your age? ______ (PLEASE SPECIFY)

16. How many automobiles in running condition are there in your household? ______

17. What is the total number of persons living in your household? (Count yourself.) ______ (PLEASE SPECIFY)

18. What is the total annual income of your household?

   Under $5,000 ☐ | $15,000 to $19,999 ☐
   $5,000 to $9,999 ☐ | $20,000 to $24,999 ☐
   $10,000 to $14,999 ☐ | $25,000 and over ☐

19. Which is more important to you?

   Keeping bus service as it is now ☐
   Keeping fares as they are now ☐

20. What do you think RTD should do to raise money for increased costs?

   Increase the time between buses ☐
   Decrease service after 6 PM during the week ☐
   Decrease Saturday service ☐
   Decrease Sunday service ☐
   Increase all bus fares ☐
   Eliminate transfers ☐
   Charge full fare for college students ☐
   Charge full fare for high school students ☐
   Charge senior citizens a higher fare ☐
   Charge higher fares on Park 'n' Ride lines ☐

21. How much of a discount on bus fares do you think RTD should give to each of these groups?

Senior Citizens	High School Students	College Students
None ☐	None ☐	None ☐
10% ☐	10% ☐	10% ☐
25% ☐	25% ☐	25% ☐
50% ☐	50% ☐	50% ☐
75% ☐	75% ☐	75% ☐
100% ☐	100% ☐	100% ☐

22. The basic bus fare is now 65¢. What do you think you would do if fares changed to each of the following prices?

	60¢	70¢	75¢	80¢
I'd stop riding	☐	☐	☐	☐
I'd ride less	☐	☐	☐	☐
I'd ride about as often as I do now	☐	☐	☐	☐
I'd ride more	☐	☐	☐	☐

QUESTIONS 23, 24 AND 25 DEAL WITH THE TOTAL NUMBER OF TIMES YOU BOARD ANY RTD BUS DURING AN AVERAGE DAY. ADD UP ALL THE TIMES YOU USUALLY GET ON A BUS ON A TYPICAL DAY AND WRITE THE TOTAL IN THE SPACE PROVIDED. FOR EXAMPLE, IF YOU RIDE TWO BUSES TO WORK AND TWO BUSES HOME FROM WORK, THE TOTAL WOULD BE FOUR.

23. How many times do you board an RTD bus on an average weekday? ______ (70-71)

24. How many times do you board an RTD bus on an average Saturday? ______ (72-73)

25. How many times do you board an RTD bus on an average Sunday? ______ (74-75)

IF YOU USED CASH FARE, TICKETS OR A TRANSFER TO BOARD THE BUS, PLEASE ANSWER QUESTION 26.

26. Why didn't you use an RTD pass to board the bus?

   I don't ride the bus often enough to make a pass worthwhile ☐
   I can't afford the price of a pass ☐
   I don't know where to buy a pass ☐
   There is no convenient place for me to buy a bus pass ☐
   I am afraid I would lose a pass or it would be stolen from me ☐
   Other ______ ☐

CUESTIONARIO PARA PASAJEROS

La RTD está conduciendo unos estudios abordo de este autobús, para determinar lo que sus clientes más precisan al viajar y lo que debemos hacer para cumplir con sus deseos. Ya que las respuestas se considerarán confidencialmente, le rogamos que llene el cuestionario detalladamente si es posible. Le agradecemos su ayuda.

(1-6)

1. ¿Como llegó al primer autobus que abordo hoy?

Condujo un auto	☐	7-1	*Me Trajeron por Auto*	☐	7-3
Caminando	☐	-2	*Otro Medio*	☐	-4

(que favor especificar)

¿Como llegó a este autobus?

Condujo un auto	☐	8-1	*Me Trajeron por Auto*	☐	8-3
Caminando	☐	-2	*Otro Medio*	☐	-4

*Transfiriendo de otra linea, nombre*_____-5 _____

(que favor especificar)

LAS PREGUNTAS NUMERO 2 Y 3 SE RELACIONAN CON EL AUTOBUS EN QUE Ud. VIAJA AHORA

2. ¿Donde abordó este autobús en particular? (indique la intersección más cercana)

_____ y _____ (10-16)

(calle o carretera mayor) (calle mas cercana que la cruza)

3. ¿Donde se bajará de este autobús? (indique la intersección mas cercana)

_____ y _____ (17-23)

(calle o carretera mayor) (calle más cercana que la cruza)

4. *Al apearse de este autobús, Ud:*

Conducirá auto	☐	24-1	*Le llevarán por auto*	☐	24-3
Caminará	☐	-2	*Otro Medio*	☐	-4

*Usará transbordo a otra linea*_____ -5 _____

(especificar) (que favor especificar)

PREGUNTAS 5, 6 Y 7 SE RELACIONAN CON EL VIAJE ENTERO, NO SOLO LA PARTE ABORDO ESTE AUTOBUS EN PARTICULAR. ESTAS PREGUNTAS DETALLAN SU VIAJE DE PRINCIPIO A FIN.

5. ¿Donde inició este viaje? (¿Cual es la esquina más cercana a donde comenzó su viaje?) (25-31)

_____ y _____

(calle o carretera mayor) (calle mas cercana que la cruza)

6. ¿A donde se dirije (¿Cual es la esquina más cercana a donde finaliza su viaje?) (32-38)

_____ y _____

(calle o carretera mayor) (calle mas cercana que la cruza)

7. Por favor, escriba el numero de las lineas que precisa usar para hacer el viaje de principio a fin (inclusive el autobus en que esta ahora).

Primer Autobús (39-40)	Segundo Autobús (41-42)	Tercero Autobús (43-44)	Cuarto Autobús (45-46)	Quinto Autobús (47-48)

8. ¿Cuantos dias de la semana usa Ud. el autobús?

sólo	☐	50-1	*tres*	☐	50-3
dos	☐	-2	*cinco*	☐	-4
cinco	☐	-3	*seis*	☐	-5
cuatro	☐	-4	*todos los días*	☐	-6

9. *¿Que tipo de tarifa pagó Ud. al abordar este autobús?* (51-61)

*Tarifa en efectivo de*_____ (34-36)	☐	-1
*Tarifa por boleto de*_____ (37-39)	☐	-2
Un boleto de transbordo	☐	-3
Pase de Persona Mayor de Edad, de $6	☐	-4
Pase de Persona Incapacitada, de $6	☐	-5
Pase Estudiantil de $16 (18 años o menos)	☐	-6
Pase Estudiantil de $20 (19 años o mayor)	☐	-7
Pase Mensual Regular de $26	☐	-8
*Pase Mensual, Expreso de Autopista, de $*_____ (62-63)	☐	-9
*Pase Turístico de $*_____ (64-65)	☐	-10
*Otro*_____ (favor de especificar)	☐	-11

10. ¿Cual es el propósito de este viaje? (indique uno):

trabajo	☐	52-1	*Social*	☐	52-5
escuela	☐	-2	*Recreación*	☐	-6
de compras	☐	-3	*la iglesia*	☐	-7
Regreso residencia	☐	-4	*Otro*_____	☐	-8

(favor de especificar)

11. ¿Cual es su impresión del servicio de la RTD?

Muy favorable	☐	67-1	*algo desfavorable*	☐	67-3
favorable	☐	-2	*adverso*	☐	-4

12. ¿Donde vive Ud.?

Numero (7-11)	Calle *** (12-15)	Apartamento (25-26)	Ciudad (27-32)	Zona de Zip (33-37)

13. Ud. es: *Hombre* ☐ 69-1 *Mujer* ☐ 69-2

14. ¿A que grupo único pertenece Ud.?

Blanco	☐	68-1	*Asia o Isla de Pacífico*	☐	68-4
Negro	☐	-2	*Indio Americano o Nativo*	☐	-3
Latino	☐	-3	*Otro*_____	☐	-4

(que favor especificar)

15. ¿Que edad tiene Ud.?_____

(que favor especificar) (66-67)

16. ¿Cuantos automóviles operables se usan en su hogar?_____

(68)

17. ¿Cual es el numero total de personas que viven en su hogar? (incluyendose a si mismo)_____

(favor de especificar) (69-70)

18. Total de ingresos en su hogar al año:

Menos de $5,000	☐	56-1	*$15,000 a $19,999*	☐	56-4
$5,000 a $9,999	☐	-2	*$20,000 a $24,999*	☐	-5
$10,000 a $14,999	☐	-3	*$25,000 o mas*	☐	-6

19. ¿Cual es más importante para Ud.:

Que se mantenga el servicio de autobuses tal como es ahora?	☐	59-1
Que se mantengan las tarifas tal como son ahora?	☐	-2

20. ¿En su opinión, cual método debe la RTD usar para conseguir mas dinero y combatir el aumento de costos:

Cortando la frecuencia de autobuses	☐	58-1
Reduciendo servicio después de las 6 p.m. durante días de la semana?	☐	58-1
Reduciendo el servicio de los sábados?	☐	58-1
Reduciendo servicio de los domingos?	☐	58-1
Aumentando la tarifa de los autobuses?	☐	57-1
Eliminando boletos de transbordo (tarifas)?	☐	58-1
Cobrando tarifa completa a estudiantes colegiales?	☐	58-1
Cobrando tarifa completa a estudiantes de escuela superior?	☐	60-1
Cobrando tarifa más alta a los ancianos (Sr. Citizens)?	☐	61-1
Aumentando tarifa del servicio "Park 'n' Ride"	☐	58-1
(Servicio de estacionamiento gratis en puntos lejanos con viaje por expreso de autopista)?		

21. ¿En su opinión, cual descuento debe la RTD darle a cada uno de los siguientes grupos?

Ancianos (Sr. Citizens)		Estudiantes de Escuela Superior		Estudiantes de Colegios	
Ninguno	☐ 62-1	*Ninguno*	☐ 64-1	*Ninguno*	☐ 66-1
10%	☐ -2	*10%*	☐ -2	*10%*	☐ -2
25%	☐ -3	*25%*	☐ -3	*25%*	☐ -3
50%	☐ -4	*50%*	☐ -4	*50%*	☐ -4
75%	☐ -5	*75%*	☐ -5	*75%*	☐ -5
100%	☐ -6	*100%*	☐ -6	*100%*	☐ -6

22. La tarifa básica corriente es 65¢. ¿Qué haría Ud. si cambiara la tarifa a las siguientes precios?

	80¢		70¢		75¢		60¢	
Dejaría de usar autobús	☐	63-1	☐	63-1	☐	63-1	☐	63-1
Usaría el autobús menos	☐	-2	☐	-2	☐	-2	☐	-2
Usaría el autobús igual que lo usa ahora	☐	-3	☐	-3	☐	-3	☐	-3
Usaría autobuses más a menudo	☐	-4	☐	-4	☐	-4	☐	-4

EL NÚMERO TOTAL DE VECES QUE Ud. USA UN AUTOBÚS AL DIA SE DEBE USAR PARA CONTESTAR PREGUNTAS 23, 24 y 25. AÑADA LAS VECES QUE USA EL SERVICIO EN UN DIA CORRIENTE: O SEA, SI USA DOS AUTOBUSES PARA IR AL TRABAJO Y DOS PARA VOLVER A SU HOGAR, EL TOTAL DEBE DE SER CUATRO AUTOBUSES, (Y NO DOS VIAJES).

23. ¿Cuantas veces aborda Ud. un autobús RTD en un día de la semana?_____ (70-71)

24. ¿Cuantas veces aborda Ud. un autobús RTD en un sábado corriente?_____ (72-73)

25. ¿Cuantas veces aborda autobuses RTD en un domingo corriente?_____ (74-75)

SI ABORDÓ CON TARIFA EN EFECTIVO, CON "TICKET" (BOLETO DE TARIFA) O BOLETO DE TRANSBORDO, POR FAVOR CONTESTE LA SIGUIENTE PREGUNTA:

26. ¿Por que no usa el pase mensual RTD para viajar por autobús?

No usa el autobús suficiente para necesitar el pase mensual	☐	76-1
El precio del pase es demasiado y no puede comprarlo	☐	-2
No sé donde comprar el pase mensual	☐	-3
No hay un sitio conveniente donde yo pueda comprar el pase	☐	-4
Tiene pavor el pase, o que me lo roben	☐	-5
*Otro*_____ (que favor especificar)	☐	-6

(77)
2 (80)

Design Sample Plan

Design of the sample plan began after identification of the population to be surveyed and after the size of the study budget had been determined. The first step in establishing a sample plan is to decide whether it is necessary to stratify the lines to be surveyed and how that stratification is to be effected. For purposes of the 1981 Ridership Tracking Study, the 226 RTD lines extant at that time were stratified into eight different types: 1) Local lines, 2) Local lines with some peak hour express trips, 3) Local lines with day-long express service along a portion of their routes, 4) Peak-Hour Express lines, 5) Subscription lines, 6) Park and Ride lines, 7) Peak-Hour Local lines (BEEP) and 8) Special service lines.

The decision to stratify lines was based on previous survey reesults that had indicated vast differences among riders' demographic characteristics and trip patterns on various types of lines. In order to stratify the 226 RTD lines, three main data sources were used: 1) Public timetables published by RTD for each of its lines, 2) Supervisor Summaries and 3) The RTD report entitled "Line Numbers, Operating Divisions, Line Names and One-way Route Miles." Without the use of these source materials, it would have been difficult to determine just how many lines RTD operated at the time the sample plan was being drawn. Each department within the District seems to have its own method of counting lines. Some departments count as one line any combination of two or three lines which are linked operationally. Buses operating on the 155/160 lines, for example, alternate route numbers throughout the day. While operating along White Oak Avenue, the buses carry a line 155 headsign. When operating on Laurel Canyon Boulevard, their headsigns indicate the 160 line designation. By collecting copies of all public timetables available, the research team was able to separate such operationally linked lines into separate components.

The public timetables also made it possible to identify in most cases the stratum to which a line belonged. Some lines which are operationally linked are really of entirely different types. The 493/494 lines, for example, share a timetable, but are really quite distinct from each other. The 493 line operates in local service in the San Gabriel Valley every half hour throughout the day, from 5:25 AM to 7:41 PM. The line usually operates between Monrovia and the El Monte Station. During peak hours three trips operate in express service, extending the route from El Monte Station to the Wilshire District. The 493 also operates in local service on Saturdays and Sundays.

The 494 line, on the other hand, operates only in peak-hours during weekdays, originating in Glendora and going into express service at the El Monte Station. The line makes four peak hour trips to the Wilshire District in the morning, and four return trips during the evening peak. It does not operate on Saturdays or Sundays.

The public timetable for the 493/494 lines helped to identify the correct strata in which to place each of the lines. The route maps in the timetable depicted the different origin points of the two lines. The trip times listed indicated that the 494 operated only during peak hours on weekdays, whereas the 493 operated all day every day of the week.

In order to clarify the correct stratum in which to place some lines, it was sometimes necessary to refer to the Supervisor Summary for the line in question. A sample of a page from a supervisor Summary for weekday service on the 488 line is shown in Figure 27. These Supervisor Summaries provide information on the movements of each bus operating on a line. All trips made on the line are shown by direction for each bus run, along with the time at each time point. Supervisor Summaries were also invaluable during later stages of project design, especially when details of the sample plan were being developed and interviewer trip records were being compiled.

To identify BEEP lines and special service lines such as the Hollywood Bowl Park and Ride lines or the race track lines, the RTD report on "Line Numbers, Operating Divisions, Line Names and One-Way Route Miles" was referred to by the research team. Figure 28 is a sample page from this report.

The results of the line stratification process are shown in the Appendix of this report in Tables A-VII through A-XIV. Data on the number of daily boardings and boardings per bus hour on each line were obtained from the RTD Service Analysis Section report entitled "Line Performance Trends Report." Lines in each stratum were ranked by the number of boardings per bus hour.

After all 226 lines in the RTD system had been stratified according to type, a second stratification was made among Local lines, Local lines with express trips during peak hours and Local lines with full-day express service along a portion of their routes. Each of these groups was stratified into light, medium or heavy ridership lines, according to

FIGURE 27
SUPERVISOR SUMMARY

LINE 488 SCHEDULE NO. 8063 IN EFFECT 6-15-80 REV. 10-2-80 PAGE 1

DAILY EXCEPT SATURDAY & SUNDAY DIV.- 9- - EASTBOUND

BR.	DIVISION ND.2 ARR	TERM INAL LVE	OL- IVE VEN- ICE 28	OL- IVE & 7TH	DIV. 9 LAY OVER	EL MONT STA- TION	RA MONA FRNC SQTO	HACI ENDA FRNC SQTO	VAL- INDA CAM- ERON	CAM- ERON CIT- RUS	EAST LAND SHOP CNTR	GRNO & AROW	GLEN OORA FOOT HILL	VALY CTR FOOT HILL	OEP.
			CL.1												
11 P 9 *						555N	604	613	620	625	630-				
11										LVE-	633	642	650	659	710
10 P 9 *						625	634	643	650	655	700				714
2						655	704	713	720	725	730	739	747	756	810
5		655	657	702		726	735	744	751	756	801	810	818	827	P 9
		CL.2													
3		725	727	732		756	806	815	823	828	833	842	850	859	910
7		755	757	802		826	836	845	853	858	903				P 9
4	N	825	827	832		856	906	915	923	928	933	942	950	959	1010
1-493		FROM	LINE	-493-		928	938	947	955	1000	1005C	1014	1022	1031	1110
2		FROM	LINE	-493-		1028	1038	1047	1055	1100	1105C	1114	1122	1131	1210
3		FROM	LINE	-493-		1128	1138	1147	1155	1200	1205C	1214	1222	1231	110
4		FROM	LINE	-493-		1228	1238	1247	1255	100	105C	114	122	131	211
		CL.3													
1-493		FROM	LINE	-493-		137	147	157	204	209	214	223	231	240	301
5 P 9 *						208	218	228	235	240	245				303
2					242	246	256	306	313	318	323	332	340	349	401
6 P 9 *						316	326	336	343	348	353				358
7 P 9 *		313	315	320		346	356	406	413	418	423	432	440	449	501

C - CONNECT WITH WESTBOUND LINE -490- AT THE INTERSECTION OF NORTH AND EAST ROADWAYS OF EASTLAND.

* - G.E. RADIO USE CHANNEL 8

FIGURE 28

SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT 'AG'
EFFECTIVE: SEPT. 13, 1981 PAGE 1

LINE NUMBERS, OPERATING DIVISIONS, LINE NAMES
AND ONE-WAY ROUTE MILES

REPORT OF LINE NUMBERS, OPERATING DIVISIONS, LINE NAMES AND ONE-WAY ROUTE MILES. FOR THIS REPORT, ONE-WAY ROUTE MILES ARE CONSIDERED TO BE ONE-HALF THE ROUND TRIP DISTANCE OPERATED OVER THE LONGEST PREDOMINANT ROUTE OF EACH LINE.

LINE NO.	DIV. NO.	NAME OF LINE	ONE-WAY ROUTE MILES
1	2-7	HOLLYWOOD BLVD.	15.9
2	7	SUNSET BLVD.	27.8
3		SUNSET BLVD.-BEVERLY DR.-BRANCH OF LINE -2-	16.4
4	6-7	SANTA MONICA BLVD.	20.3
5	3-5	HAWTHORNE - UNION STATION	18.6
6	3-5	SOUTH VERMONT - HIGHLAND PARK	21.7
7	2-3	EAGLE ROCK - SOUTH BROADWAY	20.5
8	5	WEST 54TH ST. - NORTH MAIN ST.	14.1
9	2-5	WEST JEFFERSON-HUNTINGTON PARK-SOUTH GATE-HOLLYDALE	24.1
10	7	MELROSE AVE.	11.0

the number of riders per bus hour. A light ridership line was defined as having 20 or fewer boardings per hour. A medium line carries 21 to 40 riders per hour, and a heavy line more than 40. The result of this second stratification was nine sub-strata from among which the sample lines to be surveyed were selected. (This second stratification was applied only to Regular-Service lines, i.e., the three types of local lines. Because the survey methodology called for a survey of all Peak-Hour Express and Subscription lines, no further selection had to be made among these lines.)

After the second stratification of Regular-Service lines had been effected, sample lines were selected randomly from each sub-stratum, using a table of random numbers. Although sampling theory assumes that the sample used is drawn at random, the actual fact is that obtaining a random sample is one of the greatest problems in research and surveying. It is of the greatest importance to remember that if a random sample is not used, statistical formulae relative to confidence levels and reliability do not apply. The scientific way to obtain random selection is by use of random numbers. When a table of random numbers is used in sample selection, each unit has an equal and independent probability of being included in the sample.

The researcher continued to draw a random sample of lines from each sub-stratum of Regular-Service lines until the number of boardings on the sample lines produced a total roughly proportional to that sub-stratum's representation among all RTD lines. In other words, the sample being selected would provide a proportional representation of the RTD system. Light, medium and heavy lines would be represented proportionally.

In order to stay within the budgetary constraints for data collection, it was necessary to estimate the number of interviewer hours to be spent on each assignment. Market research interviewers hired through outside vendors are customarily paid from the time they leave home until they return from an assignment, so it was necessary to account for interviewer travel time to and from the bus boarding/alighting point. Allowance for mileage charges also had to be made. Throughout the sample design phase, then, the researcher had to keep the budget in mind. This is always an important consideration when determining the number of lines to be surveyed during an on-board survey.

After the final selection of sample lines had been made,, the next step in the sample design process was to select the bus runs that were to be surveyed. At this point, sample selection ceased to be an entirely random process, and became instead somewhat judgemental. Bus runs to be surveyed had to be selected with some practical considerations in mind.

1) Interviewers would be burdened down by a large bundle of questionnaires, return envelopes, record sheets and a supply of pencils.

2) The interviewers would be traveling through unfamiliar territory and could get lost or confused if required to change buses.

3) Bus schedules are sometimes disrupted, so interviewers could miss an assigned bus, especially if required to change buses during an assignment.

4) Waiting for buses on some street corners could expose the interviewers to the dangers of street crime. This would be hazardous for the interviewers and could make RTD liable for damages.

5) Interviewers would have to end their assignments at the point at which they began, because that is where they parked their cars.

6) Riding one bus run from early morning to evening minimizes "deadhead" time and time waiting at bus stops. Thus the number of potential respondents could be increased in direct relationship to the actual amount of time interviewers spent on the buses distributing and collecting questionnaires.

With these considerations in mind, then, the researcher selected sample bus runs that would operate from early morning until early evening. This allowed the interviewers to stay on one bus for the duration of their assignments, in most cases. By minimizing the number of bus changes, the potential number of respondents could be maximized.

Design Survey Methodology

The methodology for on-board surveys can vary considerably according to data needs, type of line being surveyed, line load factors, budget and other variables. RTD Market Research has tried several different methods of distributing and collecting questionnaires on board buses:

1) Driver distributes and collects questionnaires. This method is feasible on Express of Park and Ride lines which board passengers at one location or at only a few stops. This method might also work on lines which have extremely light ridership.

2) Driver distributes questionnaires to boarding passengers; RTD representatives collect the questionnaires at a collection point along the route. This method has been used when several lines being surveyed share a common stop at which questionnaires can be collected.

3) RTD representative interviews passengers on the bus and fills out the questionnaire. Due to the amount of time to complete an interview, this method is not very efficient. It works best on Express lines with fairly light loads and no turnover of passenger loads.

4) Interviewer distributes questionnaires at bus stop or on bus. Respondent mails response back to RTD. This methodology is among the least successful. Response rate to mail-back questionnaires tend to be half that of questionnaires completed and returned on the bus.

5) Interviewer distributes and collects questionnaires on board the bus. This is the method used most often by RTD to collect on-board data.

To conduct the 1981 Ridership Tracking Study, Market Research used two different methods of questionnaire distribution and collection. To collect data from riders on Regular-Service lines, interviewers employed by a market research firm under contract to RTD distributed questionnaires to each boarding passenger on the sample bus runs. Interviewers were instructed to hand out questionnaires in serial number order, beginning with the lowest number. If a passenger refused to take a questionnaire, the interviewer was supposed to identify that passenger's gender and ethnic background on the questionnaire and also write in the boarding stop where that passenger got on the bus. At the end of each trip, interviwers were supposed to collect completed questionnaires into envelopes labelled with the bus line number, bus run, and beginning and ending time of the trip. These envelopes were to be deposited daily at the office of the market research vendor for forwarding to RTD. At the end of each trip surveyed, the interviewers were supposed to fill out an On-Board survey Trip record, a sample of which appears in Figure 29.

FIGURE 29
ON-BOARD SURVEY
TRIP RECORD

Please supply all the information requested below for each trip on which you hand out on-board survey forms. Be sure to hand out the survey forms in number order, always starting with the lowest number. Give a survey form to every passenger. Turn in a blank survey form for each passenger who refuses to fill one out.

		Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6	Trip 7
1.	Bus Line							
2.	Bus Run Number							
3.	Your Boarding Point (where you began survey)							
4.	Scheduled Time At Boarding Point							
5.	Actual Time							
6.	Riders On Board At Boarding Point							
7.	Your Alighting Point (where you ended survey)							
8.	Scheduled Time At Alighting Point							
9.	Actual Time							
10.	Riders On Board At Alighting Point							
11.	First Survey Number							
12.	Last Survey Number							

Name _____

Employee Number _____

Several items of information on the Trip record had previously been filled in by the RTD Market Research Unit before assignments were given to interviewers:

1) Bus Line
2) Bus Run
3) Starting Point of Each Survey Trip
4) Scheduled Departure Time from Starting Point
5) Ending Point of Each Survey Trip
6) Scheduled Arrival Time at Ending point

At the end of each trip, the interviewers were required to fill in the actual times at the beginning and end of the trip, as well as the numbers of the first and last questionnaires distributed on that trip.

The completed Trip Records and the envelopes containing the questionnaires distributed and collected on each trip served to provide a system of checks. If an interviewer were to distribute questionnaires in some non-sequential order (as sometimes happens), Market Research could examine the contents of the envelopes turned in by that interviewer and ascertain which questionnaires were handed out on each trip. Having, in effect, two simultaneous record-keeping systems helped in assigning completed questionnaires to the correct trips.

The method of questionnaire distribution and collection selected for the Peak-Hour Express lines and the Subscription lines involved the bus drivers. They handed out questionnaires on all inbound trips as passengers boarded the bus and collected them as the passengers left the bus. Drivers were not required to record the gender, ethnic background or boarding stop of passengers who refused to fill out a questionnaire. At the end of each survey trip, the drivers were supposed to put the completed questionnaires into an envelope labelled with the bus line number, bus run, trip beginning time and trip ending time. These envelopes were turned in to the dispatchers, who forwarded them to RTD Market Research. Drivers were not required to fill out an On-Board Survey Trip Record at the end of each trip.

Print Pre-Test Questionnaire

The pre-test affords the researcher an opportunity to identify weaknesses in the survey methodology, problems with the questionnaire format or poorly written questions which are not understood by respondents. The pre-test should also provide insight into the level of response that can be expected during the actual on-board survey.

During the pre-test, several different versions of the questionnaire can be printed. The format and the order in which questions appear can be varied to find out which version is most easily understood by respondents and which obtains the highest level of response.

Because Market Research has been using the same basic on-board questionnaire for several years, it was not necessary to conduct a pre-test before the 1981 Ridership Tracking Study. A pre-test of questionnaire format and design had been conducted before the introduction of the standardized questionnaire in the mid-1970's. Since that time each successive on-board survey has suggested improvements to the questionnaire and to the survey methodology. In effect, then, each survey is a learning experience that helps Market Research to "fine-tune" some aspects of its on-board survey methodology. The cumulative effect of this long experience with on-board surveying negated the need for a pre-test before the 1981 Study.

Typeset, Proofread and Correct Questionnaires

After the questionnaire was typeset it was proofread carefully by the researcher. At this stage, the researcher checked the spelling of every word on the questionnaire, checked the punctuation and checked the keypunch instructions to ensure that the data would be entered into the correct columns on the case cards. The proofreading and correcting processes were repeated as often as necessary to ensure that the questionnaire was correct in all aspects.

Print and Sequentially Number Questionnaires

On-board questionnaires conducted by RTD Market Research are usually printed on a heavy index card stock. The rigidity of this stock makes it somewhat easier for respondents to write on the questionnaires while riding on a moving bus.

The sequential numbering of the questionnaire is an essential element in the record-keeping system devised by Market Research for use during on-board surveys. The serial numbers on the questionnaires serve to identify each case for data manipulation purposes. Because interviewers assign a questionnaire to each boarding passenger, even riders who do not fill out a questionnaire are counted as boardings. If the interviewer fills in the gender, ethnic background and boarding point of non-responding riders, we are able to obtain three important items of data even for non-cooperative passengers.

In order to have the questionnaires printed, the researcher filled out a Request For Production Of Materials form to be submitted to the Marketing Department's Graphics Coordinator. This request for 19,000 questionnaires had to be approved by the Director of Marketing. The Request For Production is Figure 30.

Prepare Interviewer Assignment Sheets (Trip Records)

As explained previously, a Trip record, such as seen in Figure 23, was prepared by Market Research for each interviewer assignment. Pre-recorded on each Trip record was 1) the bus line number, 2) bus run, 3) starting point of each trip, 4) scheduled departure time from starting point, 5) ending point of each trip and 6) scheduled arrival time at ending point. Armed with the Trip Record for each day's assignment (and the public timetable for the line being surveyed) the interviewers knew where and when to board the bus each day and which trips were supposed to be surveyed.

The source materials used in the preparation of the Trip Records consisted of the Supervisor Summaries for each of the lines being surveyed, as shown previously in Figure 27.

There can be no error allowed in the preparation of the Trip Records. The interviewers must know where and at what time to board the bus. In order to prepare Trip Records, then, information about each trip to be surveyed must be copied precisely from the Supervisor Summary. That information should then be double checked for accuracy.

Prepare Questionnaire Return Envelopes

For each trip to be surveyed, the interviewers received a 12 by 15 inch manila envelope in which to return completed questionnaires. each envelope was pre-labelled by Market Research with information which also appeared on the Trip Record -- 1) line number, 2) bus run, 3) scheduled time of departure from beginning point of trip and 4) scheduled arrival time at end of trip. Comparison of the duplicate information on the trip envelope with that on the Trip Record was intended to make it a simple matter for interviewers to file completed questionnaires in the correct envelopes.

FIGURE 30

Marketing and Communications Department

REQUEST FOR PRODUCTION OF MATERIALS

FROM: KEN JOHNSON PROJECT: 1981 FARE CHANGE SURVEY DATE: 4/21/81

TYPE OF MATERIAL NEEDED: (check one)

Audio/Visual	Interior Car Card	Rider Bulletin
Bulkhead Card	Letter	Signage
Brochure	Map	Take One
Counter Card	Newsletter	Tokens/Coupons
Envelopes	Poster	X Other ON-BOARD QUESTIONNAIRE
Exterior Car Card	Response Card	

DESCRIPTION: (include quantity, colors desired and size)
19,000 WHITE INDEX STOCK, 8½ × 14 (OR LONGER)

PURPOSE: Collect Ridership Data to measure impact of fare change on weekday Riders

DUE DATE: MAY 5, 1981

TO BE NUMBERED SERIALLY 81001 through 99,999

FOR PRODUCTION UNIT USE ONLY

	Layout	Type	Final	Printing
VENDOR:				
DUE DATE:				

COMMENTS:

APPROVED:
Production Coordinator Date Production Supervisor Date

Director of Marketing Date

Assemble Interviewer Assignment Packages

The interviewer assignment package consisted of five elements:

1) On-Board Survey Trip Record which informed the interviewers as to which trips they were to survey.
2) Questionnaire Return Envelopes, one for each trip to be surveyed.
3) Questionnaires, the quantity of which was dependent on ridership levels on the line being surveyed. At the time the assignment packages were being assembled, the questionnaire serial numbers assigned to each survey assignment were recorded in order that stray questionnaires could be attributed to the correct line of origin.
4) Pencils. An ample supply of golf pencils was provided to each interviewer for distribution to riders who need one to fill out a questionnaire. Each interviewer was given at least one gross of pencils. Those surveying on heavy ridership lines were given more.
5) Public timetable for the line being surveyed.

Prepare Interviewer Training Materials

Each on-board survey is different to some extent. Even interviewers who have participated in previous similar surveys need to be trained before they are ready to go out on the buses to collect data. Among the materials needed for the training session that was conducted by the researcher were:

1) A sample of the questionnaire
2) A sample Trip Record
3) A sample of the questionnaire return envelope
4) A hand-out summary of the main points of the training session.

Train Interviewers

The training session conducted by the RTD researcher consisted of at least seven main parts:

1) A project overview, explaining why the survey was being done, what information was needed and why the survey was important to RTD and to bus riders.
2) An explanation of the questionnaire. The purpose of each question was explained.

3) An explanation of the survey procedures to be followed by the interviewers. They were to give a questionnaire to every boarding passenger, in serial number order. When a passenger refused to take a questionnaire, the interviewer was to fill in the boarding stop, gender and ethnic background questions on the questionnaire. Interviewers were to put all questionnaires in the envelope labelled for the trip on which they were collected.
4) Explanation of the Trip Record and how to fill it out properly.
5) Training exercises. To gauge the level of understanding among interviewers, brief exercises were conducted to acquaint them with situations they might encounter during the survey.
6) Training session summaries were handed out so interviewers could review later points of which they were unsure.
7) Question and answer period.

Distribute Interviewer Assignment Packages

At the end of the training session the distribution of assignment packages was begun. Each assignment was dated according to the day on which that line was to be surveyed. The morning and afternoon assignments for that line were then distributed. On lines with very heavy ridership, two interviewers were given the same assignment in order to increase their ability to distribute questionnaires to each boarding passenger and to collect completed questionnaires. Throughout the survey period the vendor distributed new assignment packages to interviewers as they handed in completed assignments, according to the timetable developed by RTD Market Research.

Begin Surveying

Collection of weekday ridership data on Regular-Service lines began on May 15, 1981, and continued throughout the month of May. The lines remaining to be surveyed at the end of May were few in number. These lines were surveyed during the first week of June. On June 3 the survey of Peak-Hour Express lines and Subscription lines was conducted.

Although the vendor providing the interviewers was responsible for field supervision of the interviewers, occasional questions concerning procedures did arise. The researcher was available to answer these questions and to ensure that assignments were being carried out properly. During the time the survey was in the field, the researcher made several trips to the vendor's office to pick up completed questionnaires and check that the project was proceeding as planned.

Log-In Completed Assignments

When envelopes containing questionnaires by trip arrived in Market Research, the first step was to log them in. This process involved recording certain items of information on a Log-In Sheet, as shown in Figure 31. Each trip on each bus line to be surveyed had been pre-recorded by Market research on the Log-In Sheet, along with the appropriate bus run number. When the assignments were returned, the beginning and ending questionnaire serial numbers distributed during each trip were recorded, as were the actual times the bus began and ended that trip. This information should have been entered on the On-Board Survey Trip Record by the interviewers.

During the log-in procedure, errors in the questionnaire numbers recorded by the interviewers would sometimes become apparent. There might be some "overlap" from one trip to the next, for example, as when the last questionnaire number of trip number 1 is identical to the first questionnaire number of trip number 2. In cases such as these, it was necessary to refer to the questionnaire return envelopes for the trips in question to ascertain which envelope actually contained the questionnaire. It was then necessary to correct the questionnaire numbers on the Log-In Sheet. This sheet would be used later as the basis for correspondence tables to be entered into the computer, so it had to be correct.

Columns designating each subsequent procedure to be performed on the completed questionnaires -- editing, coding, keypunching -- also appeared on the Log-In Sheet. As each procedure was completed, an indication was to be made on the Log-In Sheet.

Re-Survey Unfinished Assignments

As the log-in of completed assignments proceeded, it sometimes became apparent that some assignments were only partially complete or had not been done at all. Interviewers may have been ill or had a personal problem or missed their bus, or the bus may have broken down. Whenever posssible, replacement interviewer assignment packages were assembled and these assignments were re-assigned.

Input Correspondence Tables

In order to perform some data editing functions and analyses of on-board survey data, it was necessary to enter correspondence tables into the computer. During the 1981 Ridership tracking Study, at least four correspondence tables were developed and entered into the computer data base:

FIGURE 31
QUESTIONNAIRE LOG-IN SHEET
BY TRIP

	VISION	LINE	BUS RUN	TRIP no.		IN SURVEY no.	LAST SURVEY no.	TIME BEGIN	TIME END	EDIT	CODE B+A	KEY PUNCH	C
7	2	826	6	1	✓	097376	097402	625AM	735AM	✓	✓	7/20	
19	2	826	6	2	✓	097403	097421	752AM	900AM	✓	✓	7/20	
8	3	826	6	3	✓	097422	097439	910AM	1022AM	✓	✓	7/20	
13	3	826	6	4	✓	097440	097452	1050AM	1205PM	✓	✓	7/20	
4	4	826	6	1	✓	097751	097784	1230PM	142PM	✓	✓	7/20	
19	4	826	6	2	✓	097818 097788	097826	158PM	315PM	✓	✓	7/20	
11	5	826	6	3	✓	097785	097818	325PM	441PM	✓	✓	7/20	
5	5	826	6	4	✓	097827 097783	097843 097784	511PM	624PM	✓	✓	7/20	
		840	7	1		—	—	635AM	803AM				
		840	7	2		—	—	820AM	948AM				
		840	7	3		—	—	1105AM	1132AM				
		840	7	4		—	—	1150AM	118PM				
53	4	840	7	1	✓	098501	098553	135PM	308PM	✓		7/20	
76	5	840	7	2	✓	098554	098629	320PM	454PM	✓		7/20	
99	5	840	7	3	✓	098630	098709	505PM	636PM	✓		7/20	
7	6	840	7	4	✓	098710	098726	650PM	806PM	✓		7/20	
4	2	846	4	1	✓	099226	099309	605AM	744AM	✓	✓	8/4	
41	3	846	4	2	✓	099310	099350	811AM	950AM	✓	✓	8/4	
8	3	846	4	3	✓	099351	099398	1015AM	1151AM	✓	✓	8/4	
56	4	846	4	4	✓	099399	099454	1211AM	150PM	✓	✓	8/4	
10	4	846	2	1	✓	099476	099514	1215PM	151PM	✓	✓	8/4	
43	4	846	2	2	✓	099515	099537	211PM	350PM	✓	✓	8/4	
27	5	846	2	3	✓	099538	099584	415PM	552PM	✓	✓	8/4	
14	6	846	2	4	✓	099585	099598	615PM	742PM	✓	✓	8/4	
33	2	861	1	1	✓	099725	099757	645AM	713AM	✓	✓	8/18	
21	2	861	1	2	✓	099758	099788	715AM	748AM	✓	✓	8/18	
20	3	861	1	3	✓	099789	099804	815AM	848AM	✓	✓	8/18	
17	3	861	1	4	✓	099805	099821	850AM	919AM	✓	✓	8/18	
10	3	861	1	5	✓	099822	099831	945AM	1014AM	✓	✓	8/18	
11	3	861	1	6	✓	099832	099842	1015AM	1044AM	✓	✓	8/18	
14	3	861	1	7	✓	099843	099858	1115AM	1144AM	✓	✓	8/18	
18	3	861	1	8	✓	099859 110637	099872 110640	1145AM	1214PM	✓	✓	8/18	
4	4	861	1	9	✓	110633	110636	1245PM	114PM	✓	✓	8/18	
4	4	861	1	10	✓	109131	109134	115PM	144PM	✓	✓	8/18	
19	4	861	1	1	✓	099876	099894	215PM	246PM	✓	✓	8/18	
4	4	861	1	2	✓	099895	099898	247PM	320PM	✓	✓	8/18	
18	5	861	1	3	✓	099899	099916	345PM	420PM	✓	✓	8/18	
17	5	861	1	4	✓	illegible	illegible	illegible	illegible	✓	✓	8/18	

1) Questionnaire Serial Numbers by Line. This correspondence table was to be used by an editing program. The table identified the bus line on which any questionnaire or series of questionnaires was distributed. The table also identified the date on which each line was surveyed. Figure 32 shows a sample listing from the Serial Numbers correspondence table. The first three digits in a row of data represent the number of the bus line. The next six digits show the date of the on-board survey (year, month, day). The next six digits indicate the first in the series of questionnaire numbers distributed on that line, and the last six digits show the last questionnaire number given out. The importance of the correctness of the Log-In Sheet becomes apparent, for that is the source of the data in the correspondence table of Questionnaire Serial Numbers by Line.

2) Trip Times. The Log-In Sheet also serves as the source of the data entered into this correspondence table. In order to analyze ridership characteristics and trip patterns by time of day, Market Research had to create a correspondence table which assigned questionnaires to the time periods during which they had been distributed. Time period definitions were essentially those used routinely in the RTD Planning Department and Service Analysis Section, except that the base period was divided into the morning base (8:30 AM to 11:59 AM) and the afternoon base (Noon too 3:29 PM). Time period definitions appear in this report in the section entitled "Age of Riders."

   Trips were assigned to a particular time period based on their mid-point. For each trip shown on the Log-In Sheet, the mid-point was calculated. Where the mid-point occurred determined which time period the trip would be assigned to. Questionnaires distributed on that trip would thus be assigned to that time period through the correspondence table.

   This is somewhat a clumsy, inexact and inflexible method of assigning survey cases to a time period. In future, the on-board questionnaire will contain a question about the time the respondent boards the bus. The time can then be entered by the rider or by the interviewer. This will provide more exact boarding time data and will allow the flexibility to change time period definitions more easily during analysis.

FIGURE 32
QUESTIONNAIRE SERIAL NUMBERS BY LINE
(Sample of Correspondence Table)

L760800624048591048638
L760800624048651048696
L760800624048711048723
L760800624048749048750
L042790308048751048965
L042790308049001049197
L758800625049199049204
L716800326049206049207
L716800326049232049250
L042790308049251049456
L760800624049735049750
L042790308049751049771
L042790308049772049812
L757800625049815049857
L757800625049876049921
L757800625049936049952
L757800625049987050010
L757800625050039050057
L757800625050085050146
L760800624050177050201
L081800823051001051278
L440800823051651051887
L025800824051888052300
L155800823052301052308
L160800823052309052353
L155800823052354052368
L160800823052369052418
L155800823052419052421
L490800823052551052706
L008800824052707053010
L088800823053051053229
L496800824053230053290
L163800823053451053766
L086800824053767053995
L488800823054001054027
L493800823054028054056
L488800823054057054058
L493800823054059054059
L488800823054060054088
L493800823054089054110
L488800823054111054135
L496800824054359054400
L435800823054401054567
L026800824054568055057
L017800823055351055491
L028800824055492056300
L432800823056301056486
L049800920056551056899
L049800920056907056908
L025800824056911056922
L086800824056952056960
L081800823056963057061
L073800913058001058143
L075800906058251058720
L826800906058721058738

3) Sub-Sector Definitions. The RTD service area, over 2,200 square miles, has been defined traditionally in terms of a dozen or so Planning Sectors. While these sectors may be well-suited for planning purposes, they are too broad to allow incisive analysis of demographic characteristics or even trip patterns by geographic area. Instead, Market Research defined the RTD service area in terms of some 86 sub-sectors. Each of the sub-sectors in Los Angeles County consists of a city, aggregation of two or more cities, or a fairly well-defined area of the City of Los Angeles. Definition of the latter was judgemental, but rarely arbitrary. Each of the other counties in Southern California was designated as a sub-sector unto itself. Definitions of sub-sectors were based upon aggregations of zip codes. The on-board questionnaire contains a home address question, so respondents' home zip codes were already in the data base. Coding of trip origins and destinations was also done in terms of zip codes. A correspondence table of sub-sector definitions, then, would allow analyses of any variable on the questionnaire by residence location of riders and it would allow extensive analyses of linked trips by any variable on the questionnaire. table 116 shows the sub-sector definitions used in the correspondence table.

4) Line Data Expansion Factors. Before analysis of the on-board survey data could begin, the sample data had to be weighted to compensate for the over- or undersampling of some sub-strata of the population, as reflected in the varying response rates by bus line. The weighting procedure allows each individual case to be considered more or less heavily than other cases when statistical procedures are applied to the data. The data collected during the 1981 Ridership Tracking Study were weighted on the basis of the number of daily boardings on each of bus lines surveyed. The number of respondents on each of these lines was expanded to daily boarding levels. Table 117 shows the expansion factors used to effect this weighting.

Edit Questionnaires

The purpose of questionnaire editing is to make sure that the responses are as correct and consistent as possible and to prepare the questionnaire for keypunching. Among the inconsistencies the editor looks for are:

1) Multiple responses to a question requiring a single response. For example, a respondent cannot be in two income categories simultaneously.

TABLE 116
SUB-SECTOR DEFINITIONS
BY ZIP CODES

Sub-Sector Number	Name	Zip Codes
1	Downtown	90012 thru 90015, 90017, 90052, 90060, 90071
2	Wilshire Corr	90004, 90005, 90010, 90020, 90057
3	Pico Corr	90006, 90019, 90035
4	Echo Park	90026
5	Los Feliz-LACC	90027, 90029
6	Silverlake	90039
7	Hollywood	90028, 90038, 90068
8	W Hollywood	90046, 90069
9	Park La Brea	90036, 90048
10	Beverly Hills	90210 thru 90213
11	Westwood	90024
12	Brntwd/Pac Pal	90049, 90272
13	West LA	90025, 90064
14	Century City	90067
15	Venice-Mar Vista	90066, 90291
16	Santa Monica	90401 thru 90406
17	Malibu-Topanga	90265, 90290
18	Westchester-LAX	90009, 90045
19	Culver City-Palms	90230, 90034
20	Inglewood	90301 thru 90310
21	Crenshaw Corr	90008, 90016, 90018, 90043, 90056
22	Western Av Corr	90047, 90062
23	Harbor Fwy Corr	90003, 90007, 90037, 90044, 90061
24	Central AV Corr	90001, 90002, 90011, 90021, 90059
25	Compton	90220 thru 90224
26	Vernon-HP-Bell	90058, 90201, 90255,90270,
27	Lynwood/So Gate	90262, 90280
28	ELA-Boyle Hts	90022, 90023, 90033, 90063
29	Commerce	90040
30	Montebello	90640
31	Linc Ht/El Sereno	90031, 90032
32	Highland-Glassell	90042, 90065
33	Glendale-Eagle Rk	90041, 91201 thru 91209
34	La Canada-La Crescenta	91011, 91020, 91046, 91214
35	Sunland-Tujunga	91040, 91042
36	Sun Valley	91352
37	Burbank	91501 thru 91506, 91522
38	N Hollywood	91601 thru 91609
39	Van Nuys-Pan City	91343, 91401, 91402, 91404 thru 91409, 91411, 91412
40	Sherman Oaks	91403, 91413, 91423
41	Encino	91316, 91436
42	Tarzana	91356
43	Woodland Hills	91364, 91367
44	Canoga Park	91303 thru 91307
45	West SFV	91301, 91302
46	Pacoima-San Fern	91331, 91340 thru 91342
47	Granada-Mission	91344, 91345
48	Northridge	91324 thru 91330
49	Chatsworth	91311
50	Reseda	91335
51	Altadena	91001
52	Arcadia-Sra Madre	91006, 91024
53	Monrovia-Duarte	91016, 91010
54	Pasadena-E. Pas	91030, 91101 thru 91125
55	Azusa-Glndora	91702, 91740
56	Baldwin Park	91706
57	Covina-W. Covina	91722 thru 91724, 91790 thru 91793
58	El Monte	91731 thru 91734
59	La Puente	91744 thru 91748
60	Montry Pk-Rosemd	91754, 91770
61	San Gab/Templ	91775 thru 91778, 91780
62	Walnut-Industry	91789
63	Alhambra	91801 thru 91803
64	Pomona Valley	91712, 91750, 91765 thru 91768, 91773
65	Downey	90240 thru 90242
66	Whittier	90601 thru 90608
67	La Mirada	90638
68	Norwalk-Sta Fe Springs	90650, 90666, 90670
69	Pico Rivera	90660
70	Artesia-Cerritos	90701
71	Ballflower-Paramount	90706, 90723
72	Lakewood	90712 thru 90716
73	El Segundo	90245
74	Gardena	90247 thru 90249
75	Hawthorne-Lawndale	90250, 90260, 90261
76	Beach Cities	90254, 90266, 90277, 90278
77	Palos Verdes	90274
78	Torrance-Lomita	90501 thru 90510, 90710, 90717
79	San Pedro-Wilmington	90731 thru 90733, 90744
80	Carson	90745 thru 90747
81	Long Beach	90801 thru 90840
82	N LA County	91301, 91310, 91321, 91350, 91351, 91355, 93510, 93532, 93534, 93535, 93534, 91543, 93544, 93550, 93553, 93563
83	Orange County	90620 thru90623, 90630, 90631, 90680, 90720, 90740,90742, 90743,92601,92621,92624 thru 92627, 92629 thru 92635, 92638,92640 thru 92653, 92655, 92660 thru 92663, 92665 thru 92670, 92672, 92675 thru 92678, 92680, 92683, 92686, 92691, 92701 thru 92711, 92713 thru 92717, 92801 thru 92807
84	Riverside County	91720, 91752, 91760, 92201, 92220, 92223, 92225, 92230, 92234, 92236 thru 92241, 92253 thru 92255, 92258, 92260, 92262, 92270, 92272, 92274, 92276, 92282, 92302, 92303, 92036, 92320, 92330 92340 92343, 92348, 92349, 92353, 92360 thru 92362, 92367, 92370, 92380, 92381, 92383, 92388, 92390, 92395, 92396, 92501 thru 92518, 93656
85	San Bdo Cty	91701,91710, 91730, 91739,91743,91761 thru 91763,91786, 92252, 92256, 92267, 92277, 92284, 92301, 92305,92307, 92309, 92311, 92314 thru 92316, 92318, 92324, 92325, 92327, 92335, 92345 thru 92347,92352, 92354,92356, 92359, 92363, 92365, 92368, 92373, 92376, 92382, 92392,92397 thru 92400, 92405, 93562
86	Ventura Cty	90265, 91320, 91360, 93001, 93003, 93010, 93015, 93021 thru 93023, 93030, 93040, 93041, 93060, 93063, 93065, 93066

TABLE 117
EXPANSION FACTORS TO LINE RIDERSHIP LEVELS
1981 RIDERSHIP TRACKING STUDY
REGULAR-SERVICE LINES

Type of Line	Line Number	Daily Boardings	Number of Respondents	Expansion Factor
Local	29	28,879	181	160
	12	17,235	154	112
	89	19,820	322	65
	96	32,755	52	423
	32	5,553	133	37
	47	11,441	116	121
	210	17,809	238	75
	826	7,943	97	70
	354	1,356	68	14
	157	4,196	173	24
	81	8,055	220	37
	840	4,989	137	37
	18	2,822	101	28
	164/165	9,859	218	45
	152	5,648	133	49
	155/160	5,583	107	70
	73	3,390	78	45
	166/168	3,529	172	21
	425	3,720	276	14
	169	2,825	233	12
	175	1,246	120	11
	424	1,887	110	16
	435	2,469	237	9
	114	1,029	287	4
	156	1,740	151	13
	872	704	69	12
	846	1,448	259	5
	871	3,436	219	16
	822	1,010	80	11
	844	989	195	5
	867	627	118	5
	869	2,032	190	11
	431	1,052	142	7
	821/831	1,014	133	7
	861	506	169	3
	451/453	1,216	126	9
	452/454	779	114	7
Sub-Total		220,591	5,928	-
Median		2,823	142	-
Local Peak Express	44	38,385	338	112
	91	38,990	183	213
	86	7,594	200	34
Sub-Total		84,969	721	-
Median		38,385	200	-
Local-Day Long Express	88	10,476	118	87
	484	6,603	78	87
	488	1,968	171	12
	813	2,529	75	31
Sub-Total		21,576	442	-
Median		4,566	98	-
TOTAL		327,136	7,091	-

2) A specified "other" response which should obviously be categorized under a different, more precise response category. If the respondent designates his trip purpose as "other" and specifies "going to movies", the editor would put the answer into the "recreation" category.
3) Obviously wrong responses. The question asking about bus lines ridden to complete a linked one-way trip would be in need of editing if the respondent listed the buses ridden on a round trip.
4) Response category not checked. Often a respondent will write in a response rather than check the appropriate box on the questionnaire. If the respondent writes in his annual income figure, for example, but does not check the box, the editor will put the response in its proper form.
5) Missing data. If a respondent writes in his home address, for example, but neglects to provide the zip code, the editor will look up the correct zip code and write it in.
6) Illegible response. If the home address is extremely hard to read, the editor will write it in more legibly so the keypuncher can read it and enter it correctly into the data base.
7) Inappropriate response. It would be inappropriate for a respondent who uses a pass to board the bus to answer the question asking "why didn't you use an RTD pass to board the bus?"

Keypunching - Phase I

After the questionnaires had been edited, keypunching could begin. In order to have the data available for analysis as soon as possible, keypunching was divided into two phases. Edited questionnaires were keypunched before boarding and alighting points or trip origins and destinations were coded. These coding operations are very time-consuming, particularly when no resources are available for hiring additional temporary personnel as needed to complete the project in a timely manner.

Phase I Keypunching was begun after data from a few bus lines had been edited. Keypunching and editing operations were thus being performed at the same time.

Input Phase I Data

When the keypunching of Phase I data was completed the data were entered into the RTD in-house computer.

Develop Data Base Editing Programs

In order to perform the functions necessary to put the data base in order for analysis, four editing programs were developed. The first program simply sorts the data into questionnaire number order (it's easier to locate a given case in the data listing if the cases are in sequential order.) This program also sorts the cards in each case into appropriate order (Card 1, Card 2).

The second editing program checks the responses to the fare question. If a cash fare amount has been entered in columns 54 to 56 of the data, this editing program ensures that the cash fare code is entered as the type of fare paid in columns 60 to 61.

The third editing program "plugs in" to each case the bus line number on which the questionnaires were distributed. This program refers to the Questionnaire Serial Numbers correspondence table explained previously.

The fourth editing program was used to edit Phase II of the data base. This program "plugs in" the boarding/alighting and origin/destination variables after they have been coded, keypunched and entered into the computer.

Edit Data Base

Working from a printout of all the cases that were entered into the data base, the researcher checked to be sure that each case had two data cards, that there were no duplicate questionnaire numbers and that there were no obvious keypunch errors (such as alpha characters or symbols where numbers were supposed to be). Corrections to the data were made at the computer terminal. This editing task was repeated as often as necessary to ensure that the data base was correct.

Develop Computer Analytical Programs

The analytical tool used by Market Research is the Statistical Package For The Social Sciences (SPSS), an integrated system of computer programs designed for the analysis of social science data. There are eight basic components in an SPSS program:

1) File Name, which identifies each SPSS system file and is used whenever reference to that file is required. The file name used for this study was On-Board Survey 1981.

2) Data List, a complete map of the content and structure of the raw input data file. This Data List contains the variable names assigned by the researcher and it associates with these names all the information on column locations required to read and store the variables correctly. Table 118 shows the variable names assigned to each variable on the questionnaire and the location of each variable in the input data file.
3) Input Medium, which informs the SPSS system of the type of medium (card, tape or disk) from which the raw input data will be entered into the system.
4) Missing Values. Very often in survey research some of the cases in a file do not have complete information on every variable. The SPSS system enables the researcher to specify how these missing variables will be designated so that cases containing incomplete data may still be processed.
5) Number of Cases is simply an instruction that informs the SPSS system of the number of cases in the file.
6) Variable Labels, which allow the researcher to attach names to each of the variables in the Data List. These labels permit easier understanding of what the variable is than do the shorter names used on the Data List.
7) Value labels are attached to each response category under each variable. These labels are helpful for documenting output from analytical programs.
8) Task-Definition Cards control the specific calculations to be performed by the SPSS system on the data. The Task-Definition Cards activate, define and control the calculations to be performed on the data. These cards enable the researcher to cross-tabulate data, do T-tests and discriminant analyses, run regressions and correlations, calculate measures of central tendency and to perform other statistical and analytical functions.

Run SPSS Analytical Programs

Analysis of Phase I of the data base consisted chiefly of frequency tabulations and cross-tabulations of each relevant variable on the questionnaire by a series of major group-definition variables. Each relevant variable on the questionnaire was analyzed individually in terms of 1) bus line on which surveying took place, 2) major planning sector in which respondent lives, 3) sub-sector in which respondent lives, 4) time of day when survey took place, 5) type of fare paid, 6) respondent age, 7) respondent gender, 8) respondent's ethnic background and 9) annual household income.

TABLE 118
1981 RIDERSHIP TRACKING STUDY DATA LIST

Question Number	Variable	Variable Name on SPSS Data Data List	Card Columns In Input File	Card Number
NA	Questionnaire Number	QNO	1-6	1
1a	Mode of Access to RTD System	How to RTD	7	1
1b	Mode of Access to Survey bus	Access	8	1
NA	Survey Bus Line Number	Line	10-12	1
2	Boarding Point	Board	10-16	1
3	Alighting Point	Alight	17-23	1
4	Mode of Egress From Survey Bus	Egress	24	1
5	Linked Trip Origin	Origin	28-32	1
6	Linked Trip Destination	Dest	33-37	1
7	Buses Ridden on Linked Trip:			
	First Bus	Bus 1	38-40	1
	Second Bus	Bus 2	41-43	1
	Third Bus	Bus 3	44-46	1
	Fourth Bus	Bus 4	47-49	1
	Fifth Bus	Bus 5	50-52	1
8	Bus Use Frequency	Freq	53	1
9	Amount of Cash Fare Paid	Cash	54-56	1
	Amount of Ticket Fare Paid	Ticket	57-59	1
	Type of Fare Used	Fare	60-61	1
	Denomination of Express Pass	Passamt	62-63	1
	Denomination of Tourist Pass	Touramt	64-65	1
10	Trip purpose	Purp	66	1
11	Impression of RTD Service	RateRTD	67	1
NA	Questionnaire Number	QNO1	1-6	2
12	Rider's Home Address	Address	7-21	2
	Apartment Number	Apt	22-24	2
	City	City	25-38	2
	Zip Code	Zip	39-43	2
13	Rider Gender	Sex	44	2
14	Rider's Ethnic Background	Race	45	2
15	Rider's Age	Age	46-47	2
16	Number of Cars in Rider's Household	Cars	48	2
17	Number of Persons in Rider's Household	HHsize	49-50	2
18	Annual Household Income	Income	51	2
19	Attitude about Fares vs. Service	Keep	52	2
20	Attitude About Measures to Increase RTD Revenues:			
	Increase Headways	Headways	53	2
	Decrease Evening Service	Evenings	54	2
	Decrease Saturday Service	Saturday	55	2
	Decrease Sunday Service	Sunday	56	2
	Increase All Fares	Up Fares	57	2
	Eliminate Transfers	NoTrnsfr	58	2
	Full Fare for College Students	CollFare	59	2
	Full Fare for High School Students	StudFare	60	2
	Raise Senior Citizen Fares	SCFare	61	2
	Raise Park and Ride Fares	PNRFare	62	2
21	Discount Fares Levels:			
	Senior Citizen Discount	SCDisc	63	2
	High School Student Discount	HSDisc	64	2
	College Student Discount	CollDisc	65	2
22	Anticipated Level of Bus Use at Various Fare Levels:			
	50¢ Fare	Fare50	66	2
	70¢ Fare	Fare70	67	2
	75¢ Fare	Fare75	68	2
	80¢ Fare	Fare80	69	2
23	Average Daily Bus Boardings	DayBrd	70-71	2
24	Average Saturday Bus Boardings	SatBrd	72-73	2
25	Average Sunday Bus Boardings	SunBrd	74-75	2
26	Reason for Not Using RTD Pass	NoPass	76	2
NA	Response to Spanish Questionnaire	Span	79	2

When appropriate, programs were run to calculate means, medians, correlations and other statistical measures. Other programs calculated mathematical values or created new variables or re-groupings of variables previously entered into the data base.

Analyze Output

For the purposes of this report, analysis of Phase I data was limited to providing descriptive statistics of ridership characteristics, trip patterns and attitudes by bus line, by time of day, by residence sector and sub-sector, by rider age, by gender, by ethnic background and by annual income.

Analysis relied heavily on the cross-tabulation of questionnaire variables. Cross-tabulation, the joint frequency distribution of cases according to two or more variables, is the chief component of contingency table analysis and is the most commonly used analytical method in social science research. These joint frequency distributions can be statistically analyzed by certain tests of significance, such as the chi square statistic, to determine whether or not the variables are statistically independent.

Geo-Code Questionnaires

One of the most time-consuming tasks to be performed was the coding of the answers to geographically based questions. Coding of boarding and alighting points was relatively simple. During fare surveys RTD checkers use a stop-by-stop ride check list on which to record boardings by fare type, as well as alightings at each stop along the route of a line. For each bus line in the system there are two lists of stops, one for each direction of travel. Each stop on a ride check list is assigned a four digit code number. A typical ride check list is shown as Figure 33.

For coding boardings and alightings, Market Research used either Southbound or Eastbound stop lists, rather than two different stop lists for each line. By using only one list per line, the number of codes was halved. Coders assigned boarding and alighting points the appropriate stop codes and entered these codes on the Geo-Code Data Sheet which is represented as Figure 34.

FIGURE 33

SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT
RIDING CHECK-TIME, FARES, AND PASSENGERS

PAGE 1 OF ___

LIN. 3 DAY _____ DATE _____ BUS RUN# _____ VEHICLE# _____

SCHEDULE# _____ 02 -EASTBOUND - OBSERVER _____ WEATHER _____ SEATS ___

STOPS	ARR-@ -DEP. AM TIMES PM SCHED. ACTUAL	PASSENGERS BOARDING	PASSENGERS ALIGHTING	PASSENGERS ON BUS	CASH FARES CASH .35	CASH .70	CASH SUB-CENT .25	CASH SENR CTZN .10	CASH TRANSFER .10	CASH PREMIUM .10	OTHER FARES TRANSFER EXCO	OTHER FARES SLIDE & PASS	OTHER FARES TK
0010 CEDARS HOSPITAL													
0020 3RD ST LA CIENEGA01	•	Board											
0030 ORLANDO		/											
0040 SWEETZER		/											
0050 CRSCNT HTS		/											
0060 FAIRFAX 03	•	/											
0070 OGDEN		Tee 3C											
0080 BURNSIDE		/											
0090 GARDNER		/											
0100 HAUSER		/											
0110 COCHRAN													
0120 LA BREA													
0130 MANSFIELD		/											
0140 HIGHLAND		/											
0150 LAS PALMAS		Tee 4											
0160 HUDSON		/											
0170 RIMPAU		/											
0180 ROSSMORE 04	•	/											
0190 LARCHMONT													
0200 LORRAINE													
0210 NORTON													
0220 WILTON													
0230 WILTON 4TH ST 05	•												
0235 6TH PKW													
0240 WILTON 5TH ST 06	•												
0250 6TH ST ST ANDREWS													
0260 WESTERN		Tee 2											
0270 SERRANO		/											
0280 HARVARD		/											
0290 NORMANDIE													
0300 ALEXANDRIA													
0310 CATALINA													
0320 VERMONT 07	•	/											
0330 WESTMRLAND		/											
0340 COMMNWELTH		/											
0350 LAFAYETTE		Tee 1											
0360 RAMPART		/											
0370 PARK VIEW		/											
0380 ALVARADO 08	•	/											
0390 6TH ST BONNIE BRE													

FIGURE 34
GEO-CODE DATA SHEET

Questionnaire Number (1–6)	(7–9)	Boarding Stop (10–16)	Alighting Stop (17–23)	(24–27)	Trip Origin (28–32)	Trip Destination (33–37)	Cars (38)	Boardings Week Day (39–40)	Boardings Sat (41–42)	Boardings Sun (43–44)
105158		0860580	0861020		91606	91506	1	2	0	0
105146		0860850	0861410		91602	90012	1	2	0	0
105142		0860650	0861460		91606	90071	1	2	0	0
105135		0861000	0861440		91506	90071				
105131		0861110	0861450		91502	90071	1	2	0	0
105111		0861150	0861470		91502	90014	2	2	0	0
105098		0861200	0861450		90027	90071	1	2	0	0
105099		0861200	0861450		90027	90071	0	2	2	2
105100		0861200	0861450		90027	90071	0	6	2	2
105101		0861200	0861450		90027	90071	1	2	0	0
105102		0861200	0861440		90027	90071	1	2	0	0
105103		0861220	0861430		90027	90071	1	4	0	0
105105		0861230	0861390		90039	90012	2	2	2	0
105106		0861230	0861450		90039	90071	0	4	4	2
105112		0861150	0861200		91502	90027	4	4	0	0
105113		0861150	0861450		91502	90017	2	2	0	0
105115		0861180	0861460		91201	90017	3	2	0	0
105116		0861180	0861460		91201	90017	2	2	0	0
105119		0861190	0861450		91201	90017	1	2	0	0
105120		0861190	0861470		91201	90014	2	2	0	0
105127		0861080	0861460		91505	90017	0	4	2	2
105132		0861120	0861450		91502	90017	2	2	0	0
105134			0861480			90014	0	6	1	0
105137		0860990	0861390		91506	90012				
105139		0860630	0861450		91606	90017	2	2	0	0
105140		0860650			91606	90038				
105141		0860650	0861080		91606	91501	2	2	0	0

The process of geo-coding trip origins and destinations is more complicated and is, in fact, one of the most time-consuming coding tasks that has to be done. The trip origins and destination questions on the on-board questionnaire were answered by the respondent in terms of street intersections where the trip began or ended. The coder used the Thomas Brothers Popular Street Atlas series to provide the appropriate code for these intersections. The Thomas Brothers series contains both zip code and census tract designations for Los Angeles, Orange, Riverside, San Bernardino and Ventura Counties.

In order to obtain useable information that will lend itself to analysis on the SPSS system, Market Research has been coding trip origin and destination in terms of zip codes. When the coder encountered a trip origin or destination on the questionnaire, then, he or she referred to the street index in the back of the appropriate Thomas Brothers Atlas to ascertain the page number and map coordinates of one of the cross-streets. The coder then referred to the index again to locate the page number and coordinates of the second cross-street. This process was repeated until the map page containing the intersection of the two cross-streets was located. The zip code area in which this intersection was found was then written on the Geo-Code Data Sheet. After the zip code of the trip origin had thus been properly recorded, the coder was then required to locate and record the trip destination in the same manner.

The geo-coding of trip origins and destinations in this manner is a ponderous but necessary task. Analysis of this information provides a profile of bus riders' linked trip needs, as reported in this document. Market Research is currently exploring the feasibility of using DIME Files and software capable of sorting intersection data keypunched in English language. If available, such software would read the intersection data and assign an appropriate numeric code or series of codes (census tract, zip code, traffic analysis zone, map coordinates, etc.).

Unfortunately, however, such a computer coding capability would not preclude the need to edit origin and destination data. Many respondents answer the trip origin question, for example, by writing in the street iintersection at which they boarded the bus. It is often obvious that these individuals really began their trips at home, so an adjustment to the data is necessary. Editors are also required to correct some of the more egregious misspellings of street names that occur on the questionnaires or to decipher for the keypunchers the illegible handwriting of some respondents.

Keypunching Phase II Data

After the geo-coding tasks were completed the Regular-Service line boarding/alighting and origin/destination data were keypunched.

Input Phase II Data

The keypunched data were entered into the computer files.

Merge Data Bases

A special computer program was developed to "plug in" to the Phase I data the geo-coded variables in the Phase II data.

Run Analytical SPSS Programs

The same SPSS programs described earlier were used to analyze Phase II data. Additional cross-tabulations of origin by destination were also run to provide descriptive data on linked trips.

Analyze Output

Linked trip data were analyzed by major Planning Sector, as well as by sub-sector, as detailed in this report.

A P P E N D I X

TABLE A-I

RTD System-Wide
Number of Buses in Service
Peak/Base

Year	Quarter	Average Weekday		Average Saturday		Average Sunday	
		Peak	Base	Peak	Base	Peak	Base
1976	Winter	NA	NA	NA	NA	NA	NA
	Spring (June only)	2028	1329	1185	1186	872	873
	Summer*	2060	1370	1215	1216	906	908
	Fall	2027	1364	1260	1260	885	885
1977	Winter	1958	1345	1181	1181	875	872
	Spring	1929	1320	1149	1148	857	852
	Summer	1952	1302	987	982	735	732
	Fall	1845	1207	967	962	726	723
1978	Winter	1848	1219	972	967	728	724
	Spring	1799	1181	926	921	695	691
	Summer	1832	1185	927	921	699	695
	Fall	1897	1194	941	935	701	697
1979	Winter	1990	1224	943	935	701	697
	Spring	1962	1221	957	952	721	717
	Summer*	2006	1235	961	955	717	714
	Fall	2006	1235	961	955	717	714
1980	Winter	2006	1235	961	955	717	714
	Spring	1999	1224	971	926	731	694
	Summer	2000	1214	968	926	726	678
	Fall	2016	1228	967	918	728	667
1981	Winter	2016	1228	967	918	728	667
	Spring	2036	1218	963	936	748	706
	Summer	2036	1218	963	936	748	706
	Fall						

Source: Statistical Digest, Service Analysis Section

*Strike

TABLE A-II

RTD System-Wide Vehicle Miles

Year	Quarter	Average Weekday	Average Saturday	Average Sunday	Average Month Total	Quarter Total
1976	Winter	NA	NA	NA	NA	NA
	Spring (June only)	349,000	257,000	195,700	9,490,000	NA
	Summer*	355,160	265,950	197,500	9,420,000	26,206,00
	Fall	350,300	240,600	192,470	9,592,000	28,776,000
1977	Winter	350,333	261,633	196,500	9,438,000	28,314,00
	Spring	343,100	254,367	189,833	9,308,000	27,925,000
	Summer	338,800	229,800	170,500	9,153,000	27,458,000
	Fall	327,700	208,100	159,700	8,583,000	25,750,00
1978	Winter	320,900	208,600	159,000	8,491,000	25,473,000
	Spring	321,500	210,000	159,600	8,514,000	25,541,00
	Summer	315,300	204,000	153,100	8,271,000	24,813,00
	Fall	319,200	200,300	152,000	8,332,000	24,997,000
1979	Winter	330,300	201,900	152,200	8,631,000	25,893,00
	Spring	334,400	200,000	151,600	8,708,000	26,124,000
	Summer*	340,000	196,900	154,600	6,612,000	19,836,000
	Fall	341,100	200,700	153,700	8,800,000	26,401,00
1980	Winter	337,200	203,000	160,000	8,820,000	26,459,000
	Spring	335,800	201,800	158,200	8,776,000	26,329,00
	Summer[1]	330,400	198,400	151,600	8,557,000	25,671,00
	Fall	332,600	197,200	150,100	8,589,000	25,767,000
1981	Winter	332,600	197,200	150,100	8,650,000	25,950,00
	Spring	332,600	197,200	150,100	8,650,000	25,950,000
	Summer	336,900	201,900	156,500	8,767,000	26,300,000
	Fall					

Source: Statistical Digest, Service Analysis Section

*Strike

1 Beginning Summer 1980, scheduled mileage figures from 4-24 Report are used. Previous actual vehicle miles were from Hub Mileage Report and averaged approximately 2% over scheduled miles.

TABLE A-III

RTD System-Wide
Number of Scheduled Vehicle Hours

Year	Quarter	Average Weekday	Average Saturday	Average Sunday	Average Month Total	Quarter Total
1976	Winter	NA	NA	NA	NA	NA
	Spring (June only)	24,400	18,200	13,200	NA	NA
	Summer*	25,070	18,800	13,700	615,600	1,846,900
	Fall	24,900	18,500	13,400	682,000	2,045,000
1977	Winter	24,500	18,300	13,300	656,000	1,969,000
	Spring	24,000	17,800	13,000	649,000	1,948,000
	Summer	23,600	15,800	11,600	634,000	1,903,000
	Fall	23,200	15,000	11,400	607,000	1,821,000
1978	Winter	22,500	14,900	11,100	596,000	1,787,000
	Spring	22,400	15,000	11,000	592,000	1,775,000
	Summer	21,800	14,300	10,600	573,000	1,720,000
	Fall	22,400	14,300	10,600	584,000	1,753,000
1979	Winter	23,000	14,400	10,600	603,000	1,808,000
	Spring	23,400	14,500	10,700	612,000	1,835,000
	Summer*	23,300	14,700	10,800	458,000	1,374,000
	Fall	23,500	14,500	10,700	610,000	1,829,000
1980	Winter	23,500	14,500	10,700	614,000	1,842,000
	Spring	23,500	14,500	10,700	614,000	1,843,000
	Summer	23,200	14,500	10,700	603,000	1,809,000
	Fall	23,400	14,500	10,700	607,700	1,823,000
1981	Winter	23,400	14,500	10,700	612,000	1,836,000
	Spring	23,400	14,500	10,700	612,000	1,836,000
	Summer	23,600	14,700	11,100	633,000	1,900,000
	Fall					

Source: Statistical Digest, Service Analysis Section

*Strike

TABLE A-IV

RTD System-Wide
Actual Driver Pay Hours

Year	Quarter	Average Weekday	Average Saturday	Average Sunday	Average Month Total	Quarter Total
1976	Winter	NA	NA	NA	NA	NA
	Spring (June only)	30,700	21,700	16,400	827,000	NA
	Summer*	31,000	22,600	18,700	767,100	2,301,000
	Fall	30,900	21,500	18,500	848,000	2,543,000
1977	Winter	29,800	21,300	17,100	802,000	2,407,000
	Spring	29,300	21,000	16,700	796,000	2,388,000
	Summer	29,000	19,400	16,500	792,000	2,375,000
	Fall	29,000	17,400	15,200	761,000	2,284,000
1978	Winter	27,000	17,100	14,300	717,000	2,152,000
	Spring	27,300	17,500	13,500	721,000	2,162,000
	Summer	26,500	17,200	13,300	697,000	2,091,000
	Fall	27,200	17,300	13,300	713,000	2,139,000
1979	Winter	28,300	17,200	14,200	745,000	2,234,000
	Spring	28,900	17,700	14,600	761,000	2,284,000
	Summer*	28,900	17,800	15,000	572,000	1,716,000
	Fall	28,700	16,700	14,400	746,000	2,239,000
1980	Winter	28,000	17,000	14,100	736,000	2,209,000
	Spring	28,000	17,200	14,100	737,000	2,212,000
	Summer	28,000	17,600	14,400	736,000	2,208,000
	Fall	N/A	N/A	N/A	N/A	N/A
1981	Winter	N/A	N/A	N/A	N/A	N/A
	Spring	N/A	N/A	N/A	N/A	N/A
	Summer	28,087	17,438	15,370	745,783	2,237,350
	Fall					

Source: Statistical Digest, Service Analysis Section

*Strike

TABLE A-V

RTD System-Wide Total Operating Cost

Year	Quarter	Average Weekday	Average Saturday	Average Sunday	Average Month Total	Quarter Total
1976	Winter	NA	NA	NA	NA	NA
	Spring (June only)	$657,000	$466,000	$350,000	$17,720,000	NA
	Summer*	625,000	465,000	345,000	14,400,000	NA
	Fall	601,000	447,000	330,000	16,470,000	$49,400,000
1977	Winter	602,000	450,000	338,000	16,230,000	48,700,000
	Spring	587,000	435,000	325,000	16,000,000	47,900,000
	Summer	624,000	424,000	314,000	16,870,000	50,600,000
	Fall	612,000	389,000	298,000	16,030,000	48,100,000
1978	Winter	629,000	409,000	312,000	16,630,000	49,900,000
	Spring	650,000	424,000	323,000	17,205,000	51,614,000
	Summer	660,000	427,000	320,000	17,310,000	51,922,000
	Fall	646,000	406,000	308,000	16,870,000	50,598,000
1979	Winter	757,000	463,000	349,000	19,780,000	59,340,000
	Spring	890,000	532,000	404,000	23,180,000	69,539,000
	Summer*	946,000	548,000	430,000	18,400,000	55,200,000
	Fall	866,000	509,000	390,000	22,340,000	67,018,000
1980	Winter	907,000	546,000	430,000	23,730,000	71,178,000
	Spring	958,000	576,000	451,000	25,045,000	75,135,000
	Summer	1,011,000	607,000	464,000	26,185,000	78,555,000
	Fall	1,093,000	648,000	493,000	28,235,000	84,705,000
1981	Winter	1,026,000	608,000	463,000	26,683,000	80,050,000
	Spring	1,136,000	674,000	513,000	29,548,000	88,645,000
	Summer	1,145,484	686,461	532,172	29,844,000	89,531,000
	Fall					

Source: Statistical Digest, Service Analysis Section

*Strike

TABLE A-VI

RTD System-Wide
Average Estimated Boardings

Year	Quarter	Per Weekday	Per Saturday	% of Weekday	Per Sunday	% of Weekday	Total
1976	Winter	NA	NA	NA	NA	NA	NA
	Spring	NA	NA	NA	NA	NA	NA
	Summer*	990,000	550,000	55.5%	390,000	39.4%	48,000,000
	Fall	970,000	520,000	53.6	340,000	35.1	73,800,000
1977	Winter	1,050,000	570,000	54.3	390,000	37.1	79,300,000
	Spring	1,060,000	580,000	54.7	390,000	36.8	81,000,000
	Summer	1,020,000	540,000	52.9	360,000	35.3	77,900,000
	Fall	1,040,000	520,000	50.0	350,000	33.7	77,300,000
1978	Winter	1,020,000	540,000	52.9	370,000	36.3	77,800,000
	Spring	1,090,000	570,000	52.3	410,000	37.6	83,000,000
	Summer	1,090,000	580,000	53.2	380,000	34.9	81,900,000
	Fall	1,100,000	570,000	51.8	370,000	33.6	82,300,000
1979	Winter	1,100,000	590,000	53.6	380,000	34.5	83,600,000
	Spring	1,280,000	670,000	52.3	450,000	35.2	97,000,000
	Summer*	1,210,000	610,000	50.4	440,000	36.4	68,700,000
	Fall	1,180,000	610,000	51.7	390,000	33.1	88,100,000
1980	Winter	1,230,000	700,000	56.9	440,000	35.8	93,700,000
	Spring	1,320,000	790,000	59.8	520,000	39.4	101,800,000
	Summer	1,220,000	730,000	59.8	480,000	39.3	93,400,000
	Fall	1,330,000	750,000	56.4	490,000	36.8	100,800,000
1981	Winter	1,310,000	720,000	55.0	470,000	35.9	100,100,000
	Spring	1,360,000	720,000	52.9	450,000	33.1	102,800,000
	Summer	1,180,000	690,000	58.5	480,000	40.7	91,000,000
	Fall						
	Mean						

Source: Statistical Digest, Service Analysis Section

*Strike

TABLE A- VII
LOCAL LINES
(Ranked by boardings per bus hour)

Line	Boardings	Boardings per Bus Hour
84	28,774	110.6
29	28,879	106.3
26	54,689	104.1
28	34,768	93.1
834	10,130	87.5
41	10,167	86.7
3	36,708	84.4
50	23,982	83.0
6	30,069	81.5
94	19,074	81.1
12	17,235	79.5
89	19,820	79.5
4	53,045	77.6
83	68,480	77.0
75	24,271	74.8
96	32,755	69.7
32	5,553	67.2
49	15,896	67.2
105	19,040	65.8
55	15,355	65.8
7	21,579	62.5
9	30,305	61.4
832	16,899	59.3
422	8,802	58.4
47	11,441	58.1
210	17,809	58.1
92	14,406	56.4
436	13,184	56.3
78	1,386	56.2
826	7,943	55.2
25	10,008	55.0
8	8,442	54.3
212	12,317	54.1
39	10,883	53.8
24	11,325	52.8
103	2,139	52.1
420	6,460	50.8
163	7,865	50.7
828	11,269	50.5
354	1,356	50.4
157	4,196	50.0
81	8,055	49.2
202	5,297	48.3
840	4,989	47.7
426	7,163	46.2
18	2,822	45.0
836	7,987	44.0
164/165	9,859	43.6
438	3,902	43.6
423	6,394	42.4
841	7,172	41.4
76	1,350	40.9
152	5,648	40.0
155/160	5,583	39.1
428	4,817	38.9
158	3,265	38.4
10	3,704	38.1
33	4,315	37.6
838	2,122	36.3
153	2,102	35.5
877	3,728	35.2
849	2,234	34.6
154	3,613	34.5
440	3,874	33.8
15	923	33.2
159	2,781	33.1
73	3,390	31.5
166/168	3,529	30.3
425	3,720	30.0
183	2,069	29.5
169	2,825	29.5
433	2,669	28.7
175	1,246	27.7
356	1,106	27.5
424	1,887	27.3
435	2,469	27.2
447	1,230	27.1
114	1,029	27.0
17	1,477	26.0
16	1,086	25.3
206	956	24.7
156	1,740	24.6
872	704	24.5
306	773	24.3
846	1,448	24.3
151	1,536	23.8
430	1,565	23.5
842	681	23.5
829	3,516	23.1
871	3,436	23.1
14/87	1,662	23.0
142	2,441	23.0
822	1,010	22.8
844	989	22.5
434	2,124	22.0
34	1,114	22.0
867	627	22.0
97	1,860	21.0
201	1,149	20.2
359	575	20.1
446	848	19.6
869	2,032	18.9
445	825	18.8
431	1,052	18.5
821/831	1,014	18.0
432	2,017	17.6
825	520	17.6
827	1,441	17.4
861	506	17.3
451/453	1,216	15.0
205	290	12.1
452/454	779	11.5
874	160	11.5
161	317	11.4
441/443	755	10.3
204	NA	NA
232	NA	NA
TOTAL	965,813	
MEDIAN		37.6

124 LINES

TABLE A-VIII
LOCAL LINES WITH
EXPRESS SERVICE DURING
PEAK HOURS ONLY
(Ranked by boardings per bus hour)

Line	Boardings	Boardings per Bus Hour
44	38,385	94.9
91	38,990	79.7
42	20,580	68.3
5	27,039	63.3
93	20,245	53.3
86	7,594	42.4
56	5,687	36.2
495	1,159	20.1
TOTAL	159,679	
MEDIAN		58.3
8 LINES		

TABLE A-IX
LOCAL LINES WITH
FULL DAY EXPRESS SERVICE
(Ranked by boardings per bus hours)

Line	Boardings	Boardings per Bus Hour
88	10,476	44.3
35	13,040	43.9
493	789	35.0
810	5,128	34.4
401/402	3,933	33.3
484	6,603	30.0
486	2,516	29.6
490	3,594	28.0
483/485	7,552	27.1
801	1,719	26.4
820	6,872	25.4
480	6,302	24.5
482	2,868	24.3
488	1,968	23.6
813	2,529	23.1
487/491	5,292	21.7
456	2,588	19.0
800	3,083	18.0
607	1,830	16.7
496	1,238	15.2
860	615	12.5
TOTAL	90,535	
MEDIAN		25.4

24 LINES

TABLE A-X
EXPRESS LINES OPERATING ONLY DURING PEAK HOURS

(Ranked by boardings per bus hour)

Line	Boardings	Boardings Per Bus Hour
122	279	25.5
176	1149	23.7
144	964	23.3
494	340	19.4
492	323	16.1
604	624	16.1
606	324	14.8
123	70	13.6
814	550	12.7
601	146	11.8
602	320	11.3
605	237	9.5
608	163	8.2
410	196	N/A
481	1229	N/A
489	946	N/A
34	63	N/A
TOTAL	7872	
MEDIAN		13.6

17 LINES

TABLE A-XI
PARK 'N RIDE LINES

(Ranked by boardings per bus hour)

Line	Boardings	Boardings per Bus Hour
737	411	25.0
757	1,697	23.4
721	921	20.3
764	786	20.3
760	1,321	20.2
755	990	18.0
762	939	17.4
716	366	15.1
758	545	14.6
TOTAL	7,976	
MEDIAN		20.2
9 LINES		

TABLE A-XII
SUBSCRIPTION LINES

Line	Boardings	Boardings per Bus Hour
501	112	N/A
503	98	N/A
504	86	N/A
505	248	N/A
507	100	N/A
508	106	N/A
509	194	N/A
511	100	N/A
512	60	5.6
514	113	10.0
TOTAL	1,044	
MEDIAN		
8 LINES		

TABLE A - XIII
LOCAL LINES OPERATING ONLY
DURING PEAK HOURS
(Premium Fare)

(Ranked by boardings per bus hour)

Line	Boardings	Boardings per Bus Hour
521	30	NA
522	26	NA
524	24	NA
531	74	NA
535	73	NA
536	35	NA
537	25	NA
541	40	NA
542	45	NA
543	15	NA
545	30	NA
TOTAL	417	NA

11 LINES

TABLE A-XIV
SPECIAL SERVICES

Line	Boardings	Boardings Per Bus Hour
551	NA	NA
552	NA	NA
553	NA	NA
554	NA	NA
555	NA	NA
556	NA	NA
557	NA	NA
558	NA	NA
559	NA	NA
561	NA	NA
566	NA	NA
567	NA	NA
571	NA	NA
572	NA	NA
573	NA	NA
574	NA	NA
603	NA	NA
609	NA	NA
610	NA	NA
611	NA	NA
612	NA	NA
613	NA	NA
635	NA	NA

23 LINES

TABLE A-XV – SAMPLE LINES BY TYPE

Type of Line	Line Number	Daily Boardings	% of Category	Riders Per Bus Hour	Revenue Per Boarding $	Subsidy Per Boarding $
Local	29	28,879	3.0%	106.3	.40	.17
	12	17,235	1.8	79.5	.38	.29
	89	19,820	2.1	79.5	.24	.35
	96	32,755	3.4	69.7	.38	.19
	32	5,553	.6	67.2	.41	.37
	47	11,441	1.2	58.1	.35	.30
	210	17,809	1.8	58.1	.38	.29
	826	7,943	.8	55.2	.48	.49
	354	1,356	.1	50.4	.37	.81
	157	4,196	.4	50.0	.48	.38
	81	8,055	.8	49.2	.36	.52
	840	4,989	.5	47.7	.42	1.88
	18	2,822	.3	45.0	.43	.41
	164, 165	9,859	1.0	43.6	.49	.50
	152	5,648	.6	40.0	.49	.48
	155, 160	5,583	.6	39.1	.46	.97
	73	3,390	.4	31.5	.25	.78
	166, 168	3,529	.4	30.3	.53	1.15
	425	3,720	.4	30.0	.40	.83
	169	2,825	.3	29.5	.48	1.16
	175	1,246	.1	27.7	.29	.41
	424	1,887	.2	27.3	.46	1.29
	435	2,469	.3	27.2	.47	1.44
	114	1,029	.1	27.0	.52	.95
	156	1,740	.2	24.6	.48	1.06
	872	704	.1	24.5	.31	.73
	846	1,448	.1	24.3	.52	1.31
	871	3,436	.4	23.1	.44	1.52
	822	1,010	.1	22.8	.51	1.44
	844	989	.1	22.5	.55	2.08
	867	627	.1	22.0	.55	1.52
	869	2,032	.2	18.9	.49	1.66
	431	1,052	.1	18.5	.48	1.86
	821, 831	1,014	.1	18.0	.53	1.89
	861	506	.1	17.3	.51	1.83
	451, 453	1,216	.1	15.0	.50	2.10
	452, 454	779	.1	11.5	.50	4.50
	Sub-total	220,591	22.8%	30.2	.465	.89
	Median	2,823				
Local Peak Express	44	38,385	24.0%	94.9	.40	.13
	91	38,990	24.4	79.7	.26	.25
	86	7,594	4.8	42.4	.42	.88
	Sub-total	84,969	53.2%	79.7	.40	.25
	Median	38,385				
Local-Day Long Express	88	10,476	11.6%	44.3	.51	.41
	484	6,603	7.3	30.0	.63	.87
	488	1,968	2.2	23.6	.64	2.27
	813	2,529	2.8	23.1	.77	1.37
	Sub-total	21,576	23.8%	26.8	.635	1.12
	Median	4,566				
	TOTAL	327,136	26.9%		$.47	$.95

TABLE A-XVI
MAY PASS SALES MIX

Type of Pass	1978 Number	1978 % of Sales	1981 Number	1981 % of Sales	% Change Since 1978
Regular + Express	58,050	43.2%	102,796	45.8%	+77.1%
Park & Ride	274	.2	522	.2	+90.5
Interagency	18	-	20	-	+11.1
Extra-County	40	-	-	-	-
Student	38,089*	28.4	40,707	18.1	+39.1
College/Vocational	-	-	12,285	5.5	
Senior Citizen	34,170	25.4	53,076	23.6	+55.3
Handicapped	3,645	2.7	10,124	4.5	+177.8
Tourist	-	-	4,989	2.2	-
Total Passes	134,286	100.0%	224,519	99.9%	+67.2%
Express Stamps	17,612	100.0%	33,591	100.0%	+90.7%

*Student pass included college students, no age limit

Source: Pass Sales Report

TABLE A-XVII
PERCENT OF WORK TRIPS BY PUBLIC TRANSIT

A R E A	1970	1977
Los Angeles-Long Beach	6.0%	5.3%
Anaheim-Santa Ana-Garden Grove	.5	1.9
20 SMSA'S	10.3	7.3

Source: Current Population Reports, Special Studies, P.23 No. 105 Bureau of the Census, January, 1981.

TABLE A-XVIII
WORK TRIP CHARACTERISTICS: 1977

Mode of Transportation To Work	Los Angeles-Long Beach Number	Percent	Anaheim-Santa Ana Garden Grove Number	Percent	20 SMSA'S Number	Percent
All Workers	2,934,000		843,000		13,658,000	
Drive Alone	2,090,000	73%	640,000	77%	9,062,000	70%
Carpool	452,000	16	128,000	15	2,266,000	17
Public Transit	145,000	5	15,000	2	921,000	7
Walk	89,000	3	16,000	2	518,000	4
Bicycle	24,000	1	11,000	1	98,000	1
Other Means	29,000	1	10,000	1	109,000	1
Work at Home	54,000	2	15,000	2	227,000	2
Median Distance from Home to Work						
All Workers	8.0 Miles		10.0 Miles		7.7 Miles	
Drive Alone	8.4		10.2		8.2	
Carpool	9.7		12.1		9.4	
Bus or Streetcar	7.2		10.1		6.7	
Walk	.6		.6		.6	
Other Means	3.6		3.3		3.5	
Median Travel Time To Work						
All Workers	20.2 mins		20.4 mins		20.3 mins	
Drive Alone	19.9		20.2		19.7	
Carpool	21.9		22.3		22.3	
Bus or Streetcar	32.8		44.1		32.5	
Walk	9.8		7.6		9.3	
Other Means	13.8		13.9		14.9	

Source: Current Population Reports, Special Studies P. 23 No. 105
Bureau of the Census, Jan. 1981