

**TRANSIT SYSTEMS AND POPULATION:
PROFILES OF THREE CALIFORNIA ROUTES**

Prepared by

**The Rose Institute of State and Local Government
Claremont McKenna College
Claremont, California**

EXECUTIVE SUMMARY

Assisted by a grant from the Fluor Corporation, the Rose Institute of State and Local Government has completed a study of the "population profiles" of three urban rail routes in California:

- * The 33-mile system in San Diego County;
- * The 20-mile system planned for Santa Clara County;
- * The 38-mile system proposed for Orange County.

Detailed population data are presented -- in a form allowing easy comparative analysis -- for the areas served by the three systems. Derived from the Rose Institute's California Database using its GeoDem System, the population data cover selected areas (e.g., a quarter-mile corridor on each side of the rail lines, together with radial areas of several sizes around each station).

CONTENTS

ACKNOWLEDGEMENTS

PROJECT DESCRIPTION	TAB 1
Introduction	
Aims of the Study	
Methodology	
Analysis and Conclusion	
SAN DIEGO COUNTY FINDINGS	TAB 2
SANTA CLARA COUNTY FINDINGS	TAB 3
ORANGE COUNTY FINDINGS	TAB 4
APPENDICES	TAB 5
Appendix 1: Reading the Printouts	
Appendix 2: Plans and Maps	

ACKNOWLEDGEMENTS

The Rose Institute wishes to acknowledge the support of the Fluor Corporation for this study. The generous assistance of the Hewlett-Packard Company, which donated the equipment used in the Institute's GeoDem System, must also be cited. Finally, it must be said that, but for grants from the California Roundtable, the California Database -- on which this study is based -- would not exist. We express our sincere gratitude to all of these organizations.

INTRODUCTION

In California, the decade of the 1980s has already seen sharp controversy over public transit systems. Automated people-movers, light rail, heavy rail, and other forms of fixed guideway transportation -- all have their convinced supporters and equally convinced opponents in the State. Los Angeles City, Los Angeles County, San Diego County, Orange County, Sacramento, Santa Clara County and the Bay area beyond BART -- each of these areas has been the scene of struggle over urban rail plans.

Debate over such plans has many dimensions. Complex issues of urban policy are often raised -- ranging from the need to revive ailing center city areas, through questions of growth and minority unemployment, to energy use and air pollution. Questions of feasibility and cost effectiveness are also argued from many points of view: zoning regulations and land use control, taxation policy, community attitudes, population growth prospects, economic vitality, political support, and even psychological attitudes to the automobile are among the questions debated.

Confusing as public discussion of transit planning can often be, one proposition appears to attract wide assent: it is that there must be a certain density or distribution of commuting population to justify investing in fixed guideway transportation. This, itself, of course, is always a controversial question. How "dense" must the residential population be? How do income and automobile ownership affect this requisite density? What is the minimum size of the non-residential concentrations at the destinations of the rail service? What is the maximum distance of station access in areas of differing population density? And so forth. Even so, the beginning point for discussion of public

transportation must always be **population** -- its distribution in an area and its characteristics.

It is troubling, therefore, to find that detailed population statistics are not readily available for several of California's planned and proposed fixed guideway systems. Both proponents and opponents of such systems, it seems, have sometimes failed to arm themselves with the critical facts -- preferring, perhaps, to struggle in the dark.

AIMS OF THE STUDY

The fundamental aim of the present study was to provide population data for each of three areas affected by transit planning: San Diego County, Santa Clara County, and Orange County. The goal was to provide not only total populations for each area (which are the roughest of all indices of rail transit viability), but also detailed facts on the distribution of the population (e.g., its proximity to stations) and on the characteristics of the population (e.g., its ethnic composition, home-ownership, income, and so forth).

Other areas could have been chosen, of course; but these three were selected for this initial study, in part because they possess transit lines at different stages of implementation:

- * San Diego County -- a transit line recently built and currently in operation.
- * Santa Clara County -- a transit line approved for construction, but not yet operating.
- * Orange County -- a transit line proposed, but not yet approved.

To assure a genuine comparative perspective, the study was designed so that data would be presented in identical formats for each area. (At a later date, the hope is to add studies of other areas to permit further comparisons.)

Another advantage of the three areas was that each is the product of contemporary, state-of-the-art transit planning. Lessons drawn from newly-designed systems are obviously more readily applicable than those drawn from older, entrenched systems (where population patterns are often affected by the transit service itself).

It should be admitted, too, that the authors of the study perceived a final advantage of the selected areas in the relative lack of controversy with which development of their transit lines has been attended:

- * San Diego County -- a transit system currently operating; an apparent success.
- * Santa Clara County -- a system planned for a growing, post interstate highway system urban area, widely applauded as the product of advanced transit expertise.
- * Orange County -- an area whose growing commuter population seems substantially agreed on the need to supplement an overburdened freeway system.

And, since this is the first in a planned series of demographic studies relating to transportation and housing in California, our hope is to begin by shedding light on the subject, not by adding heat to controversy.

The study will have met its authors' aims if readers find the information that is presented to be easy to understand and useful. We hope, of course, for critical comment and suggestions as to how data may be better presented in later reports in the series.

METHODOLOGY

The study aimed, then, to produce population statistics on three transit systems -- detailed demographic profiles of each -- and to do so in such a way as to permit easy quantitative comparisons among them. The procedures for constructing each profile involved the tasks outlined below.

A. Transcription of the transit line onto census block maps.

1. The first step in this task was to obtain detailed plans from each of the three county authorities: the San Diego Metropolitan Transit Development Board, the Orange County Transit District, and the Santa Clara County Transit District. (These plans are presented herein as Appendix 2.)
2. The second step was to obtain current U.S. Census Bureau maps of each county. Those used are from the Metropolitan Map Series, numbers 7320, 7360, and 7400.
3. The third step was to draw the routes of the guideways onto the maps, then describe a quarter-mile corridor on either side of each route.
4. The fourth step was to mark each station at its exact location on the route, to assign each a number, and to circumscribe about each a circle with a radius of one-half mile. (A listing of station numbers and their corresponding cross-streets is provided for each county.)
5. Finally, "park-and-ride stations" -- those stations designed to accommodate suburban and rural commuters with parking lots -- were indicated, and circles not only of half-mile radius but also of 2½-mile radius were circumscribed around each. (Note: the 2½-mile reports for each county include data solely on stations with a park-and-ride designation.)

The finished products of this stage of the study were very large wall maps of the transit lines showing commuter station and parking station locations along with their various radial areas, and all corresponding geocensus information (i.e., tract and block numbers).

B. Collection and input of relevant census data into a comprehensive database.

1. The first step of this task was to determine the degree of detail desired. To understand the options involved, it is important to understand the geography of the U.S. Census. The Census Bureau uses three major hierarchical levels of geography in compiling its data. The smallest unit of data is the "block." This unit of census geography was designed to be roughly equivalent to the standard city block. Ideally, each block contains just under one hundred individuals. The second geographic level is the "block group." The block group combines approximately ten census blocks into a contiguous grouping containing an average of 1,000 people. The third and largest level is the "census tract." The census tract contains an average of 4,000 people. The Census Bureau aims to create census tracts that are socio-economically homogeneous and that share all the characteristics of a neighborhood. Census tracts do not cross county or state boundary lines. Given these three levels of detail, the authors of the study opted for the greatest detail possible by choosing to conduct the study at the block level.
2. The second step was to select the census variables to be incorporated into the study. (A full description of these variables is given in Appendix 1.) The variables chosen were: population, race, age, sex, housing tenure (owners vs. renters), income, education, job description, and commute to work. Because census data on income, education, job description and commute to work are available only at the block group level, however, in order to provide data on these variables it was necessary to include data on an entire block group

even though only a portion of it was included in a particular radius. In those cases where blocks were split by a radius, the block was included in its entirety.

3. The third step of this task was to obtain computer coded tapes at the block level from the Census Bureau. These tapes contained the selected demographic information on each census block or block group for the three counties we chose to examine. Following necessary software development, the tapes were loaded onto the Rose Institute's Hewlett-Packard 1000 computer system to form the database used for the analysis. Once input, the database offered the user instantaneous access and recall of information on any block in the database. Given that the census block contains less than one hundred people, the detail of the data is considerable.

C. Input of the geographic information contained on the transcribed route maps into the data base. This third phase of the project involved input of the information contained on the maps into the computer in order to complete the database. The structure of the database allows analysis and comparison of data among counties, as well as analysis of each transit route in relation to data on the county as a whole.

1. The first step in this process involved the use of cartographic staff to code every census block contained within any of the three regions under study (the quarter-mile corridor, and the half-mile and 2½-mile radii) for each county.
2. The second step in this phase was to enter the data at a computer terminal and, once complete, to check and verify the data with the maps to insure accuracy.

- D. Generation of printed reports. Once the database was developed, it was necessary to develop the software to produce a series of useful report formats.
1. The first set of reports summarized the data for each of the three regions considered (the quarter-mile corridor, the half-mile radius, and the 2½-mile radius) for each county. It is important to note that, in order to prevent double counting of overlapping regions, the program used to generate these reports was designed to ignore census tracts and blocks that had already been counted.
 2. The second set of reports summarized the data for each station for the half-mile radius, and for the stations in the 2½-mile radius (park-and-ride) when appropriate, for each county. These reports cover **all** blocks within the stated radial areas of each station. Obviously, many of these radial areas overlap, but since it is not uniformly possible to determine which of two stations residents of an area of overlap would find more convenient, a decision was made **not** to apportion blocks in such areas.
 3. Finally, for purposes of comparison, a county-wide summary report was prepared for each of the three counties.

ANALYSIS AND CONCLUSIONS

The data presented in this study are intended primarily for use by readers in their own analyses. The comments here, therefore, are only of a rather general and preliminary character.

Still, some facts are immediately obvious. First, it is clear from the following table that the three counties are roughly comparable in terms of total

county population and total urban population. The longest of the three transit lines is that proposed for Orange County; the shortest is that planned for Santa Clara County.

**Populations and Track Lengths:
Entire Counties**

	<u>San Diego</u>	<u>Orange</u>	<u>Santa Clara</u>
Total Population	1,861,846	1,932,709	1,295,071
Urban Population	1,704,352	1,926,743	1,243,952
Miles of Track	33.3	38.0	20.0

Examining the total populations served by park-and-ride stations, it is clear from the data presented in the following table that such stations in Orange County would serve very nearly three times the population to be served by such stations in Santa Clara County.

**Population Statistics:
2½-Mile Radii from Park-and-Ride Stations**

	<u>San Diego</u>	<u>Orange</u>	<u>Santa Clara</u>
Total Population	332,361	504,457	179,757
Urban	332,361	504,457	179,757
White	223,316	395,348	143,434
Black	43,437	10,641	5,073
Hispanic	85,790	136,409	35,698
18-65 Yrs.	204,304	326,224	111,605

The population living within a half-mile radius of all stations is also greatest in Orange County, as evidenced in the table on the following page.

**Population Statistics:
Half-Mile Radii from All Stations**

	<u>San Diego</u>	<u>Orange</u>	<u>Santa Clara</u>
Total Population	98,084	129,787	67,038
Urban	98,084	129,787	67,038
White	59,454	91,914	49,742
Black	16,061	3,300	2,003
Hispanic	34,205	51,842	17,951
18-65 Yrs.	59,548	81,786	40,774

The populations living in a quarter-mile corridor on either side of each line are almost exactly equal in the three counties, as is shown in the table below.

**Population Statistics:
Quarter-Mile Corridors**

	<u>San Diego</u>	<u>Orange</u>	<u>Santa Clara</u>
Total Population	38,441	40,380	41,307
Urban	38,441	40,380	41,307
White	16,134	27,078	30,978
Black	12,755	1,290	1,345
Hispanic	14,308	19,043	10,137
18-65 Yrs.	23,157	26,410	25,031

Population densities are easily derived by dividing a unit of area -- usually measured in square miles -- by the population of that same area -- whether total population or the population of a specific sub-group. The result is a number of persons per square mile. Summary population densities for each of the three counties under consideration are given in the table on the following page. Densities in this table were computed for each of four geographic configurations: the county as a whole, the total area covered by 2½-mile radii for all designated park-and-ride stations on a route, the total area covered by half-mile radii for all stations on a route and, finally, the total area covered by

a corridor extending a quarter-mile on both sides along the entire length of the route.

Summary of Population Densities
(persons per square mile)

	<u>San Diego</u>	<u>Orange</u>	<u>Santa Clara</u>
Countywide	437	2,472	996
White	355	2,135	783
Black	25	32	34
Hispanic	60	366	174
18-65 Yrs.	280	1,594	646
All 2½-Mile Radii	1,303	1,116	1,312
White	876	875	1,047
Black	170	24	372
Hispanic	336	302	261
18-65 Yrs.	801	722	815
All Half-Mile Radii	4,163	5,408	3,047
White	2,524	3,830	2,261
Black	682	138	91
Hispanic	1,452	2,160	816
18-65 Yrs.	2,528	3,408	1,853
Quarter-Mile Corridor	2,261	2,125	4,131
White	949	1,425	3,098
Black	750	68	135
Hispanic	842	1,002	1,014
18-65 Yrs.	1,362	1,390	2,503

The first row of figures in each of these four categories gives total population densities. Below each of these are densities calculated for each of four sub-groups of the total population: whites, blacks, Hispanics, and persons between 18 and 65 years of age.

It is clear from this table that, of the three counties, Orange County is by far the densest, for total population as well as for whites, blacks, Hispanics and those from 18 to 65 years of age. If we look at the densities derived for the total area covered by 2½-mile radii for each park-and-ride station, we see that Orange County compares favorably with the other two counties, with one

exception: black population. The black population is much less dense around Orange County park-and-ride stations than around similar stations in San Diego and Santa Clara Counties.

Looking next at all areas within a half-mile of every station on the three routes, we see that Orange County has the highest total population density, as well as the highest densities for each of the sub-groups. Again, however, the exception is blacks: while higher than that of Santa Clara County, the density of blacks in Orange County in these areas is much lower than that of San Diego County.

Finally, consider the densities within the quarter-mile corridor of each route. The total and sub-group densities for the proposed Orange County route are comparable to those of the San Diego route. Again, black population is relatively sparse along the Orange County route. Santa Clara County has the densest total, white, and 18-to-65 populations of the three.

On the following pages are tables detailing population densities for individual stations on each of the three routes. Densities for the 2½-mile radial area are, of course, only given for designated park-and-ride stations. Once again we see that the population within a half-mile of the proposed Orange County stations is much denser than that around stations on the other two routes. At the 2½-mile level, Orange County is very slightly less dense than the other two.

**Population Densities:
Individual Santa Clara County Stations
(persons per square mile)**

<u>Station</u>	<u>Half-Mile Radius</u>	<u>2½-Mile Radius</u>	<u>Station</u>	<u>Half-Mile Radius</u>	<u>2½-Mile Radius</u>
1	43	--	16	3,820	--
2	--	--	17	1,632	--
3	1,834	--	18	8,214	--
4	3,218	--	19	4,903	3,641
5	163	--	20	538	588
6	572	--	21	6,196	2,430
7	501	--	22	5,456	331
8	--	--	23	2,171	1,246
9	1	--	24	1,535	--
10	200	--	25	3,211	--
11	2,827	--	26	3,887	421
12	5,971	--	27	11,296	427
13	2,939	--	28	5,271	--
14	2,320	--	29	3,042	--
15	655	--	30	2,884	--

**Population Densities:
Individual Orange County Stations
(persons per square mile)**

<u>Station</u>	<u>Half-Mile Radius</u>	<u>2½-Mile Radius</u>	<u>Station</u>	<u>Half-Mile Radius</u>	<u>2½-Mile Radius</u>
1	4,163	2,109	17	7,413	2,027
2	8,090	526	18	9,427	1,697
3	3,428	1,608	19	10,041	2,168
4	7,343	683	20	16,488	1,782
5	3,996	785	21	2,125	106
6	9	702	22	2,231	--
7	5,417	1,530	23	7,334	287
8	4,321	--	24	5,675	--
9	8,213	--	25	14,004	--
10	1,041	--	26	5,285	1,054
11	3,850	1,612	27	2,754	690
12	1,201	--	28	6,583	268
13	6,791	2,324	29	3,419	275
14	--	--	30	2,592	--
15	4,734	934	31	989	1,198
16	6,377	514			

**Population Densities:
Individual San Diego County Stations
(persons per square mile)**

<u>Station</u>	<u>Half-Mile Radius</u>	<u>2½-Mile Radius</u>	<u>Station</u>	<u>Half-Mile Radius</u>	<u>2½-Mile Radius</u>
1	4,506	3,124	17	352	--
2	5,897	1,457	18	2,024	--
3	334	632	19	7,534	--
4	4,708	--	20	545	--
5	3,019	987	21	1,297	--
6	4,871	--	22	5,210	--
7	4,003	1,652	23	324	--
8	6,423	1,212	24	2,125	--
9	5,283	1,664	25	1,354	1,223
10	4,194	304	26	6,285	1,307
11	9,882	--	27	6,056	2,463
12	12,136	--	28	3,399	597
13	2,124	--	29	7,803	302
14	2,065	--	30	3,868	--
15	2,703	--	31	--	--
16	1,315	--			

SAN DIEGO COUNTY FINDINGS

County Summary

The first page of computer printout in this section is the "Summary County Report: Block Level." The total population in San Diego County in April of 1980 was reported as 1,861,846. Of this total, some 1,704,352 (91.5%) -- all but 125,898 persons -- are living in what is catagorized as an "urban" area. Of the 670,094 households in the county, 459,315 are families.

Under the heading "Race" at the lefthand side of the printout, we learn that 1,514,006 persons (81.3%) described themselves as "white." Another 5.6% of the population described themselves as "black." A fairly large number of persons (14.8%) are of Spanish origin.

In the center and to the right of this first printout are age and sex breakdowns. At the bottom of these columns are totals showing that 25.6% of all residents are under 18 years of age, 64.1% are 18 to 64 years of age, and 10.3% are 65 years of age or older.

The second page of printout, entitled "County Summary Report: Block Group Level," contains additional census variables at the block group level.

2½-Mile Station Report

The third page of printout provides data on population within a 2½-mile radius of the designated park-and-ride stations in the San Diego County transit system. The report shows that 332,361 persons reside within the 2½-mile radii of such stations. Of that total, 85,790 (25.8%) are of Spanish origin. The critical "ridership" population in the 18 to 64 year old category was 204,304.

The fourth printout sheet relates additional census variables at the block group level.

Half-Mile Station Report

The fifth page of computer printout provides data on all population living within half-mile radii of all stations on the route. The report shows that 98,084 persons reside within such radial areas. Of this total, 16.4% are black and 34.9% are of Spanish origin. The critical "ridership" population in the 18 to 64 year old category numbers 59,548.

The sixth page of printout provides specific information at the block group level for all persons residing within a half-mile radius of any station. This report shows that 88.0% of these individuals work in the county. In addition, 57.1% currently drive to work alone.

Quarter-Mile Corridor Report

The seventh sheet of printout in this section is a report on all population residing in a corridor extending a quarter-mile on either side of the transit line. The printout shows a total of 38,441 persons in this corridor. Of these, 42.0% described themselves as "white," 33.2% as "black," and 37.2% as being of Spanish origin. Those in the 18 to 64 age category number 23,157.

The eighth sheet of printout gives similar statistics at the block group level for this same quarter-mile corridor. Within this range, only 0.8% work outside the county, with 27.5% spending from 20 to 29 minutes in their daily commute to work.

Individual Station Reports: Half-Mile and 2½-Mile Stations

The remaining pages of printout in this section present data for individual stations on the San Diego County route. The individual station numbers are identical to those given in the cross-street listing on the following page. The format of these printouts is essentially the same as those discussed above.

San Diego County Stations

The listing below gives cross-street identifications for each station on the San Diego County route.

<u>Station</u>	<u>Park</u>	<u>Cross-Streets</u>
1	Yes	Main Street & Marshall Avenue
2	Yes	Severin Drive & Amaya Drive
3	Yes	Grossmont Center Drive & Alvarado Road
4	No	La Mesa Boulevard & Spring Street
5	Yes	Spring Street (no cross-street)
6	No	Broadway & Main Street
7	Yes	Massachusetts Avenue & Main Street
8	Yes	62nd Street & Akins Avenue
9	Yes	Euclid Avenue & Market Street
10	Yes	47th Street & SDARR
11	No	32nd Street & Commercial Street
12	No	25th Street & Commercial Street
13	No	13th Street & Imperial Avenue
14	No	12th Street & Island Road
15	No	12th Street & G Street
16	No	12th Street & C Street
17	No	C Street & 8th Street
18	No	C Street & 5th Street
19	No	C Street & 2nd Street
20	No	Columbia Street & C Street
21	No	Crosby Street & Harbor Drive
22	No	28th Street & Harbor Drive
23	No	32nd Street & Harbor Drive
24	No	8th Street & Harbor Drive
25	Yes	24th Street & Montgomery Freeway (5)
26	Yes	H Street & Montgomery Freeway (5)
27	Yes	Palomar Street & Industrial Boulevard
28	Yes	Palm Avenue & Industrial Boulevard
29	Yes	Iris Avenue & Howard Avenue
30	Yes	East Beyer Boulevard & Center Street
31	No	Mexican Border

San Diego County Reports and Printouts

The remainder of this section contains the following reports and printouts for the San Diego County transit route:

1. County Summary Report
2. 2½-Mile Summary Report: Block Level
3. 2½-Mile Summary Report: Block Group Level

4. Half-Mile Summary Report: Block Level
5. Half-Mile Summary Report: Block Group Level
6. Quarter-Mile Corridor Summary Report: Block Level
7. Quarter-Mile Corridor Summary Report: Block Group Level
8. 2½-Mile Station Reports: Block Level
9. 2½-Mile Station Reports: Block Group Level
10. Half-Mile Station Reports: Block Level
11. Half-Mile Station Reports: Block Group Level

SANTA CLARA COUNTY FINDINGS

County Summary

The first page of computer printout in the Santa Clara County section is the "Summary County Report: Block Level." The population of the county in April of 1980 was reported as 1,295,071. Of this total, some 1,243,952 (96.1%) -- all but 29,478 persons -- are categorized by the Census Bureau as "urban." Of the 453,519 households in the county, a total of 324,338 are families.

Under the heading "Race" at the lefthand side of the printout, we learn that 1,017,854 persons (78.6%) described themselves as "white." A fairly large number (226,611 persons, or 17.5%) described themselves as being of Spanish origin.

In the center and to the right of this page of printout are age and sex breakdowns. At the bottom of these columns are totals showing that 27.7% of residents are under 18 years of age, 64.9% are 18 to 64 years of age, and 7.5% are 65 years of age or older.

The second page of printout, entitled "County Summary Report: Block Group Level," contains additional census variables at the block group level.

2½-Mile Station Report

The third page of printout provides data on population living within 2½-mile radii of the designated park-and-ride stations along the planned Santa Clara County transit system. This report shows that 179,757 persons reside within areas radial to such stations. Of that total, 35,698 (19.9%) are of Spanish origin. The critical "ridership" population in the 18 to 64 year old category was 11,605.

The fourth page of printout provides additional census variables at the block group level.

Half-Mile Station Report

The fifth page of computer printout provides aggregate data on the population living within half-mile radii of all stations on the route. This report shows that 67,038 persons reside within such radial areas. Of this total, 3.0% are black and 26.8% are of Spanish origin. The critical "ridership" population in the 18 to 64 year old category numbers 40,774.

The sixth page of printout provides specific information at the block group level for persons residing within a half-mile radius of any station along the planned Santa Clara County route. This report shows that 83.5% of these individuals work in the county, and that 70.2% currently drive to work alone.

Quarter-Mile Corridor Report

The seventh sheet of printout in this section is a report on all persons living within a quarter-mile corridor on either side of the transit line. The printout shows a total of 41,307 persons residing in this corridor. Of these, 75.0% described themselves as "white," 3.3% as "black," and 24.5% as being of Spanish origin. Those in the 18 to 64 age category number 25,031.

The eighth sheet of printout gives similar statistics at the block group level for this same quarter-mile corridor. Within this range, 4.4% work outside the county, with 20.9% spending from 20 to 29 minutes per day commuting to work.

Individual Station Reports: Half-Mile and 2½-Mile Stations

The remaining pages of computer output in this section relate to

individual stations. The individual station numbers are identical to those given in the cross-streets listing on the following page. The format of these printouts is essentially the same as those discussed above.

Santa Clara County Stations

The following listing gives cross-street identifications for each station on the route planned for the Santa Clara County transit system.

<u>Station</u>	<u>Park</u>	<u>Cross-Streets</u>
1	No	Tasman Drive & Ironsides Drive
2	No	Great American Parkway & Tasman Drive
3	No	Tasman Drive & Calle del Sol
4	No	North 1st Street & Tasman Drive
5	No	North 1st Street & Mauvais Road
6	No	North 1st Street & Orchard Parkway
7	No	North 1st Street & Bonaventura Drive
8	No	North 1st Street & Component Drive
9	No	North 1st Street & Karina Court
10	No	North 1st Street & Odell Drive
11	No	North 1st Street & Gish Road
12	No	North 1st Street & Jackson Street
13	No	North 1st Street & Bassett Street
14	No	North 1st Street & James Street
15	No	North 1st Street & Santa Clara Street
16	No	North 1st Street and San Antonio Street
17	No	Almaden Boulevard & San Carlos Street
18	No	Virginia Street at 87 Expressway
19	Yes	Alma Avenue at 87 Expressway
20	Yes	Curtner Avenue at 87 Expressway
21	Yes	Capital Expressway & Narvaez Avenue
22	Yes	Branham Lane at 87 Expressway
23	Yes	Chynoweth Avenue at 87 Expressway
24	No	SPTRR at West Valley Freeway 85
25	Yes	Coleman Road & Winfield Boulevard
26	Yes	Blossom Hill Road & West Valley Freeway 85
27	Yes	Snell Road & West Valley Freeway 85
28	No	Lean Avenue & West Valley Freeway 85
29	Yes	Cattle Road & West Valley Freeway 85
30	No	Bathurst Way

Santa Clara County Reports and Printouts

The remainder of this section includes the following reports and printouts for the planned Santa Clara County transit route:

1. County Summary Report
2. 2½-Mile Summary Report: Block Level
3. 2½-Mile Summary Report: Block Group Level
4. Half-Mile Summary Report: Block Level
5. Half-Mile Summary Report: Block Group Level
6. Quarter-Mile Corridor Summary Report: Block Level
7. Quarter-Mile Corridor Summary Report: Block Group Level
8. 2½-Mile Station Reports: Block Level
9. 2½-Mile Station Reports: Block Group Level
10. Half-Mile Station Reports: Block Level
11. Half-Mile Station Reports: Block Group Level

ORANGE COUNTY FINDINGS

County Summary

The first page of computer printout in this Orange County section is the "Summary County Report: Block Level." The total population Orange County in April of 1980 was reported as 1,932,709. Of this total, some 1,926,743 (99.7%) -- or all but 5,966 persons -- are categorized as living in "urban" areas. Of the 686,267 households in the county, 492,570 are families.

Under the heading "Race" at the lefthand side of the printout, we learn that 1,669,314 persons (86.4%) described themselves as "white." In addition, a fairly large population (14.8%, or 286,339 persons) is of Spanish origin.

In the center and to the right of this printout are age and sex breakdowns. At the bottom of these columns are totals showing that 27.2% of all Orange County residents are under 18 years of age, 64.5% are 18 to 64 years of age, and 8.3% are 65 years of age or older.

The second page of printout, entitled "County Summary Report: Block Group Level," contains additional census variables at the block group level.

2½-Mile Station Report

The third page of printout provides data on all persons living within 2½-mile radii of the designated park-and-ride stations in the proposed Orange County transit system. The report shows that 504,457 persons reside within areas radial to these stations. Of that total, 136,409 (27.0%) are of Spanish origin. The critical "ridership" population in the 18 to 64 year old category is 326,224.

The fourth page of printout provides additional census data at the block group level.

Half-Mile Station Report

The fifth page of printout provides data on all persons living within a half-mile radius of all stations on the proposed Orange County route. This report shows that 129,676 persons reside within such radial areas. Of this total, 2.5% are black and 40.0% are of Spanish origin. The critical "ridership" population in the 18 to 64 year old category numbers 81,703.

The sixth page of printout provides demographic information at the block group level for persons residing within these same half-mile radii. This report shows that 77.9% of these individuals work in the county. In addition, 69.0% currently drive to work alone.

Quarter-Mile Corridor Report

The seventh sheet of printout in this section is a report on all population living within a quarter-mile corridor extending from either side of the transit line. The printout shows a total of 40,270 persons residing in this corridor. Of these, 67.0% described themselves as "white," 3.2% as "black," and 47.3% as being of Spanish origin. Those in the 18 to 64 age category number 26,332.

The eighth sheet of printout gives statistics at the block group level for this same quarter-mile corridor. Within this corridor, 11.8% work outside the county, with 22.9% spending from 20 to 29 minutes commuting to work each day.

Individual Station Reports: Half-Mile and 2½-Mile Stations

The remainder of the printout in this section relate to individual stations on the proposed Orange County transit route. The individual station numbers are identical to those given in the cross-streets listing on the following page. The format of these printouts is essentially the same as those discussed above.

Orange County Stations

The following listing gives cross-street identifications for each of the stations proposed in the Orange County plan.

<u>Station</u>	<u>Park</u>	<u>Cross-Streets</u>
1	Yes	Fullerton Amtrak
2	Yes	Harbor and Orange Fair
3	Yes	Harbor and Lincoln
4	Yes	Harbor and Ball
5	Yes	Harbor and Katella
6	Yes	Anaheim Stadium
7	Yes	City Drive at UCI Medical Center
8	No	La Veta and Main
9	No	17th Street and Main
10	No	9th Street and Main
11	Yes	Beach and the Santa Ana Freeway
12	No	Knott's Berry Farm
13	Yes	Orange and Beach
14		misnumbered station
15	Yes	Brookhurst and Pacific Electric
16	Yes	Katella and Pacific Electric
17	Yes	Euclid and Pacific Electric
18	Yes	Harbor and Pacific Electric
19	Yes	Fairview and Pacific Electric
20	Yes	Santa Ana Boulevard and Bristol
21	Yes	Santa Ana Boulevard and Ross
22	No	Santa Ana Boulevard and Fifth
23	Yes	Santa Ana Boulevard and Amtrak
24	No	First and Main
25	No	Edinger and Main
26	Yes	Warner and Main
27	Yes	MacArthur and Main
28	Yes	Bristol Street
29	Yes	Bristol and Baker
30	No	MacArthur and John Wayne Airport
31	Yes	University Drive and MacArthur

Orange County Reports and Printouts

The remainder of this section includes the following reports and printouts for the proposed Orange County route:

1. County Summary Report
2. 2½-Mile Summary Report: Block Level
3. 2½-Mile Summary Report: Block Group Level

4. Half-Mile Summary Report: Block Level
5. Half-Mile Summary Report: Block Group Level
6. Quarter-Mile Corridor Summary Report: Block Level
7. Quarter-Mile Corridor Summary Report: Block Group Level
8. 2½-Mile Station Reports: Block Level
9. 2½-Mile Station Reports: Block Group Level
10. Half-Mile Station Reports: Block Level
11. Half-Mile Station Reports: Block Group Level

APPENDIX 1:
READING THE PRINTOUTS

**APPENDIX 1:
READING THE PRINTOUTS**

(Source: U.S. Census Bureau)

Race

All persons were asked to identify themselves according to the following race categories on the 1980 questionnaire: White, Black or Negro, American Indian, Eskimo, Aleut, Japanese, Chinese, Filipino, Korean, Asian Indian, Vietnamese, Hawaiian, Guamanian, Samoan, and Other. The 'Other' category includes Malayan, Polynesian, Thai, and other groups not included in the specific categories listed on the questionnaire.

White White and responses written in such as Canadian, German, Italian, Lebanese, or Polish.

Black Black and Negro and responses written in such as Black Puerto Rican, Haitian, Jamaican, Nigerian, or West Indian.

American Indian Self described as "Indian (American)" or written in as the name of an Indian tribe.

Eskimo Self-described.

Aleut Self-described.

Japanese Self-described or written in as Nipponese or Japanese-American.

Chinese Self-described or written in as Cantonese, Formosan, Taiwanese or Tibetan.

Filipino Self-described or written in as Filipino-American or Philippine.

Korean Self-described or written in as Korean-American.

Asian Indian Self-described or written in as Bengali, Bharate, Dravidian, East Indian, Goanese, Hindu Indian, Kashmiri, or South Asian.

Vietnamese Self-described or written in as Vietnam.

Hawaiian Self-described or written in as part-Hawaiian.

Guamanian Self-described or written in as Chamorrow or Guam.

	<p><u>Samoan</u> Self-described or written in as American Samoan or Western Samoan.</p> <p><u>Other</u> All others not included in the categories above, including Eurasian, Cosmopolitan, or a Spanish origin group such as Mexican, Cuban, or Puerto Rican.</p>
Spanish Origin	Self described as being of Spanish origin or descent. If in doubt, origin of mother was used. This category is the sum of Mexican, Puerto Rican, Cuban, and other Spanish responses.
Mexican	Persons who indicated Mexican, Mexican-American, Chicano, or wrote in an entry such as "La Raza."
Puerto Rican	Persons who indicated Puerto Rican or wrote in an entry such as "Borican."
Cuban	Persons who indicated Cuban.
Other Spanish	Persons who marked "other Spanish/Hispanic"; or persons who wrote in an origin or descent associated with Spain, the Dominican Republic, or any Central or South American country except Brazil or a non-specific Spanish group such as "Spanish surnamed" or "Spanish speaking."
Tenure	<p>The classification of all occupied housing units as either owner-occupied or renter-occupied.</p> <p><u>Owner-occupied</u> A housing unit is 'owner-occupied' if the owner or co-owner lives in the unit even if the unit is mortgaged or not fully paid for.</p> <p><u>Renter-occupied</u> All occupied housing units which are not owner-occupied, regardless of whether or not cash rent is paid by a member of the household.</p>
Urban / Rural	Urban and rural are type-of-area concepts rather than specific areas outlined on maps. As defined by the Census Bureau, the urban population comprises all persons living in urbanized areas (UAs), and in places of 2,500 or more inhabitants outside UAs. The rural population consists of all others. Therefore, a rural classification need not imply farm residence or a sparsely settled area, since a small city or town is rural as long as it is outside a UA and has fewer than 2,500 inhabitants.
Urbanized Area	A population concentration of at least 50,000 inhabitants, generally consisting of a central city and the surrounding, closely settled, contiguous territory. The UA criteria define a boundary based primarily on a population density of at least 1,000 persons per square mile, but also include some less densely settled areas,

and such areas as industrial parks and railroad yards, if they are within areas of dense urban development.

Age Age at last birthday, i.e., number of completed years as of April 15, 1980.

Family Two or more persons, including the householder, who are related by birth, marriage, or adoption, and who live together as one household. All such members are considered as members of one family.

Household The person or persons occupying a housing unit.

Place of Work Geographic location of plant, office, store or other establishment where the person worked most "last week." Counts both civilian and armed forces over 16 years of age on a sample basis only. Place-of-work tabulations do not necessarily give the total number of persons who work in the specified area, only those who also reside within the area summarized.

Transportation To Work Principal means of travel or conveyance during the reference week in question.

Drive Alone Includes persons who usually drove alone as well as persons who were driven to work by someone who then drove back home or to a non-work destination.

Carpool Persons who share driving, drive others only, or ride as a passenger only.

Public Transportation Buses or streetcars, railroads (including commuter trains), subway or elevated (rapid transit operating on its own right-of-way underground, on the surface, or elevated), and taxicab.

Other Means Motorcycles, bicycles, write-in responses (e.g., ferryboat, airplane), and persons who "walked only," i.e., who walked to work and used no other means of transportation.

Worked at Home Persons working on a farm where he or she lived or worked in an office or shop in the person's house.

Travel Time To Work The usual number of minutes spent in traveling from home to work (one-way) during the reference week, ascertained for persons at work "last week" and tabulated for persons 16 years old and over. Travel time includes time spent waiting for public transportation, picking up passengers in carpools, etc. Time taken occasionally to stop for meals, shopping, appointments, taking children to school, etc., was not included.

Vehicle Occupancy	The number of people, including the respondent, who usually rode together to work in a car, truck, or van during the reference week ("last week"). Riders who rode to school or some other non-work destination were not included.
Income	Total money income received in calendar year 1979, ascertained on a sample basis for all persons 15 years old and over. Total income is the sum of amounts reported separately for income from wages and salaries; farm and non-farm self-employment; interest, dividends, and net rental; Social Security; public assistance; and all other sources. The figures represent the amount of income received before deductions for personal income taxes, Social Security, bond purchases, union dues, medicare deductions, etc. Receipts from the following sources were not included as income: money received from the sale of property (unless the recipient was engaged in the business of selling such property, in which case, the net proceeds would be counted as income from self-employment); the value of income "in kind" such as free living quarters or food produced and consumed in the home; withdrawal of bank deposits; money borrowed; tax refunds; exchange of money between relatives living in the same household; and gifts and lump-sum inheritances, insurance payments, and other types of lump-sum receipts.
Median Income	The median income is based on the distribution of the total number of families and unrelated individuals, whereas for persons the median income is based on the distribution of persons 15 years old and over with income.
Industry	The kind of business or industrial activity in which the person was employed during the reference week or, if not employed, in which the person was most recently employed since 1975. Persons working at more than one job were instructed to describe the one at which they worked the most hours during the reference week. If the employer was engaged in more than one activity, the respondent was instructed to describe only the major activity at the place or the facility where the person worked. Responses were coded to one of 231 industry categories.
Occupation	The kind of work the person was doing at a job or business during the reference week or, if not at work, at the most recent job or business if employed since 1975. Persons working at more than one job were instructed to describe the one at which the person worked the most hours during the reference week. These responses were coded into one of the 503 occupation categories.