EIR 1983

FASHION SQUARE COMMERCIAL CENTER

(MainPlace)

VOLUME I

PREPARED FOR
THE CITY OF SANTA ANA
COMMUNITY REDEVELOPMENT AGENCY

final environmental impact report

PREPARED BY
ULTRASYSTEMS, INC.
16845 VON KARMAN AVENUE
IRVINE, CALIFORNIA 92714
(714) 863-7000

FINAL ENVIRONMENTAL IMPACT REPORT
CITY OF SANTA ANA REDEVELOPMENT PROJECT

FASHION SQUARE COMMERCIAL CENTER

PREPARED FOR:
THE CITY OF SANTA ANA
COMMUNITY REDEVELOPMENT AGENCY

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SEPTEMBER, 1983

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TABLE OF CONTENTS

TABLE OF CONTENTS (CONTINUED)

TABLE OF CONTENTS (CONTINUED)

TABLE OF CONTENTS (CONTINUED)

TABLE OF CONTENTS (CONTINUED)

LIST OF FIGURES

LIST OF FIGURES (Continued)

LIST OF TABLES

LIST OF TABLES (CONTINUED)

LIST OF TABLES (CONTINUED)

1.0 INTRODUCTION

This Environmental Impact Report (EIR) has been prepared to evaluate the environmental impacts of the proposed "Fashion Square Commercial Center" project. The proposed "Fashion Square Commercial Center" project involves the demolition of the existing Main Street Shopping Center, rehabilitation of Fashion Square Shopping Center and a maximum permitted development of 3,100,000 square feet of office and retail space and 1,200 hotel rooms.

This EIR is prepared as a "subsequent environmental impact report" to address the environmental impacts of an undertaking which is in furtherance of the Redevelopment Plan of the Santa Ana Redevelopment Project (as amended in June, 1975) and which is located within the project area established by that amended Redevelopment Plan. An environmental impact report was certified for the amended Redevelopment Plan on May 15, 1975, and is now a public record available for inspection in the offices of the Community Redevelopment Agency of the City of Santa Ana ("Agency"). This EIR is designed to be complete in itself, rather than merely as a supplement to the amended Redevelopment Plan EIR. For purpose of convenience, the word "project" is used herein to refer to this specific undertaking in furtherance of the amended Redevelopment Plan rather than to refer to the Santa Ana Redevelopment Project as a whole.

This EIR has been prepared for the City of Santa Ana Community Redevelopment Agency in accordance with the Guidelines for Implementation of the California Environmental Quality Act of 1970 (California Administrative Code, sections 15000 et. seq.).

The following organizations with this project in the capacities indicated:

Lead Agency

Community Redevelopment Agency
City of Santa Ana
20 Civic Center Plaza
Santa Ana, California 92701
(714) 834-4228

Project Participants

Federated Department Stores, Inc. and
Santa Ana Venture
3315 Fairview Road
Costa Mesa, California 92626
(714) 546-0110

Traffic Consultant

Barton-Aschman Associates, Inc.
180 South Lake Avenue, Suite 260
Pasadena, California 91101
(213) 449-3917

JEF Engineering
601 Sandlewood Avenue
La Habra, California 90631
(714) 738-7139

Environmental Consultant

Ultrasystems, Inc.
2400 Michelson Drive
Irvine, California 92715
(714) 752-7500

2.0 GENERAL SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

2.1 Land Use

The project would result in the demolition of Mainstreet Center, rehabilitation of Fashion Square and provide a maximum development of 3,100,000 square feet of office/retail commercial use and 1,200 hotel rooms on the site. The project is consistent with the Community Shopping Center land use designation for the site while a small portion of the site would require a zone change from R-1 (Single Family Residential) to C-2 (General Commercial). The tenants of Main Street Center and some Fashion Square tenants will require relocation due to the project. The project would accomplish the objectives of the Redevelopment Plan by revitalizing and restoring the economic, physical and social health of the Redevelopment Project Area. Without mitigation, the project would result in the loss of approximately 198 parking spaces used for parking for the KLST-owned Fidelity Federal Savings building, but mitigation measures are available which would allow that building to retain an acceptable level of parking spaces in accordance with City code standards.

Mitigation Measures

(a) The project should be landscaped similar to or more extensive than the existing landscaping in order to buffer the development from surrounding residential areas as much as possible.

(b) All tenants displaced by the project will be provided assistance in accordance with State law and Santa Ana Redevelopment Agency policies.

(c) The Agency and the Project Participants should offer KLST land (including the Agency owned land to the south of the Fidelity Savings Building and a portion of the project site in the near vicinity)

at fair market value (or fair rent, if a lease arrangement is preferred) in trade-off against the acquisition of Sales Parcels 3 and 5. The land area so offered should be sufficient to allow a total of at least 351 parking spaces serving the Fidelity Savings building assuming a maximum permitted amount of small car spaces, with the Agency and/or Project Participants bearing any necessary design and installation costs.

2.2 Soils and Geology

Impacts

There are no anticipated soil and geology impacts with the proposed project.

Mitigation Measures

No mitigation measures are proposed.

2.3 Hydrology

Impacts

The existing drainage facilities that serve the site should be adequate to accommodate the additional runoff generated by the project.

Mitigation Measures

No mitigation measures are proposed.

2.4 Biota

Impacts

The project would not result in any significant vegetative impacts. The proposed project will to provide a landscaping plan that requires Agency approval per the Participation Agreement. During demolition and construction phases of the project, small grounddwelling animals and birds would be forced to migrate to outlying areas. When the project is completed and the project area is re-landscaped, wildlife would probably return.

Mitigation Measures

The Participation Agreement requires the Project Participant to provide adequate landscaping on the site and provides for the Redevelopment Agency to approve all preliminary and final landscaping plans submitted by the Participant.

2.5 Archaeology

Project Impacts

Since most of the site is already developed and there are no recorded sites on the property, no impacts are anticipated.

Mitigation Measures

No mitigation measures are proposed.

2.6 Traffic and Circulation

Impacts

The project will have significant traffic impacts on the arterial highway and freeway system surrounding the site. Increased traffic will create the need for a substantial investment in improvements to the existing highway and transit system and creation of a TSM/Parking Management Program capable of achieving a 20 percent shift to a ride sharing/transit mode. Even with full implementation of all recommended transportation improvements, the project will cause a significant change in existing travel patterns. Although the project has a significant impact of the streets immediately surrounding the site, an even greater impact occurs on the freeways. Approximately 70 percent of the project is directly oriented to the freeways. If the freeway capacity is not increased, this traffic will be diverted to local arterials causing major congestion on Main Street.

Mitigation Measures

1. Pay a one percent assessment fee to the areawide TSIP Program for implementation of improvements.

2. Provide funding for construction of two new freeway ramps on the west side of Fashion Square.

3. Widen Main Street in front of Fashion Square to provide four southbound lanes and a 26 foot wide median.

4. Construct a public road around Fashion Square.

5. Widen the Main Street entrance to Fashion Square and provide funding to construct a left turn lane on Town and Country Road and modify the signal phasing.

6. Provide funding to install traffic signals on La Veta Avenue at Bedford Road and the southbound Rte 57 Fwy off-ramp.

7. Develop and implement an aggressive TSM Program to maximize use of transit, ride sharing and staggering of work hours with a goal of achieving a 20 percent reduction in overall trip generation.

8. Develop an on-site pedestrian circulation plan with buildings designed to accommodate second level access from a transit station and/or a pedestrian bridge located in the vicinity of Main Street/Town and Country road.

2.7 Noise

Project Impacts

The project will generate additional noise in the local area due to demolition of existing on-site structures, construction activity, construction traffic and project-generated traffic. Since construction activities are limited to daytime hours and there are no "noise sensitive" land uses immediately adjacent to the site, no adverse noise impacts are anticipated during phase development of the project. The project may be expected to increase traffic noise levels along Owens Drive east of Main Street. Since the development plans are for commercial uses, the majority of traffic noise related to the project would occur during the daytime hours. Late night and early morning hour noise levels are not expected to be much different than existing conditions. Therefore, residents on Owens Drive closest to Main Street could anticipate increased noise levels only during the daytime.

Mitigation Measures

No mitigation measures are proposed.

2.8 Air Quality

Project Impacts

The construction phase of the project would produce two sources of air pollution emissions. These are exhaust emissions from construction and grading equipment and dust generated as a result of earth movement and equipment traffic on local streets. The dust emissions may cause a nuisance to people and businesses located on adjacent properties or along roadways used by the earth-moving equipment

or to motorists who park motor vehicles in the vicinity of the project. Upon completion of construction, the dust emissions would cease. The exhaust emissions would be of short-term duration during the construction phase only.

The stationary on-site emissions resulting from natural gas consumption by the project is approximated to considered to be negligible when comparing this to the 1987 total emissions inventory projected for Orange County. The contribution of all other on-site generated air pollutants to the projected County emissions inventory is considered negligible (i.e., less than 0.1 percent).

The stationary emissions resulting from project electrical energy consumption would occur off-site at electrical power-generating plants located throughout the utility's generating network.

The emissions associated with project traffic would incrementally contribute to primary pollutant concentrations near local intersections during peak traffic periods and also result in incremental air quality deterioration.

The proposed project is consistent with the AQMP population forecast for this area of Orange County. The project is also consistent with SCAG-78 land use projections in Orange County.

The aggregate long term contribution of the estimated project emissions to the 1987 Orange County emission inventory ranges from a negligible amount of organic gases to 0.7 percent of nitrogen oxides, depending upon the type of pollutant. The proposed project's air quality emissions would not have a significant adverse impact on the environment.

Mitigation Measures

Since increased air emissions resulting from the Project are due primarily to (1) increased traffic and (2) increased use of electricity, and since mitigation measures for these areas of concern are discussed elsewhere in this report, no additional mitigation measures are proposed here.

2.9 Shade/Shadow, Solar Glare, Illumination

Project Impacts

Depending upon the height and the location of the buildings, there could be shade/shadow impacts to surrounding land uses, including residential areas.

There could be on-site and off-site solar reflection impacts if glass and/or reflective mirrors are used on the exterior of the proposed buildings. These solar reflection impacts could include "blind" spots for motorists, as well as a nuisance and annoyance for pedestrians and shoppers. These reflections could also extend to adjacent residential areas.

The project would also result in increased illumination due to aesthetic, security lighting and illumination after dark from the office buildings due to cleaning crews and people working in the buildings. However, any increase in illumination is not anticipated to have any significant impacts on surrounding land uses due to the existing illumination in the area.

Mitigation Measures

Development plans submitted to the Agency for approval pursuant to the Participation Agreement should be accompanied by a

shade/shadow analysis in order to determine the best building locations and heights for the structures which could result in the least shade/shadow impact, if any, to the surrounding land uses.

Non-reflective building exteriors should be used, unless the buildings are oriented so that their surfaces are directed away from other structures, roadways and residential areas in the project area.

All on-site lighting should be directed downward and shielded from surrounding land uses. Low-intensity lighting in the parking areas should be utilized and flood lighting should be discouraged.

2.10 Aesthetics

Project Impacts

The project site would be altered by the removal of the existing Mainstreet Center and several surface-level parking lots. Consistent with the Redevelopment Plan objectives the project would support the aesthetic quality of the North Main shopping area. Since there are existing high-rise buildings in the project area, the development of high-rise buildings on the site should not result in an adverse impact.

Mitigation Measures

The Participation Agreement incorporates standards and controls which would preclude any development which is unacceptable to the community on aesthetic grounds.

Pursuant to the Participation Agreement, all buildings would be constructed of high architectural quality with landscaped areas. The structures must be effectively and aesthetically designed. The shape, scale of volume, exterior design and exterior finish of each building must be consistent with, visually related to, physically related to and

an enhancement to each other and the surrounding project area. Landscaping would be provided to integrate this project with adjacent projects. Architectural, landscape and site plans must be approved by the Agency.

2.11 Housing/Population

Project Impacts

The project is anticipated to generate an estimated 8,630 employees. However, due to the relatively high unemployment rate which has added to the ample labor supply already existing in the City, the proposed project would draw its employees from a resident labor supply to a great extent.

Even though most of the job opportunities created by the project will be filled by persons already residing in the area, the project will result in some increase in the demand for housing. Some of the new employees will be persons residing a considerable distance from the project who will desire to move into Santa Ana or other neighboring communities in order to shorten their commuting distance. By contributributing to the general demand for housing in the area, such persons will add somewhat to the existing housing market problems, such as the difficulties of finding affordable housing and upward pressures on housing costs.

Mitigation Measures

No mitigation measures are proposed.

2.12 John Wayne Airport

Project Impacts

Like any other development in Orange County, the project may result in increased demand at the airport. The impact of this

development, relative to that of county-wide development, is not considered significant. Any structure constructed on the site over approximately 58 feet in height would require Federal Aviation Administration approval. The Federal Aviation Administration would make a determination as to the aeronautical hazard of any proposed structures which intrude above the imaginary horizontal surface of 203 feet above sea level. Flashing-red obstruction lights might be required as a precaution for aircraft safety.

Mitigation Measures

No mitigation measures are proposed.

2.13 Public Services and Utilities

Natural Gas

Project Impacts

The project would consume approximately 86,210,000 cubic feet of natural gas per month. The project would not have a significant impact on Southern California Gas Company's ability to provide gas service to the project.

Mitigation Measures

No mitigation measures are proposed other than the energy conservation measures discussed in Section 5.14 (Energy) of this report.

Electricity

Project Impacts

The project would consume approximately 13,054,240 Kwh of electricity per month. The project would be served by existing

facilities located in the area and the electric loads of the project are within parameters of projected load growth which Edison is planning to meet in this area.

Mitigation Measures

No mitigation measures are proposed other than the energy conservation measures discussed in Section 5.14 (Energy) of this report.

Telephone

Project Impacts

Although the project would be served from existing facilities, reinforcement of the existing telephone network would be necessary. The degree of reinforcement would vary from new cables being pulled through existing conduit systems to the installation of new conduit and cable systems.

Mitigation Measures

No mitigation measures are proposed.

Water

Project Impacts

The proposed project is estimated to consume approximately 490,000 gallons of water per day. The project would be served by existing water mains in the area, however, some improvements to the system may be required at the time of development in accordance with the City's standard building permit approval process.

Mitigation Measures

No mitigation measures are proposed.

Sewer

Project Impacts

The project is estimated to generate approximately 490,000 gallons of sewage per day. The existing sewage system does not have the capacity to serve the project and therefore, additional sewer facilities would be required. The size and location of the required sewer facilities would be determined when final site plans become available.

Mitigation Measures

No mitigation measures are proposed.

Solid Waste

Project Impacts

The proposed project would result in a net generation of approximately 33 tons of solid waste per day. Since the County anticipates having adequate landfill capacity to last beyond the year 2000, no significant adverse impacts are anticipated. However, the project would have an incremental impact on the reduction of the life capacity of the Coyote Canyon landfill site.

Mitigation Measures

No mitigation measures are proposed.

Police

Project Impacts

The types of crimes that can reasonably be expected to increase due to the project would be larceny, crimes against persons,

auto thefts, auto burglaries and commercial burglaries. These anticipated increases in crimes would increase demand on police services, but the project would also generate additional tax revenues available for augmenting such services.

Mitigation Measures

The applicant should provide a private security force that would respond to business and customer needs. The presence of a security force would also have a deterrent effect on crime.

Fire

Project Impacts

In addition to Fire Station #1, the project would require an initial response from an additional engine company and an additional truck company. Fire Station #5 would be one of the additional responding companies, as well as Station #2. The project would also increase demand for paramedic services. However, the project would also generate additional tax revenues available for augmenting such services.

Mitigation Measures

The project developers shall maintain the current underground water reservoir with auxiliary pumps (or provide its equivalent at an alternative location) and expand such system upon development of the site as necessary for compliance with Fire Code requirements.

2.14 Energy Conservation

The proposed project can be expected to result in an increase in energy consumption. The estimated net increase in energy consumption figures associated with the project are 8,656,292 Kwh per month of electricity and a natural gas consumption of 62,507,440 cubic feet per month.

Mitigation Measures

The orientation of building glazing areas, overhangs, and site landscaping should be selected in order for solar radiation to reach indoor areas during the winter months to reduce heating loads. The same principal should be incorporated for the summer months so that building glazing, overhangs and landscaping will reduce the amount of solar radiation reaching the interior of the buildings which will reduce air conditioning loads.

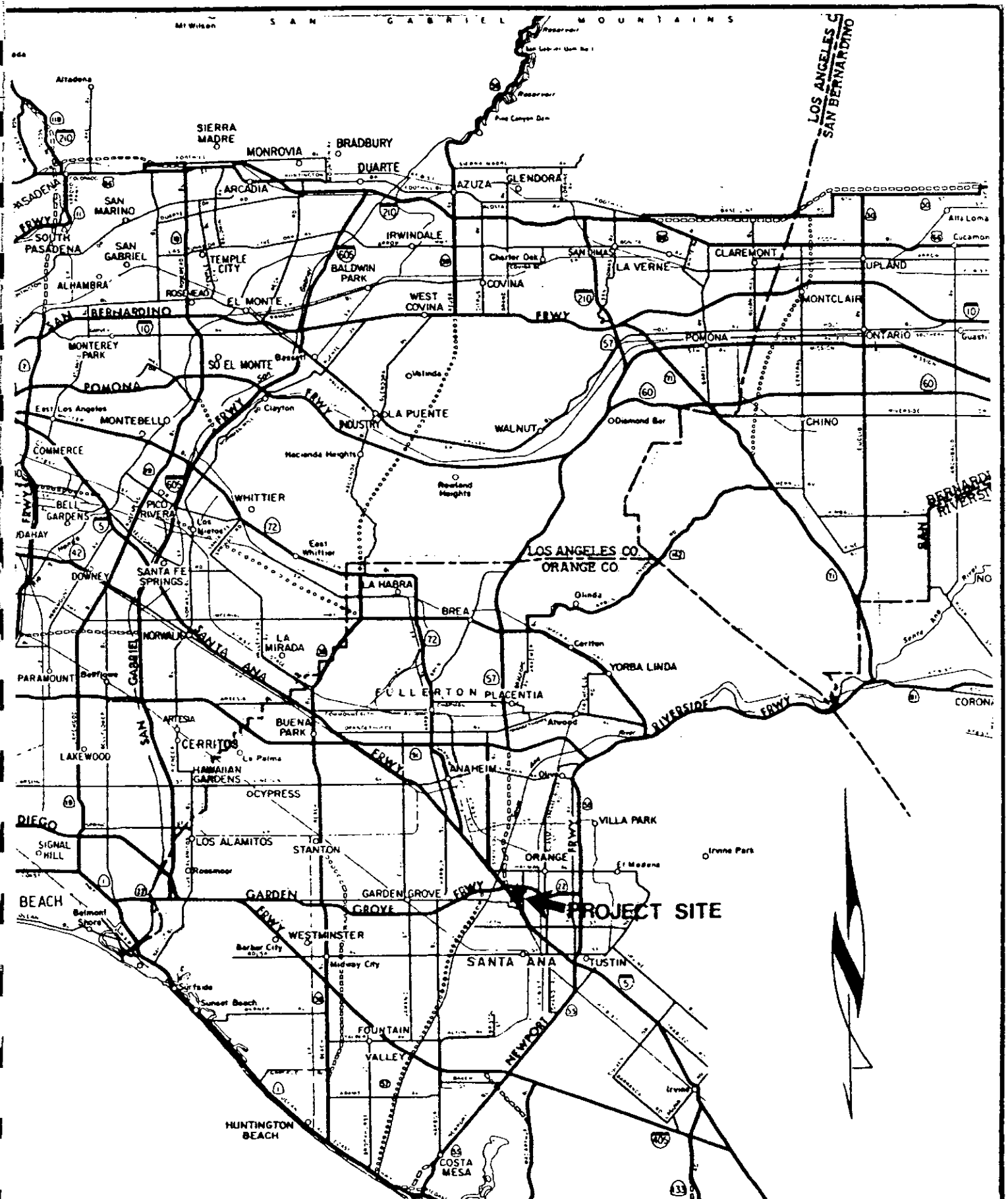
3.0 PROJECT DESCRIPTION

3.1 Location and Boundaries

The +63-acre project site is located within the City of Santa Ana, California, as shown on the Regional Location Map (Figure 1). The project is located west of Main Street, south of the Garden Grove Freeway, east of the Santa Ana Freeway, and north of Roe Drive as show on the Local Vicinity Map (Figure 2). This figure also indicates that the City of Orange is located north and east of the site. Figure 3, Site Map, locates the project boundaries and the various parcels within the site. The aerial photo of the project area, Figure 4, shows the relationship between the proposed project site and its immediate surroundings.

3.2 Discretionary Actions

The only agencies who will be using this EIR for decision making are the Redevelopment Agency and the City of Santa Ana. The primary discretionary action by which the Community Redevelopment Agency will determine whether or not to carry out the proposed project is its decision on whether to approve a proposed "Participation Agreement" between the Agency and the Project Participants. This "Participation Agreement" has received preliminary approval by the Project Participants, subject to the incorporation of mutually acceptable measures designed to mitigate significant environmental effects. Basically, it requires the Project Participants to undertake a prescribed minimum redevelopment of the project site and permits them to undertake the maximum redevelopment described in Section 3.4 of this report. The Agency's primary role is to acquire the project site (apart from the parcel already owned by the Participants) and to sell it to the Participants. This preliminary approved "Participation Agreement" is a public record on file with the Agency's Executive Director and available for inspection upon request.



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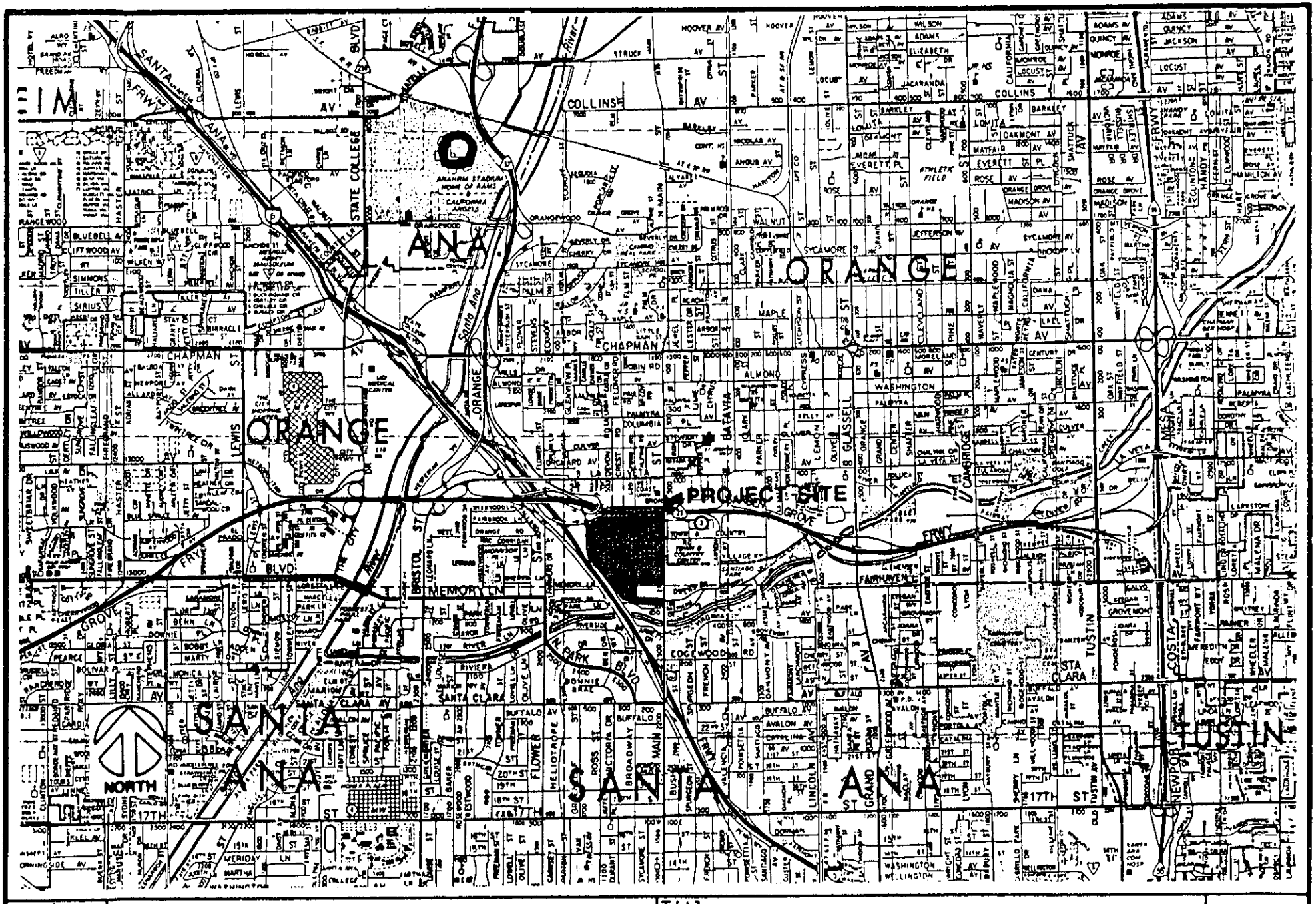
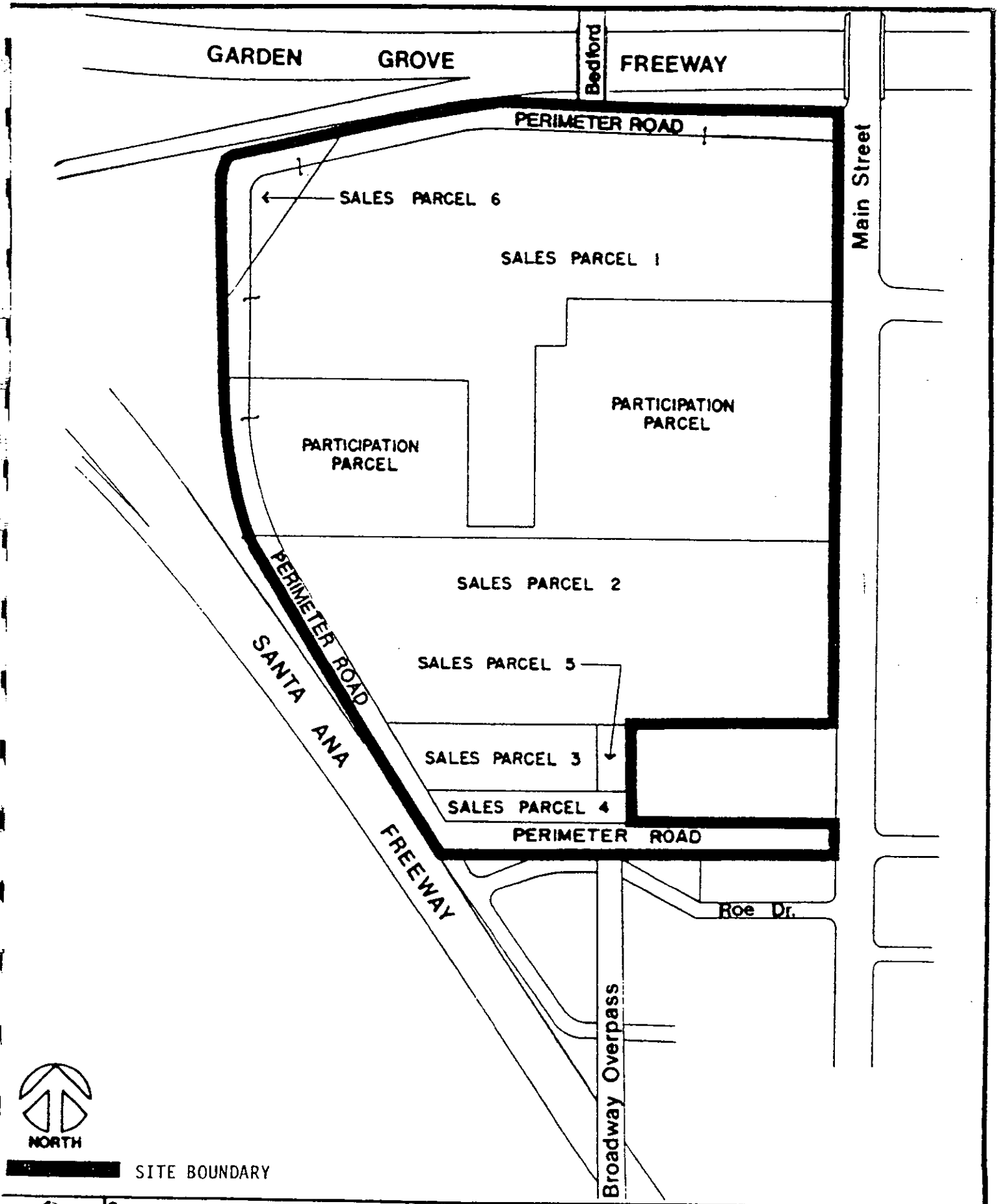


ultrasystems	Source: THOMAS BROTHERS	Title: LOCAL VICINITY MAP	2



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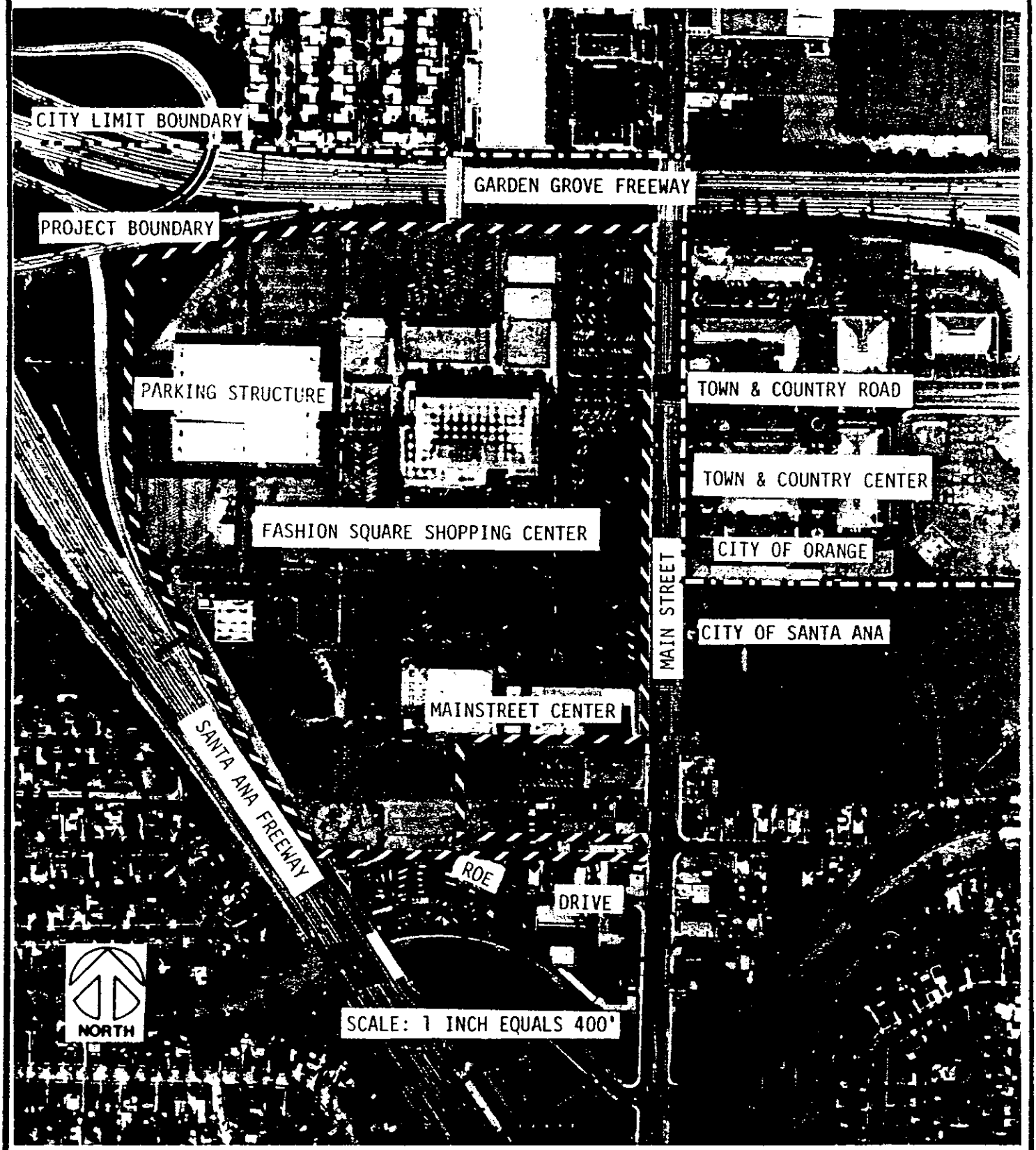
COMMUNITY REDEVELOPMENT AGENCY	SITE MAP	3



	Source:	Title:	
	VTN	AERIAL PHOTO OF THE PROJECT AREA	4

At the same time as the Agency determines whether to approve the "Participation Agreement", the City Council of the City of Santa Ana will determine whether to approve the terms of sale of the project site to the Participants.

The Participants may also ask the City to approve a "Development Agreement" that will secure their rights under the Participation Agreement against subsequent application of possibly inconsistent land use restrictions.

A zone change will be required for commercial development to occur within the small area zoned R-1, single-family residential, located in the northwest portion of the site. In addition, a Conditional Use Permit (CUP) is required for the proposed hotel use.

The developer may want to subdivide the project site and a subdivision map may be required from the City.

In accordance with and subject to all the terms, covenants and conditions of the Participation Agreement, the Agency agrees to acquire or has acquired the Sales Parcels 1, 2, 3, 4, 5, and 6 as shown on Figure 3, Site Map. The owners of those parcels are shown in Table 1, Acquisition and Disposition of Portions of the Site.

TABLE 1

ACQUISITION AND DISPOSITION OF PORTIONS OF THE SITE

Sales Parcel 1 - Fee title, presently owned by Bank America Realty Investors.

Sales Parcel 2 - Fee title, presently owned by Bruce Walkup.

Sales Parcel 3 - Fee title, presently owned by KLST Partnership, Ltd.

Sales Parcel 4 - Fee title, presently owned by Agency.

Sales Parcel 5 - Fee title, presently owned by Comet, Inc. a California Corporation.

Sales Parcel 6 - Fee title, presently owned by the State of California, Department of Transportation.

The Agency also agrees to acquire or to cause the City to acquire sufficient interests in real property for the Perimeter Road, some of which real property is now owned by the City and some of which real property has been previously dedicated to the City for street purposes. The Perimeter Road is also shown on Figure 3, Site Map.

It should be noted that Sales Parcel 5, which is the westerly 60 feet of Assessor Parcel 002-210-29, is a portion of property involved in a long term parking lease arrangement between the owner, Comet, Inc., and KLST Partnership, Ltd. KLST Partnership, Ltd., is the owner of the Fidelity Federal property and Sales Parcel 3.

3.3 Statement of Objectives

The purpose of the proposed project is to implement the Amended Redevelopment Plan for the City of Santa Ana Redevelopment Project by providing for the rehabilitation and redevelopment of the Fashion Square Commercial Center site. The site shall be designed and developed consistent with the Redevelopment Plan as a mixed use commercial complex. The complex will be designed to insure that the individual buildings in the complex will have a distinctive, but cohesive architectural appearance.

Since the project is in a redevelopment area as designated by the City of Santa Ana Community Redevelopment Agency, the project objectives will be to support the objectives of the Redevelopment Plan, which are:

- To work in development and revitalization of the downtown core and northern core (Fashion Square) so that the two areas are complementary in terms of land use and development of that use rather than contradictory and competitive.

- To strengthen vehicular access between the northern retail center (Fashion Square) and the downtown area, and to implement a program of improved traffic circulation and freeway access between north and central Santa Ana, in order that service of both areas is more available to all persons in and surrounding the Project Area.

- To strengthen the revitalization of the central city and the North Main shopping area by implementing a program of beautification and improvement.

- Restore the economic, social and physical health of the Santa Ana Redevelopment Area.

- Make the area a source of pride to persons residing and working in Santa Ana or visiting the City.

- Guide development towards an urban environment preserving the aesthetic and cultural qualities of the City.

- Assist in the re-establishment of businesses within the Project Area.

- Stimulate and attract private investment, thereby improving the City's economic health, employment opportunities and the tax base.

- To preserve the retail vitality of the community by providing the Redevelopment Agency the tool by which the Agency may participate in a plan to increase the existing shopping area known as Fashion Square.

These objectives shall be accomplished through removal of structurally substandard buildings, elimination of blighting influences, provision of land for needed public facilities, provision of substantial offstreet parking through the use of multi-story parking structures, removal of impediments to land disposition and development, achievement of changes in land use, improvements to major arterials and secondary streets.*

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* Amended Redevelopment Plan for the City of Santa Ana Redevelopment Project, amended June 2, 1975, p. 4.

3.4 Project Characteristics

The project proposes the rehabilitation and redevelopment of the site as a mixed use commercial complex consistent with the Redevelopment Plan. The ultimate maximum density of development of the site shall not exceed 1,500,000 net leasable square feet of office space, 1,600,000 gross leasable square feet of retail space, and 1,200 hotel guest rooms, with supportive facilities. All such development shall be in accordance with architectural and design plans, landscaping plans, and sign criteria approved by the Agency, as set forth in the Participation Agreement.* This EIR will discuss the potential environmental impacts of the proposed project based upon the previously mentioned maximum permitted development of the site.

The project will require the demolition of the existing Main Street Center (163,403 square feet of leasable area) and the construction of new retail and/or office buildings in its place. The existing Fashion Square Center (521,725 square feet of leasable area) will be substantially renovated, structurally altered and, in part, demolished, so as to incorporate the center into an improved, modernized, integrated shopping mall. Figure 5 shows a Basic Concept Drawing of the proposed Development Plan.

Based on current estimates, it is assumed in this EIR that approximately 400,000 square feet of the existing Fashion Square will be retained and approximately 1,200,000 square feet of new commercial develoment will be added if the project is, in fact, developed to the maximum.

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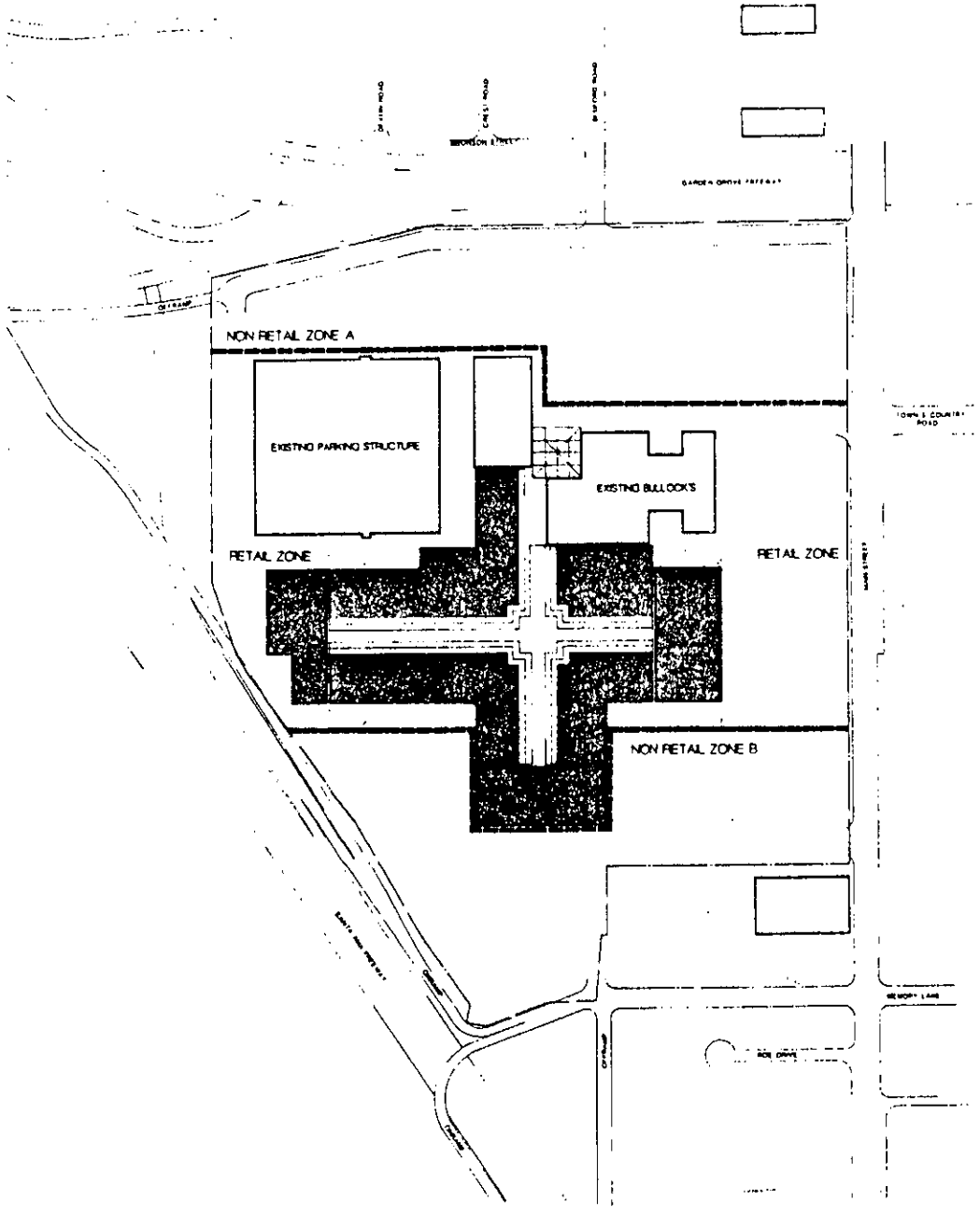
* City of Santa Ana Redevelopment Project, Santa Ana, California, Fashion Square Commercial Center Site Participation Agreement By and Between Community Redevelopment Agency, City of Santa Ana and Federated Department Stores, Inc., and Santa Ana Venture, pp. 15-17, and Attachment No. 2, p. 4.



SANTA ANA FASHION SQUARE

BASIC CONCEPT DRAWING

8-11-81

RETAIL AND NON RETAIL AREAS

NON RETAIL ZONE A =
800,000 NET RENTABLE OFFICE
600 HOTEL ROOMS

NON RETAIL ZONE B =
800,000 NET RENTABLE OFFICE
600 HOTEL ROOMS

RETAIL =
1.8 MILLION SF GROSS LEASABLE AREA

SKIDMORE, OWINGS & MERRILL

LOS ANGELES CALIFORNIA

28

ultrasystems

Source: SKIDDMORE, OWINGS & MERRILL

Title: BASIC CONCEPT DRAWING

5

Table 2, Tentative Development Schedule, indicates the projected phasing for the various stages of development for the project.. The timing for project development is tentative since it is contingent on the acquisition of property and the economic conditions to provide a market for the proposed commercial development.

TABLE 2

TENTATIVE DEVELOPMENT SCHEDULE

Use		Additional Footage	Approximately Time Of Opening
Retail		800,000 sq. ft.	1985 - 1986
		400,000 sq. ft.	1986 - 1988
	Total	1,200,000 sq. ft.	
Office		300,000 sq. ft.	1985 - 1986
		500,000 sq. ft.	1986 - 1987
		700,000 sq. ft.	1987 - 1989
	Total	1,500,000 sq. ft.	
Hotel		600 rooms	1985 - 1986
		600 rooms	1988 - 1989
	Total	1,200 rooms	

4.0 REGIONAL SETTING AND RELATED PROJECTS

There are a number of other current and potential projects in the vicinity of the proposed Fashion Square Commercial Center Site project which could be expected to contribute to cumulative environmental impacts in the general area. These "cumulative projects" include a variety of proposed uses (i.e., Residential, Office, Commercial/Retail, and Hotel) located within the City of Santa Ana and the City of Orange. Table 3, Cumulative Projects, summarizes these "cumulative projects", giving a brief description of their relative size (approximate square footage), proposed use, and their present status. Figure 6 shows the location of the cumulative projects in relationship to the proposed subject.

The "cumulative projects" listed in Table 3, in addition to the proposed Fashion Square Commercial Center Project, will provide the basis for the cumulative impact analysis discussed in the Impacts Sections of this EIR.

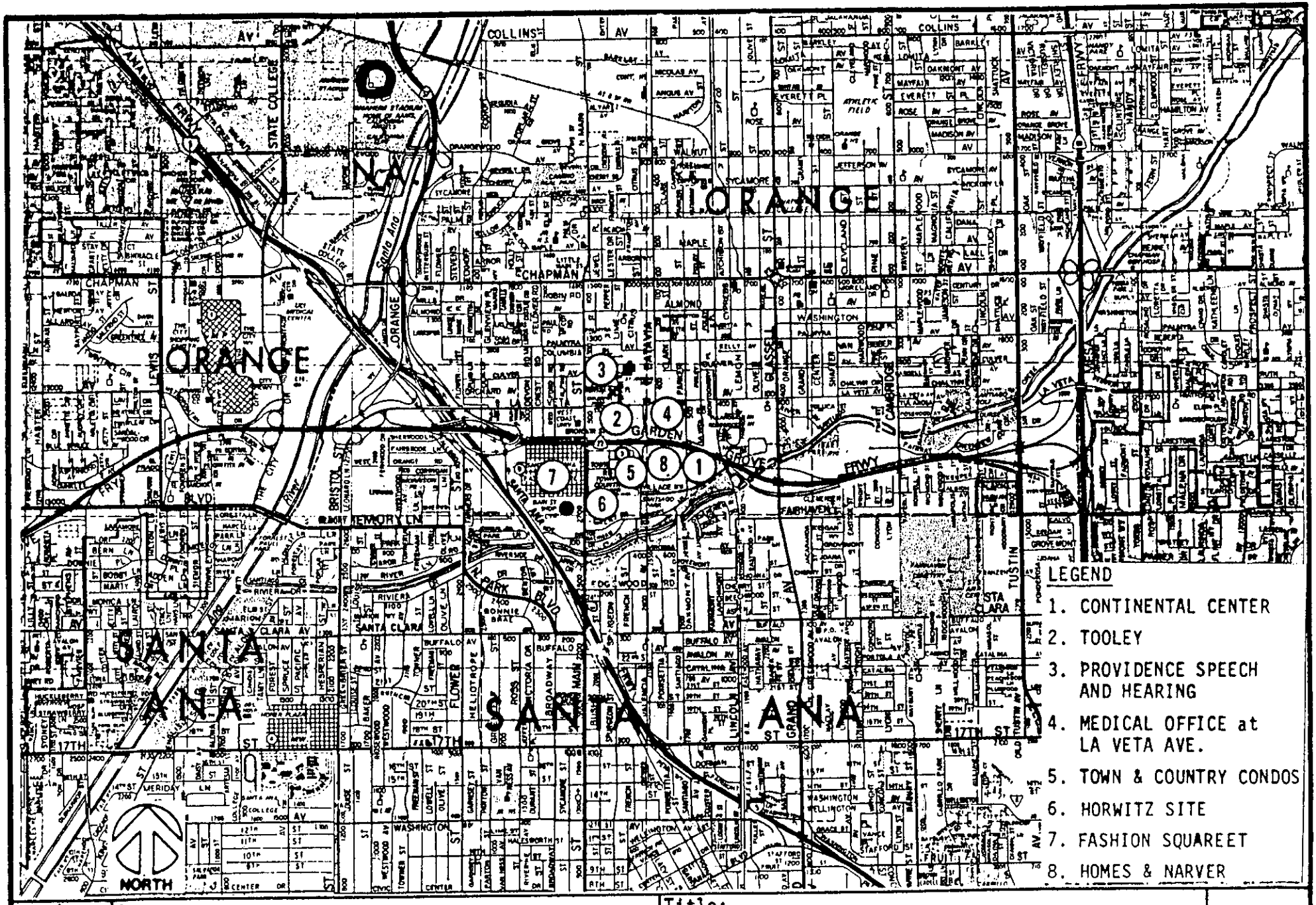
It should be noted, however, that some of these "cumulative projects" are quite speculative and may never be developed to the extent described in Table 3. In particular, the "Hurwitz site" is not currently proposed for any specified development and the numbers given for that site represent merely a preliminary development proposal which was subsequently abandoned.

The approach taken in this report was to assume a maximum density scenario in order to determine the maximum possible magnitude of environmental effects. The listed "cumulative projects" should therefore be viewed only as illustrative of the types and magnitude of future development which could occur in the vicinity of the Fashion Square project if and when economic conditions ever become favorable to such large-scale new development.

TABLE 3

CUMULATIVE PROJECTS

NAME	PROPOSED USE	SQUARE FOOTAGE	STATUS
Hurwitz Site	Office Hotel Retail	2,300,000 450 Rooms 500,000	Proposed
Homes and Narver Expansion	Office	98,239	Proposed
Continental Center	General Office	754,850	Approved
Tooley	Office	400,000	Approved
Medical Offices	Medical Offices	86,600	Under Construction
Town and Country Condominiums	Residential	500 units	Approved
Fashion Square	Retail (additional) Office Hotel(s)	1,100,000 1,500,000 1,200 rooms	Proposed



Source: ULTRASYSTEMS, INC.

Title: CUMULATIVE PROJECT LOCATION MAP

6

5.0 DISCUSSION OF THE ENVIRONMENTAL SETTING, IMPACTS AND MITIGATION MEASURES

5.1 Land Use

5.1.1 Environmental Setting

The existing land uses on the project site include Fashion Square Shopping Center, Main Street Shopping Center, vacant land and a 442 foot by 446 foot three level parking structure that provides approximately 1400 parking spaces and surface level parking lots. Fashion Square covers approximately ±35.91 acres and has 51 stores totalling 521,725 square feet of leasable area.* A map of the existing Fashion Square Shopping Center showing the existing businesses is shown in Figure 7. Mainstreet Center covers ±14.92 acres and has 163,403 square feet of leasable area.** A map of existing Mainstreet Center showing the existing businesses is shown in Figure 8. The vacant land and surface level parking lots cover approximately ±12.71 acres. The parking structure is located immediately west of Fashion Square Shopping Center (refer back to Figure 4). Overall, the project site consists of ±63.54 acres. Surface level photographs of these existing on-site land uses are shown in Figures 9 through 12.

The land uses surrounding the project site include the Garden Grove Freeway, office buildings, and residential homes north of the site. The City Limit boundary for the City of Santa Ana and the City of Orange parallels the Garden Grove freeway along the north side of the freeway. The office buildings and the residential homes north of the Garden Grove Freeway are within the City of Orange. East of the site is the Town and Country Center, a vacant 18-acre parcel of land, Polly's Pie restaurant, residential homes, and commercial uses. The Town and Country Center is within the City of Orange. The other land uses east of the site and south of Town and Country Center are in the City of Santa Ana.

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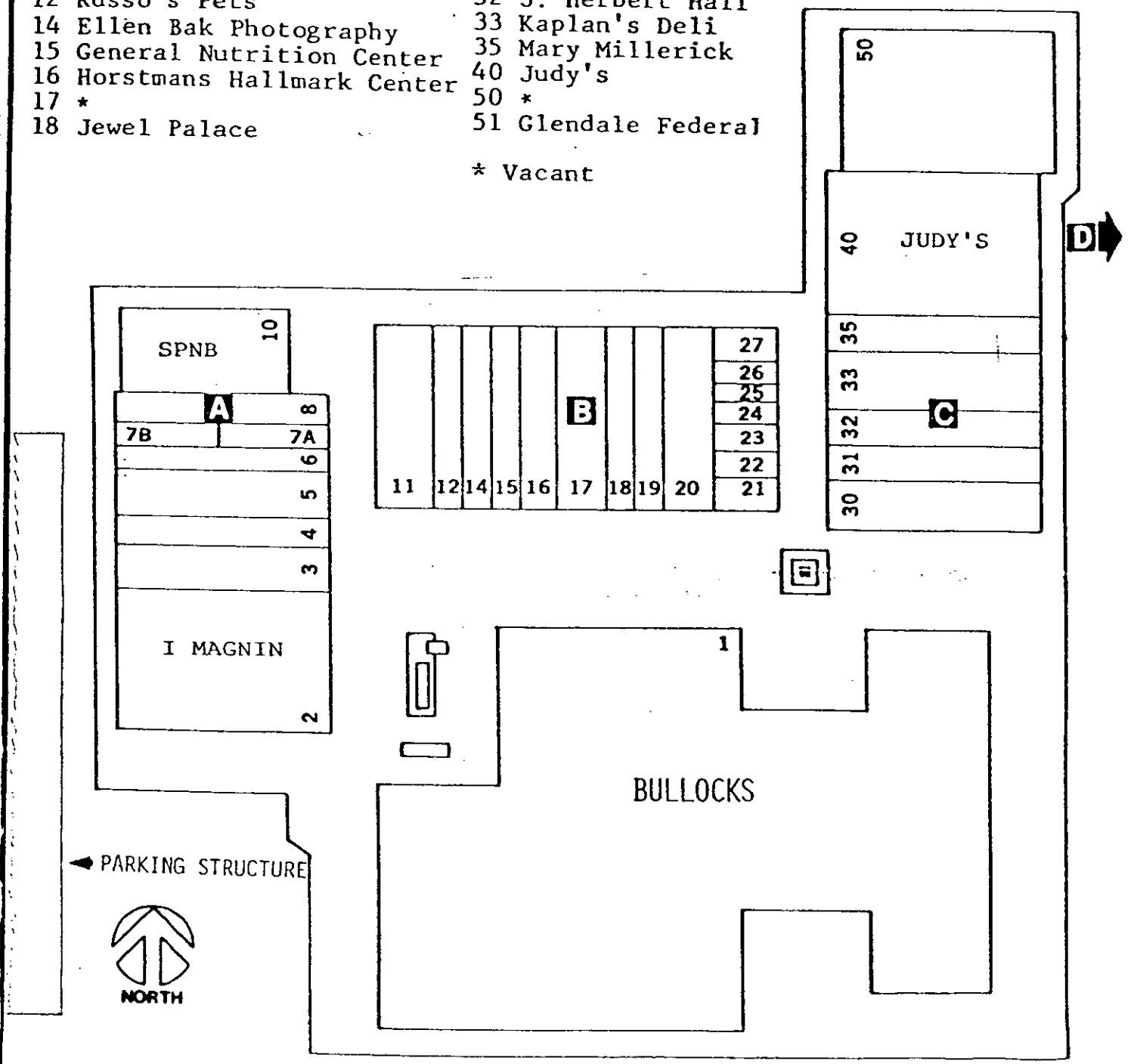
* Santa Ana Fashion Square, Santa Ana, California, piii, Report by Landauer Associates, Inc., July 20, 1979.

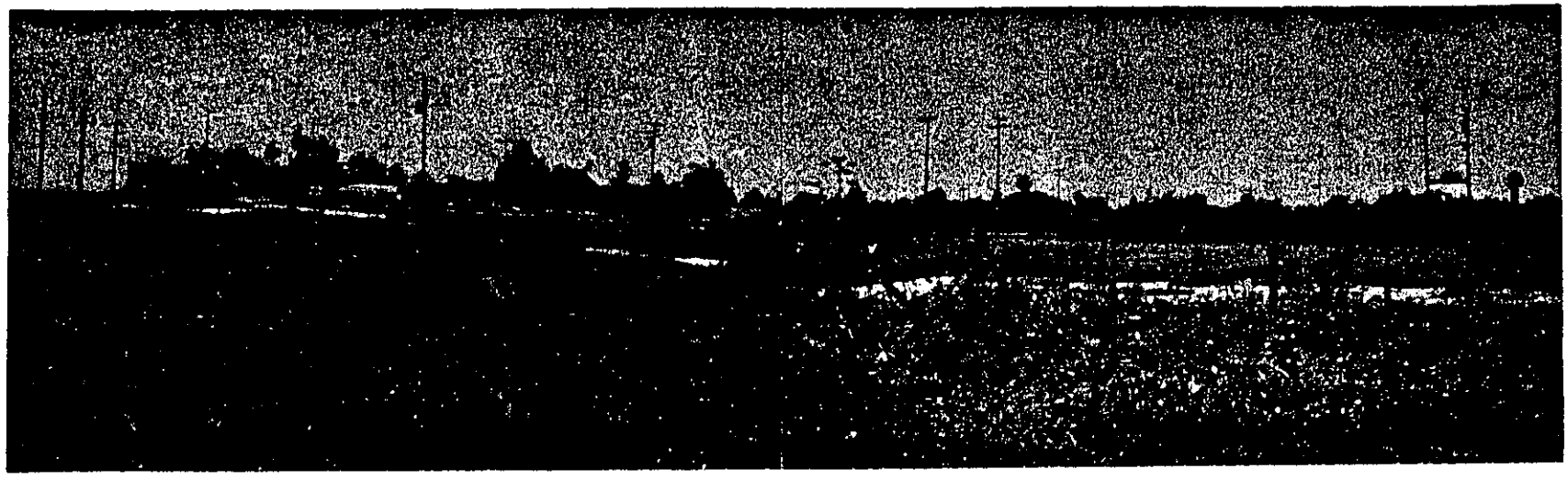
** Mainstreet Center and Adjacent Vacant Lane, Santa Ana, California, p. 13 Report by Landauer Associates, Inc., July 20, 1979.

1 Bullock's
2 I. Magnin
3 Monte Factor
4 Gibraltar Savings
5 Casual Corner
6 Higgi Hair Salon
7A Shelly's Tall Girl
7B Anthony's Shoe Service
8 Hunter's Books
10 Security Bank
11 Jurgensens
12 Russo's Pets
14 Ellen Bak Photography
15 General Nutrition Center
16 Horstmans Hallmark Center
17 *
18 Jewel Palace
19 Red Balloon
20 Wetherby Kayser
21 See's Candies
22 Joan Buck
23 Rooney & Borden
24 Dr. Ring (Optometrist)
25 Dedrick's Tux
26 *
27 Air Step Shoes
30 C.H. Baker Shoes
31 Draper's
32 J. Herbert Hall
33 Kaplan's Deli
35 Mary Millerick
40 Judy's
50 *
51 Glendale Federal

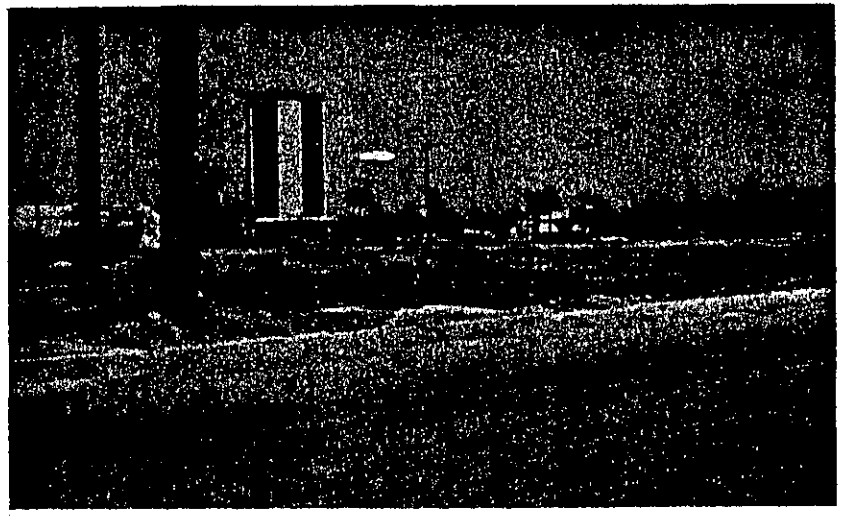
* Vacant



Source: LANDAUER ASSOCIATES, INC.	Title: EXISTING FASHION SQUARE SHOPPING CENTER	7



LOOKING SOUTH FROM MAINSTREET CENTER AT THE VACANT LAND LOCATED AT THE SOUTHWEST CORNER OF THE SITE



LOOKING EAST FROM THE WEST PROJECT BOUNDARY AT THE VACANT AREA OF THE SOUTHWEST PORTION OF THE SITE

ultrasystems	Source: ULTRASYSTEMS, INC.	Title: EXISTING ON-SITE LAND USES	9

MALL SHOPS

M-OFFICE

N-OFFICE OF THE CENTER

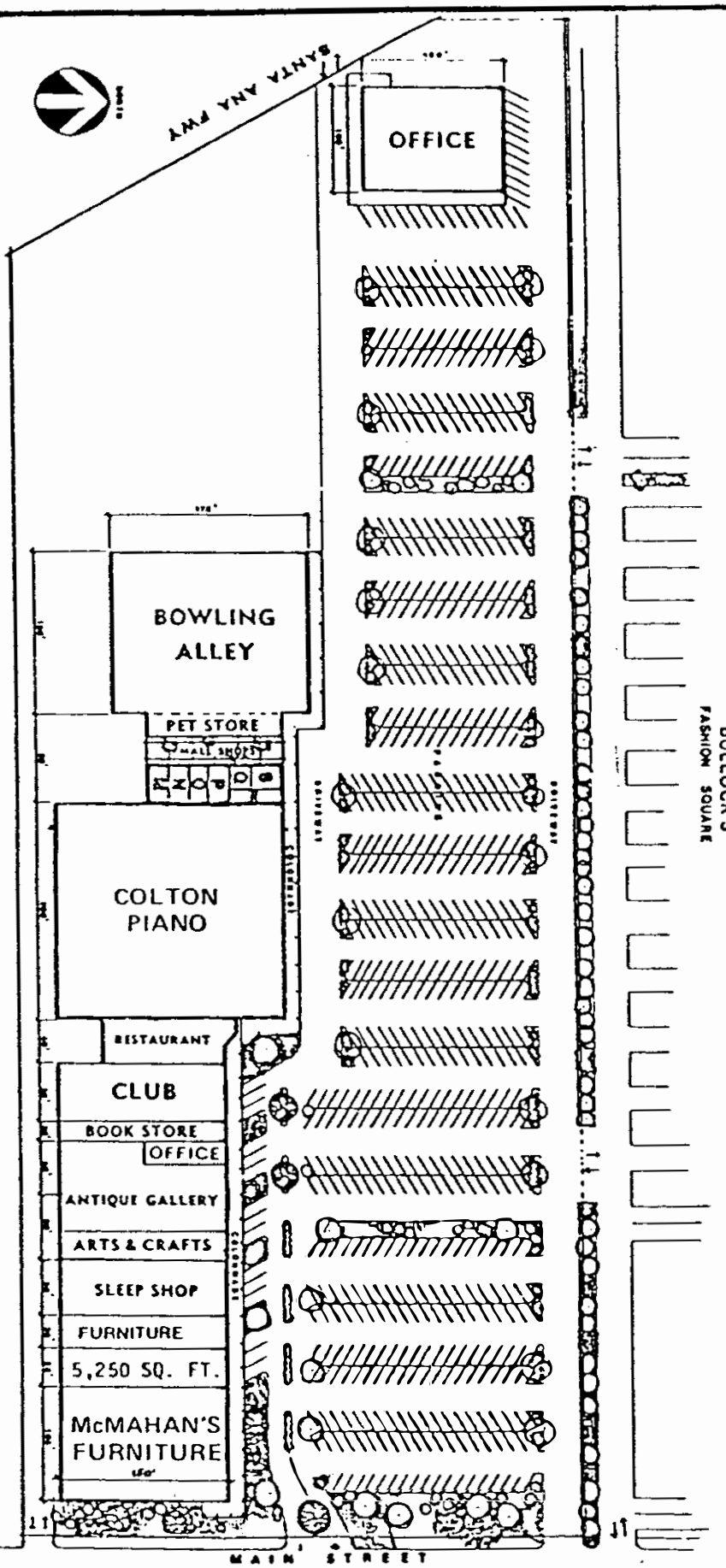
O-OFFICE

P-OFFICE

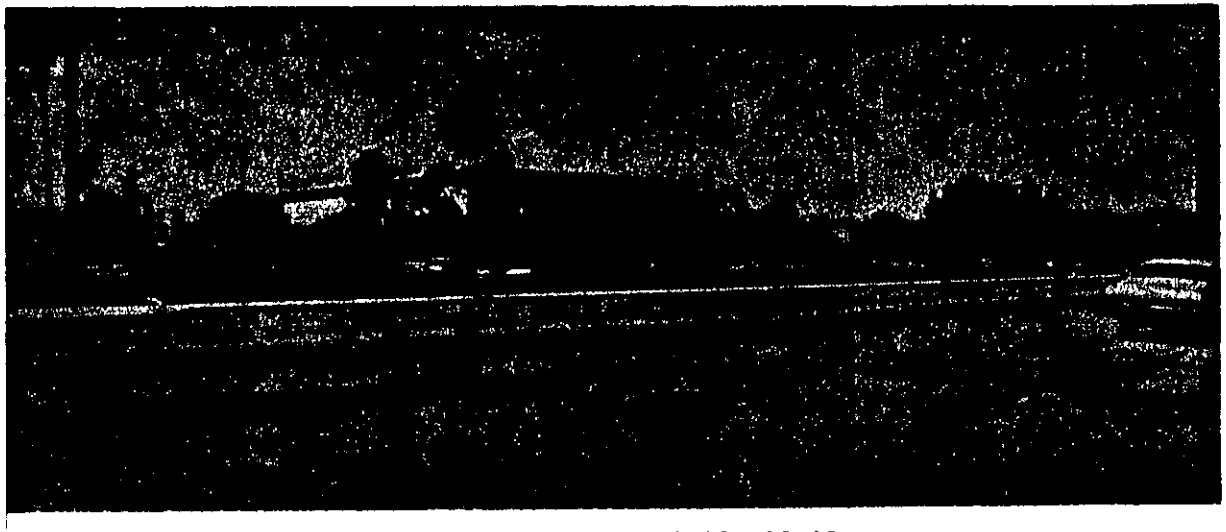
Q-MAP STORE

R-CANDY STORE

S-OFFICE



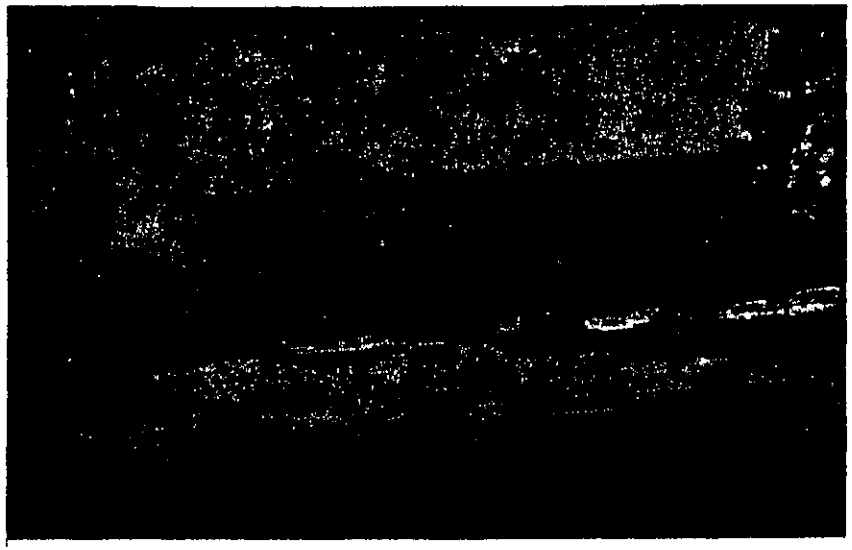
Source:	Title:	8
LANDAUER ASSOCIATES, INC.	EXISTING MAINSTREET SHOPPING CENTER	



LOOKING WEST FROM EAST OF MAIN STREET AT FASHION SQUARE

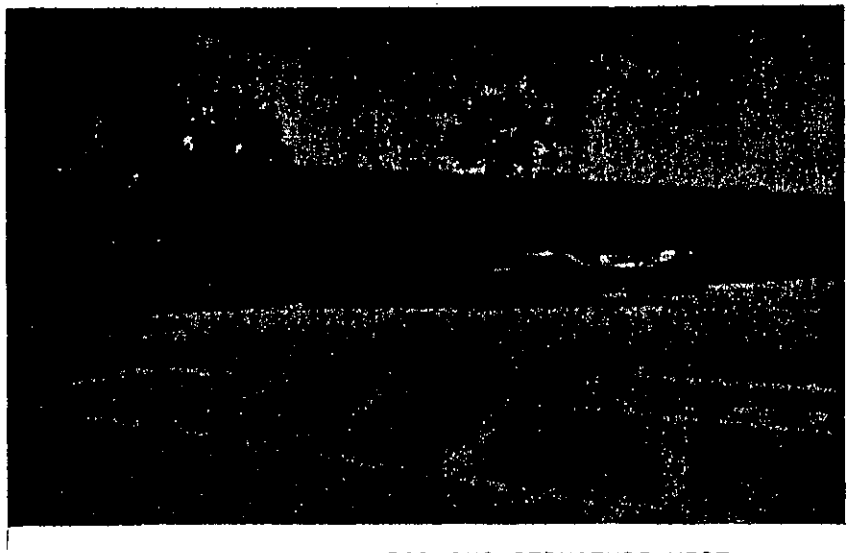
LOOKING NORTH AT THE WEST SIDE OF FASHION SQUARE AND PARKING STRUCTURE

ultrasystems	Source: ULTRASYSTEMS, INC.	Title: EXISTING ON-SITE LAND USES	10

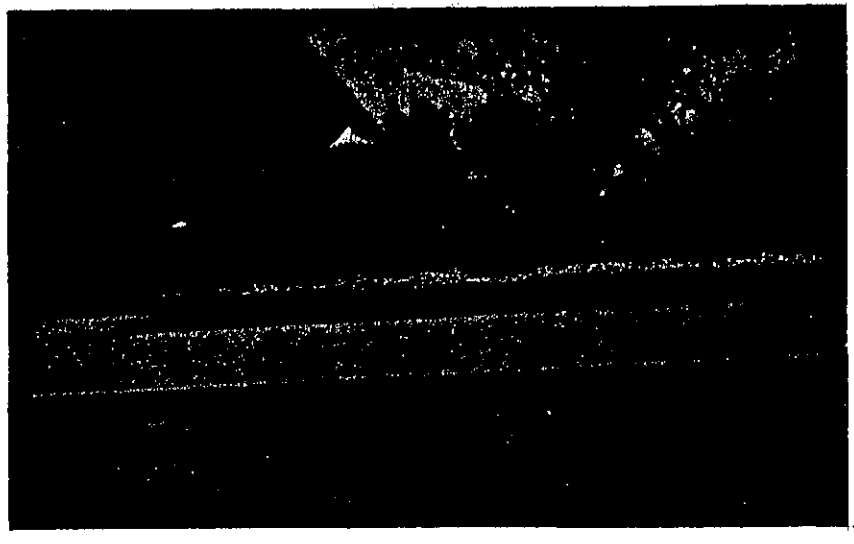


LOOKING WEST AT FASHION SQUARE FROM MAIN STREET

LOOKING EAST AT FASHION SQUARE FROM THE NORTHWEST CORNER OF THE PROJECT SITE

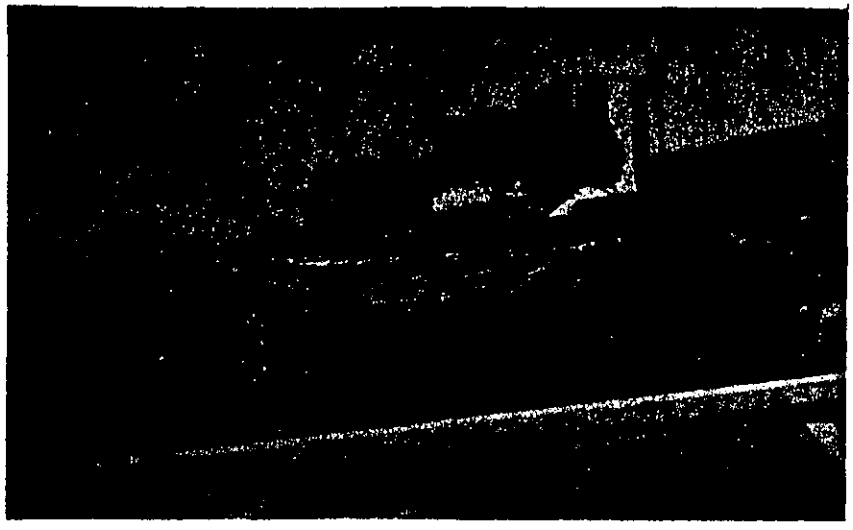


LOOKING SOUTHWEST AT THE PARKING STRUCTURE WEST OF FASHION SQUARE



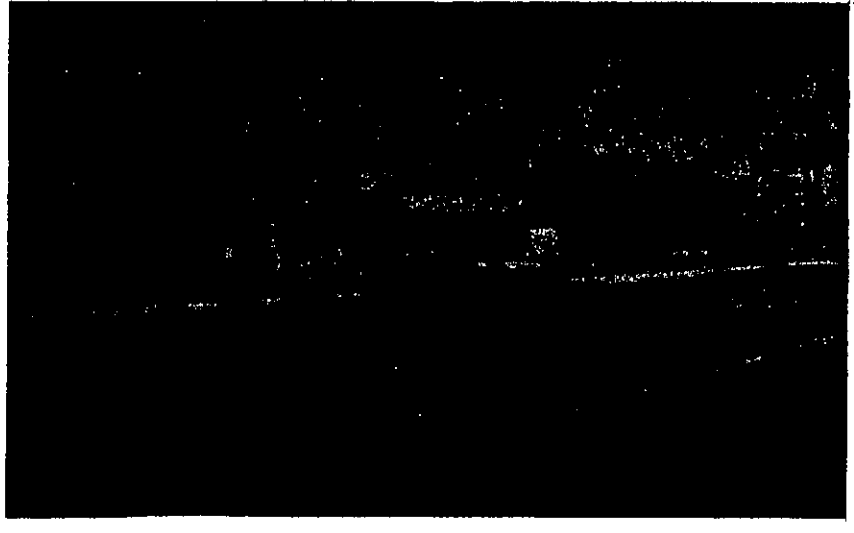
LOOKING WEST AT THE COURTYARD OF FASHION SQUARE

ultrasystems	Source: ULTRASYSTEMS, INC.	Title: EXISTING ON-SITE LAND USES	11



LOOKING EAST FROM ON-SITE AT THE MAINSTREET SHOPPING CENTER

LOOKING WEST FROM ON-SITE AT THE MAINSTREET SHOPPING CENTER



LOOKING NORTHWEST FROM OFF-SITE AT MAINSTREET SHOPPING CENTER WITH FASHION SQUARE IN THE BACKGROUND

LOOKING WEST FROM ON-SITE AT A BUILDING WEST OF MAINSTREET CENTER

Source: ULTRASYSTEMS, INC.

Title: EXISTING ON-SITE LAND USES

12

South of the project site is Fidelity Federal and Savings office building, a motel and Ham's Restaurant. The Santa Ana Freeway is located west of the site. Figures 13 through 15 show surface level photographs of the surrounding land uses.

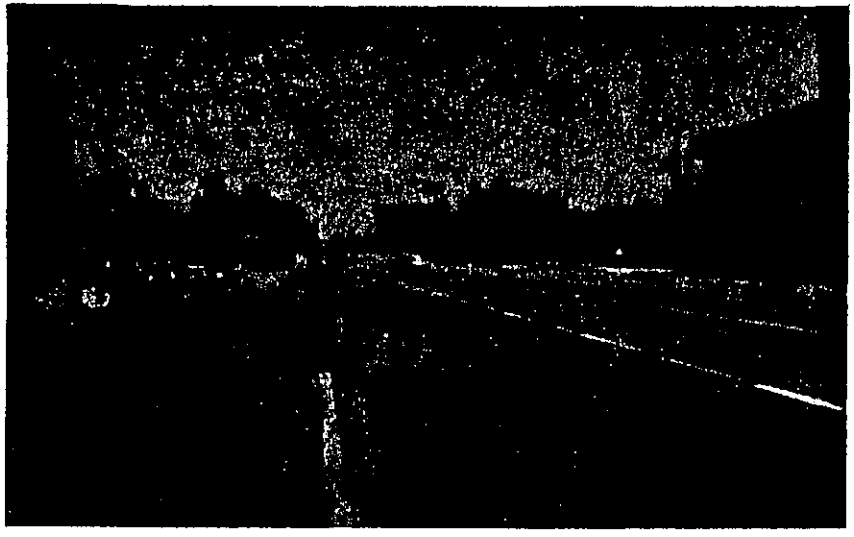
The project site is designated as part of the "Mixed Use Corridor" land use according to the City of Santa Ana General Plan. Figure 16 presents the City of Santa Ana Land Use Map. The surrounding land use designations in the City of Santa Ana include "Mixed Use Corridor" east and south of the site, parks and recreational open space south of the site and the Santa Ana Freeway and Garden Grove Freeway west and north of the site, respectively. The surrounding land use designations within the City of Orange include Low Density Residential and Major Commercial north of the site and Major Commercial east of the site.

One of the policies of the Santa Ana General Plan's "Land Use" element is to "encourage higher density residential, office and commercial uses in Mixed Use Corridors."

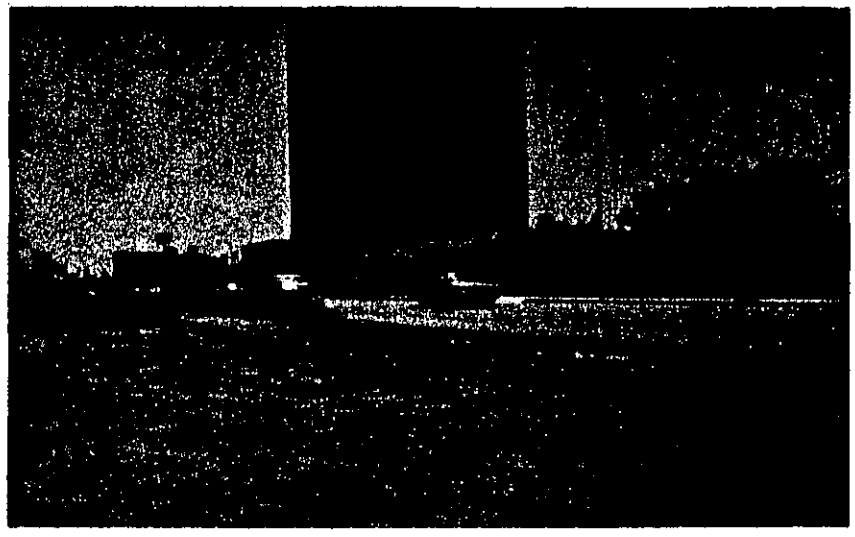
The Mixed Use Corridors are a key component of the City's overall planning strategy and program, or Framework Plan. The mixed use corridors:

> "provide important neighborhood facilities and services including shopping, recreation, cultural and entertainment activities, employment and education"
>
> "provide support facilities and services for the Industrial Districts including office and retail, restaurants and various other services."

The Mixed Use Corridors will vary in character and intensity along their length according to the degrees of access, market demand, relationships to adjacent residential uses, availabillity of land and relationships between existing and new land uses.

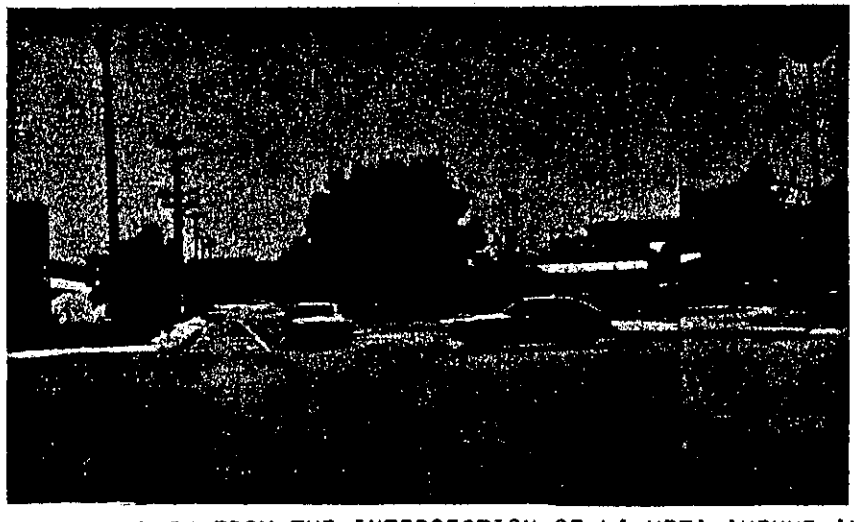


LOOKING SOUTH ALONG MAIN STREET AT THE LAND USES SOUTH OF THE PROJECT SITE



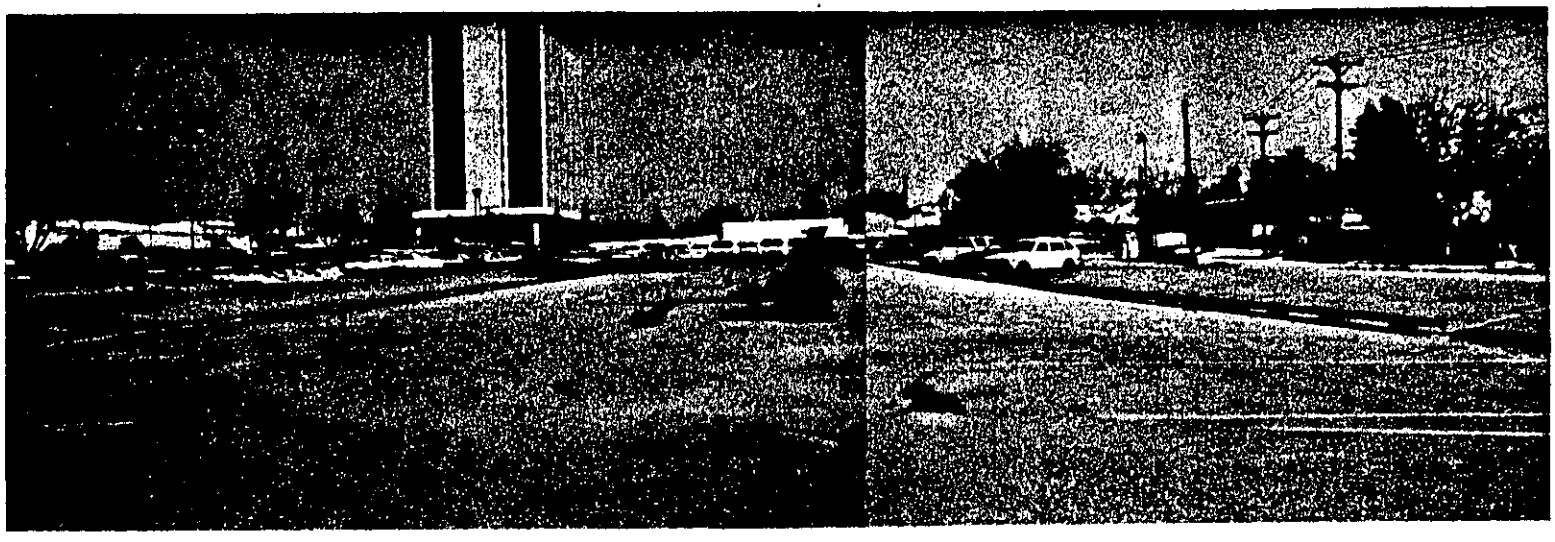
LOOKING SOUTH ALONG MAIN STREET AT THE MAINSTREET CENTER AND FIDELITY SAVINGS BUILDING

LOOKING EAST FROM THE INTERSECTION OF LA VETA AND BEDFORD ROAD AT THE LAND USES NORTH OF THE PROJECT



LOOKING SOUTH FROM THE INTERSECTION OF LA VETA AVENUE AND BEDFORD ROAD AT FASHION SQUARE

ultrasystems	Source: ULTRASYSTEMS, INC.	Title: SURROUNDING LAND USES	13



LOOKING EAST AT THE SURFACE LEVEL PARKING LOT
LOCATED AT THE SOUTHERN PORTION OF THE SITE

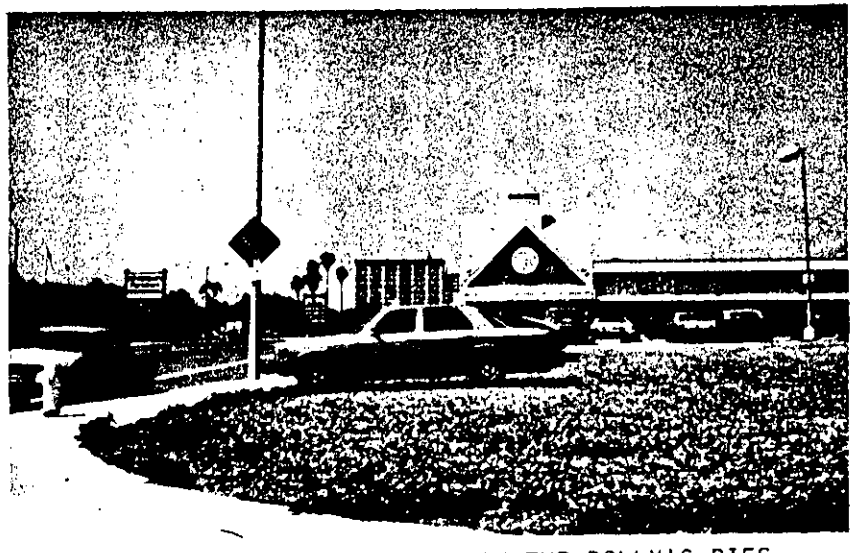
Source: ULTRASYSTEMS, INC.

Title: SURROUNDING LAND USES

14

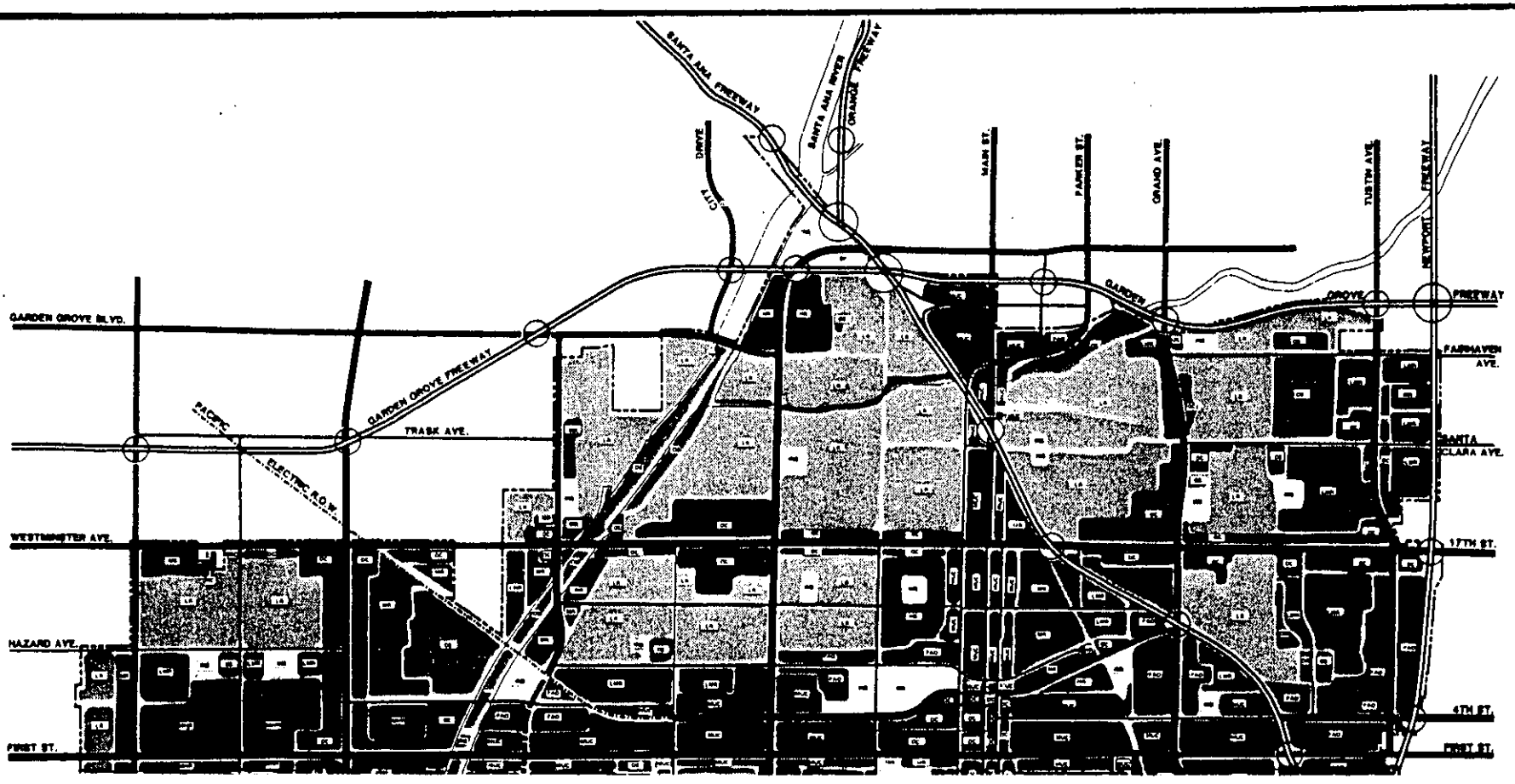
LOOKING EAST FROM THE PROJECT SITE AT THE TOWN AND COUNTRY SHOPPING CENTER NORTH OF TOWN AND COUNTRY ROAD

LOOKING EAST FROM THE PROJECT SITE AT THE TOWN AND COUNTRY SHOPPING CENTER SOUTH OF TOWN AND COUNTRY ROAD



LOOKING NORTH FROM OWENS DRIVE AT THE POLLY'S PIES RESTAURANT EAST OF THE PROJECT SITE

ultrasystems	Source: ULTRASYSTEMS, INC.	Title: SURROUNDING LAND USES	15



ultrasystems	Source: CITY OF SANTA ANA	Title: LAND USE MAP	16

A key feature of detailed planning and develeopment of the Mixed Use Corridors will be the integration of land uses, pedestrian walkways, open spaces and building configurations with key transit routes and their associated stations or stops.*

One land use implementation policy that pertains to this project is:

> Encourage higher density residential, office and commercial uses in Mixed Use Corridors.

The Implementation Programs that are applicable to this project include:

- Upgrade the economic and physical vitality of existing shopping centers.
- Upgrade marginal or poorly-located commercial strips through design plans and implementation programs.
- Utilize appropriate economic development programs to assist in the financing, upgrading and recycling of commercial uses.
- Promote the Main Street and First Street corridors as locations for higher density mixed use development.
- Adequately zone land and prepare development plans for a major new linear activity center between the Downtown and Fashion Square.
- Prepare specific plans for the Mixed Use Corridors.

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* City of Santa Ana General Plan, October, 1982.

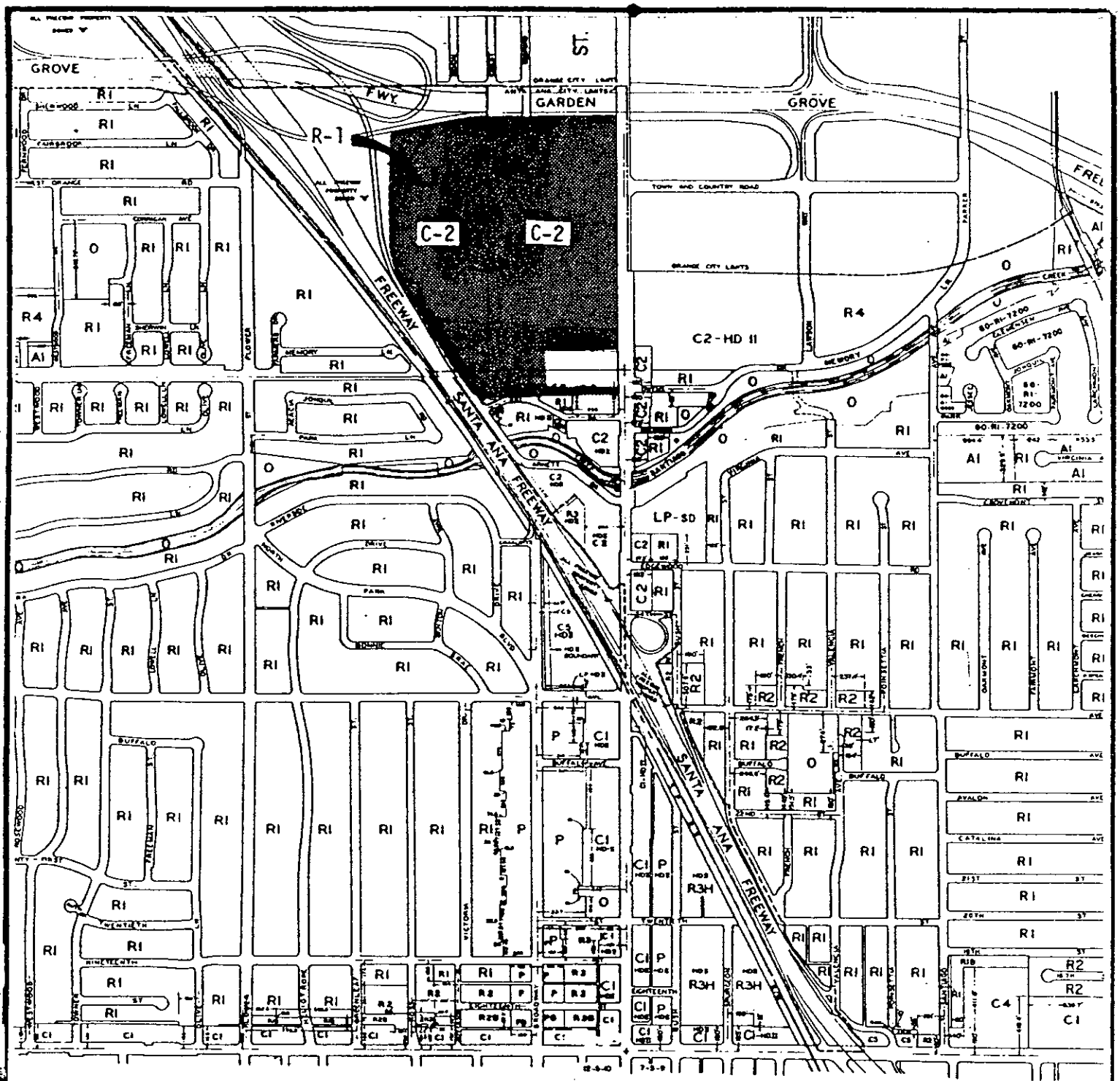
The project site is mostly zoned C-2 (General Commercial) with a small area on the site zoned R-1 (Single-Family Residential). Figure 17 presents the City of Santa Ana Zoning Map. The surrounding zoning within the City of Santa Ana is C-2 (General Commercial), R-1 (Single-Family residential) and Open Space south of the site, Open Space west and north of the site, and C-2 (General Commercial), R-1 (Single-family residential) and Open Space east of the site. Surrounding zoning within the City of Orange is Low Density Residential (R-1-6) and Major Commercial (C-2) north of the site, and Major Commercial (C-2) and (C-3) east of the site.

Some of the uses allowed by the City of Santa Ana C-2 zoning designation are administrative and professional offices, retail and service uses, restaurants, schools, automobile parking garages, etc. The uses allowed with a conditional use permit in the C-2 zone include hotels, motels, trailer parks, outdoor and indoor recreational uses, and dwelling units when erected above the ground floor of a commercial structure.

The project is in a redevelopment area as designated by the City of Santa Ana Community Redevelopment Agency. Figure 18 presents the Redevelopment Plan Map and indicates the location of the proposed project within the Redevelopment Area.

The project is located in Height District II. All lots within Height District II shall be subject to the following height exceptions and regulations:

> Any structure may exceed thirty-five (35) feet in height if both of the following provisions are complied with:
>
> a. Each part of any structure exceeding thirty-five (35) feet in height shall be set in from one or the other or from both side property lines not less than



ZONING DISTRICT

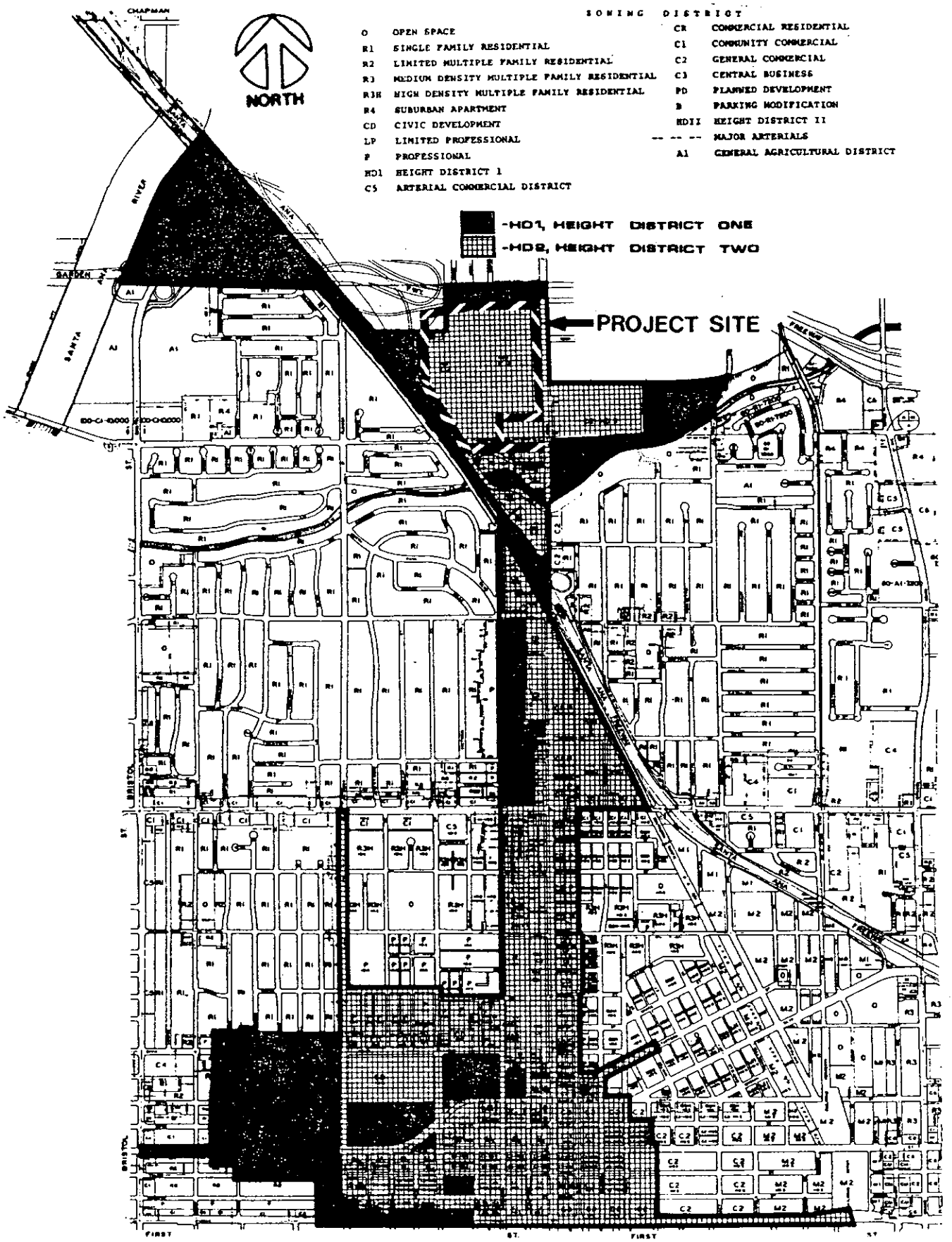
O	OPEN SPACE	LP	LIMITED PROFESSIONAL	CM	COMMERCIAL MANUFACTURING
A1	GENERAL AGRICULTURE	P	PROFESSIONAL	LM	LIMITED MANUFACTURING
RE	RESIDENTIAL ESTATE			M1	LIGHT INDUSTRIAL
R1	SINGLE FAMILY RESIDENTIAL	CR	COMMERCIAL RESIDENTIAL	M2	HEAVY INDUSTRIAL
R2	LIMITED MULTIPLE FAMILY RESIDENTIAL	C1	COMMUNITY COMMERCIAL	-PD	PLANNED DEVELOPMENT
R3	MEDIUM DENSITY MULTIPLE FAMILY RESIDENTIAL	C2	GENERAL COMMERCIAL	-PRD	PLANNED RESIDENTIAL DEVELOPMENT
R3H	HIGH DENSITY MULTIPLE FAMILY RESIDENTIAL	C3	CENTRAL BUSINESS	-SD	SPECIFIC DEVELOPMENT
R4	SUBURBAN APARTMENT	C4	PLANNED SHOPPING CENTER	-B	PARKING MODIFICATION
CD	CIVIC DEVELOPMENT	C5	ARTERIAL COMMERCIAL	-HDII	HEIGHT DISTRICT II

NORTH

Source: CITY OF SANTA ANA

Title: ZONING MAP

17



Source:

CITY OF SANTA ANA
REDEVELOPMENT AGENCY

Title:

REDEVELOPMENT PLAN MAP

18

a combined total distance equal to one-half (1/2) of the overall height of the structure, signs, included.

b. Each part of any structure exceeding thirty-five (35) feet in height shall be set in from the front or the back or from both the front and the back property lines not less than a combined total distance equal to one-half (1/2) of the overall height of the structure, signs included.*

5.1.2 Impacts

Project Impacts

The project proposes development of commercial/retail, offices, specialty shops and 1,200 hotel rooms on the project site. In order to construct the proposed uses, the Main Street Shopping Center would require removal.

The existing tenants of the Main Street Center and some of the tenants in the existing Fashion Square Center would require relocation upon project implementation. The Agency has already notified the tenants on the site of the proposed project. The tenants will again be notified at the time of the public hearing for acceptance of the Participation Agreement between the Redevelopment Agency and the project Participants. The tenants will also be formally notified at the time the Agency makes an offer on the purchase of the site. Once the project site is acquired by the Agency, the tenants will have at least 90 days to relocate. Generally, tenants prefer to find their own location to relocate to, but the Agency will assist them in this effort.

* The Proper Place of Multi-Story Structures, Special Study, 17, Planning Department, City of Santa Ana, October, 1961, p. 33.

The Agency will assist all persons (families, business concerns, and others) displaced by the project in finding other locations and facilities. The Redevelopment Agency will provide displaced tenants with relocation payments to compensate for moving expenses and assistance in finding new locations. The Agency administers such assistance in accordance with State law and regulations and as a matter of policy in accordance with the H.U.D. regulations that implement the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (called the "Uniform Act").

Some of the displaced businesses may relocate while some may go out of business. If a business relocates, it may suffer financially from lost sales during the period that the business is relocating. Depending upon the individual business, this financial loss may or may not be significant. In addition to lost sales, the business may also experience reduced clientele at its new location. If a business relocates in the same general area as the proposed project, then it probably will not suffer from reduced clientele and sales.

The project will be developed in several phases providing up to a maximum of 3,100,000 square feet of commercial-office use and 1,200 hotel rooms. Construction of the project is expected to begin in mid-1983 and be completed by 1989.

The project would meet the intent and the policy of the Mixed Use Corridor land use designation. The project would provide important employment and shopping needs to the City of Santa Ana as well as other cities. The project could provide support facilities for the Industrial Districts, although the project is removed from these areas. The project would integrate land uses, pedestrian walkways, open space and building configurations with key transit routes and bus stops located along Main Street.

The project would meet one of the implementation policies by providing high density office and commercial uses.

The project would comply with the Implementation Programs that are applicable to this project. The project would upgrade the economic and physical vitality of the existing Fashion Square shopping center. Although the project would result in the removal of the Mainstreet Center, the proposed project would upgrade the area. This project, with financial assistance through the Santa Ana Redevelopment Agency, will upgrade and recycle the commercial uses on the site. The project would also promote the Main Street corridor with higher density mixed use development. The project would help initiate major new linear activity between Downtown and Fashion Square. The project should have a specific plan prepared for ultimate development of the site as recommended in the General Plan.

The proposed project would generally conform with the existing zoning designations for the property. However, the project would require a zone change from R-1 (Single-Family Residential) to C-2 (General Commercial) for a small piece of property near the northwest corner of the site in order for the proposed project to be consistent with the zoning designation. The project would conform with the surrounding land uses since the types of uses proposed (retail and commercial) are characteristic of the existing uses in the project area.

The proposed development would accomplish the objectives of the Redevelopment Plan by revitalizing and restoring the economic, social and physical health of the Redevelopment Project Area. The project specifically complies with the objective to provide the Agency the tool by which the Agency may participate in a plan to increase the existing shopping area known as Fashion Square Center. The project should compliment the downtown area by expanding and varying the economic base in the city.

The existing surface level parking lot south of Mainstreet Center provides parking for customers, tenants and visitors of the Fidelity Savings office building. This parking lot is divided in ownership by KLST Partnership, Ltd. and Comet, Inc. as shown in Figure

19. The City of Santa Ana has an agreement with Comet, Inc. and KLST whereby Comet, Inc. agrees to provide parking, in addition to parking provided by KLST, for tenants of the Fidelity Savings building until the year 2023 or until recission of the agreement. The proposed project would eliminate the west parking lot owned by KLST (Sales Parcel 3) and 60 feet at the west end of the Comet, Inc. parking lot (Sales Parcel 5).

The Fidelity Savings Building consists of approximately 116,900 square feet of gross floor area. There are approximately 418 parking spaces in the total parking area serving the building, representing an existing ratio of 3.6 parking spaces per 1,000 square feet of gross floor area. Approximately 198 of these spaces are located in the area proposed to be acquired for the Fashion Square project (Sales Parcels 3 and 5). Assuming no redesign of the remaining parking area to include compact car spaces, the Fidelity Savings Building would be left with 220 parking spaces, for a ratio of 1.9 spaces per 1,000 square feet of gross floor area.

The City of Santa Ana zoning ordinance requires one parking space per each 300 square feet of floor area for office buildings, but in practice, the City measures this requirement against about 90 percent of gross floor area, with the remainder consisting of hallways, elevators, restrooms and similar non-office space. This results in an effective official city standard of 3 parking spaces per 1,000 feet of gross floor area. Applied to the Fidelity Savings Building, this would call for 351 parking spaces.

Thus, without mitigation, the Fidelity Savings Building would have a shortage of 131 spaces below the City established standard for office buildings. This could result in impacts on surrounding areas, in that there may not be enough on-site parking for tenants, employees, and clientele of the building, who would therefore seek alternative parking in adjacent shopping centers and along public streets. It is quite speculative at this time whether this pattern would occur to the extent

of creating a severe parking problem in the area, since it depends both on the future availability of alternative parking in the area and on the actual future parking needs of the Fidelity Savings Building. For purposes of this environmental review, it will be presumed that the loss of parking spaces by the Fidelity Savings Building will amount to a significant effect on the environment only if it is not mitigated so as to provide that building with at least the 351 spaces required under current City off-street parking standards.

(It is true, of course, that even with mitigation to the extent of providing 320 spaces, the Fidelity Savings Building would still lose the 67 spaces it now has in excess of City standards, and that such decrease, while not deemed substantially adverse to the environment, does take away something of value to KLST. This, however, would be a loss of value for which the Agency would be required to compensate KLST in the course of its acquisition of Sales Parcels 3 and 5 by purchase or eminent domain).

In order to provide 351 spaces to the Fidelity Savings Building, it will be necessary to provide that building with additional land usable for off-street parking. The amount of land required will depend upon the City's requirements for parking space size and aisle width as well as the amount of additional spaces to be provided. The existing Fidelity Savings Building parking area is designed for full-size car spaces. The City zoning code does allow, however, for up to 40 percent of parking spaces to have the smaller dimensions prescribed for small cars together with some reduction in the width of aisles serving such small car spaces.

The Redevelopment Agency currently owns the strip of vacant land between the Fidelity Savings site and the Owens Drive extension to the south. Of this land, approximately 26,300 square feet lies to the south of that portion of the Fidelity Savings site which would remain after the loss of Sales Parcels 3 and 5. The City's Planning Department has conducted a review which indicates that, if this 26,300 square foot

area were added on to the remainder of the existing Fidelity Savings parking area and the entire parking area were then redesigned to provide 35 percent small car spaces, then 259 total spaces could be provided. This still leaves 92 spaces to be provided, and the only land available for this purpose appears to be some part of the Fashion Square Project site itself.

It is therefore recommended that the Agency and the Developer seek an agreement with KLST to provide additional off-street parking, sufficient to satisfy City code standards, for the Fidelity Savings Building by sale or lease, or some combination thereof, of both the vacant Agency land to the south and some portion of the Project site in the near vicinity. The amount of land involved will depend upon the extent to which the existing and additional parking area is redesigned for small car spaces, which is a matter to be negotiated by the interested parties. At the least, however, the Agency and the Project Participants should offer KLST sufficient land at fair market value (or fair rent) in trade-off against the land to be acquired for the Project (Sales Parcels 3 and 5), to allow for a total of 351 parking spaces, assuming the maximum number of small car spaces, with the Agency and/or the Project Participants to bear the cost of installation of the new and redesigned parking areas.

(It may prove advisable to offer more land for more spaces in order to avoid potential severence damages, but this is a legal and economic issue rather than an environmental concern).

Cumulative Impacts

Construction of the "cumulative projects" listed in Table 3 would result in a high intensity of commercial and office uses in the project area. The proposed project in addition to the other proposed projects would convert existing vacant land into commercial uses, which would reduce open space in the area. However, the area is proposed for commercial uses by the respective general plans and, therefore, the

proposed developments are not inconsistent with the proposed land use designations. The cumulative projects could result in cumulative impacts to adjacent land uses, especially residential areas. The cumulative impacts to local residents could consist of increased noise, reduced air quality, increased local traffic, increased illumination, etc., as described in the appropriate sections of this report. The proposed project would contribute to these cumulative impacts.

5.1.3 Mitigation Measures

a) The project should be landscaped similar to, or more extensive than, the existing landscaping in order to buffer the development from surrounding residential areas as much as possible.

b) All tenants displaced by the project will be provided assistance in accordance with State law and Santa Ana Redevelopment Agency policies.

c) The Agency and the Project Participants should offer KLST land (including the Agency owned land to the south of the Fidelity Savings Building and a portion of the Project site in the near vicinity) at fair market value (or fair rent, if a lease arrangement is preferred) in trade-off against the acquisition of Sales Parcels 3 and 5. The land area so offered should be sufficient to allow a total of at least 351 parking spaces serving the Fidelity Savings Building assuming a maximum permitted amount of small car spaces, with the Agency and/or Project Participants bearing any necessary design and installation costs.

d) Ultimate development of the project site should occur through the specific plan process. The specific plan should provide information on how the project would incorporate pedestrian walkways, building configurations, and open space with key transit routes.

5.1.4 Significant Environmental Effects

Unless agreements can be reached with KLST for the provision of additional off-street parking for the Fidelity Savings Building, the project will result in inadequate off-street parking for that building.

5.2 Soils and Geology

5.2.1 Environmental Setting

A soils and geology report has not been prepared for the proposed project. A soils and geology report* was prepared, however, for the Fashion Square Parking Structure located west of Fashion Square Shopping Center within the proposed Fashion Square Commercial Center project boundaries. This section will summarize the information contained within that report and will serve as general information of the soil type on the project site.

Natural soils underlying the parking structure and presumably the project site are alluvial deposits associated with deposition by the Santa Ana River. The upper deposits are comprised of variable fine sand, silt and clay mixtures. In-place consistency was found to be somewhat non-uniform, generally ranging from moderately loose or soft to compact. These upper non-uniform deposits extend to depths of 12 to 25 feet in thickness. The soils between 25 feet and 50 feet, the maximum depth explored, consisted of compact to dense, fine to course sands and gravels.

Artificial fill, apparently associated with the original overall grading of the Fashion Square site was encountered in all the test borings made within the paved areas that were once located where the parking structure is now located. In general, the depth of fill was greatest along the east edge of the parking structure site and then gradually decreased in depth toward the southwest. The fill material was predominantly comprised of variable silty sand and clayey sand mixtures with occasional sandy clay and clean sand layers. No

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* Soils and Foundation Investigation Fashion Square Parking Structures, Soils International, February 23, 1977.

significant contamination was observed and the in-place consistency appears to range between moderately compact to compact.

The remaining portion of the proposed project site (Main Street Center and the surface-level parking lot) probably contain some quantities of fill material from when these areas were constructed. The vacant parcel probably contains very little if any, fill materials. Except for some shallow subsurface fill material, the soil of that portion of the project site south of Fashion Square Center probably consists of Santa Ana River alluvial deposits as is characterized by the soil underlying the parking structure.

5.2.2 Impacts

Project Impacts

Since there were no identified soils and geology constraints or problems with the Fashion Square Center parking structure, it is not anticipated that there will be any adverse soils and geology impacts associated with the proposed project. Any potential impacts that may occur would probably be mitigated with proper engineering techniques.

As indicated in the Participation Agreement, "it shall be the sole responsibility of the participant, at the participant's expense to investigate and determine the soil and seismic conditions of the participation parcel and sales parcels and its suitability for the development to be constructed thereon."

The Participation Agreement also states that "it shall be the sole responsibility of the participant, at the participant's expense, to do all work necessary to demolish, grade, clear, and prepare the Participation Parcel and Sales Parcels and to investigate and determine the soil conditions of the Participation Parcel and Sales Parcels and

the suitability of the Participation Parcel and Sales Parcels for the development to be constructed by the Participant. If the soil conditions of the Participation Parcel and Sales Parcels or any portion thereof are not in all respects entirely suitable for the use or uses to which the Participation Parcel and Sales Parcels will be put, then it is the sole responsibility and obligation of the Participant to take such action as may be necessary to place the Participation Parcel and Sales Parcels in all respects in a condition entirely suitable for the development thereof."*

Any soil and/or geologic conditions that could create building and construction impacts will have to be disclosed and corrected at the Participant's expense in accordance with the City's standard building permit approval process.

Cumulative Impacts

The cumulative impact of this development and other identified developments in the area are not anticipated to have any impacts on soils and geology in the area.

5.2.3 Mitigation Measures

No mitigation measures are proposed.

5.2.4 Significant Environmental Effects

No adverse impacts are anticipated.

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* City of Santa Ana Redevelopment Project, Santa Ana, California, Fashion Square Commercial Center Site, Participation Agreement by and Between Community Redevelopment Agency, City of Santa Ana and Federated Department Stores, Inc. and Santa Ana Venture, p. 14.

5.3 Hydrology

5.3.1 Environmental Setting

The project site is basically flat and almost entirely covered with buildings and parking lots. Runoff from the site drains in a southwesterly direction to a 36-inch storm drain in Arnett Drive. Runoff from the storm drain in Arnett Drive discharges into Santiago Creek. There is also a 42-inch storm drain in Main Street that collected some runoff from the site which also discharges into Santiago Creek. The runoff generated from the northwest portion of Fashion Square drains into an open channel located within the freeway right-of-way (CALTRANS' property) and empties into the Santa Ana River.*

5.3.2 Impacts

Project Impacts

Since the site is almost completely covered with development at the present time, the proposed project is not anticipated to result in a significant amount of additional runoff. The existing drainage facilities that serve the site should be adequate to accommodate the additional runoff generated by the project. Any improvements which do prove to be necessary will be required to be made at the time of construction pursuant to the City's standard building permit approval process.

Cumulative Proposed Impacts

The proposed project in conjunction with other developments in the area would result in an increase in the amount of stormwater runoff. The additional increase in runoff generated by the cumulative projects

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* John Burk, Senior Civil Engineer, City of Santa Ana, Public Works.

is not known at this time. Therefore, it is not known if the existing storm drain facilities in the area could adequately accommodate the additional increase in runoff. If the existing facilities are inadequate, then improvements to the facilities would be required, at the time of development of the cumulative projects pursuant to the City's standard building permit approved process.

5.3.3 Mitigation Measures

No mitigation measures are proposed.

5.3.4 Significant Environmental Effects

No adverse impacts are anticipated.

5.4 Biota

5.4.1 Environmental Setting

The project site is located in a mature urban environment with residential and commercial land uses. As a result, the natural vegetation in the project area has been replaced with introduced ornamental trees, shrubs and grasses. This vegetation consists almost entirely of species that were selected for their aesthetic qualities, adaptability to the urban environment and their ease of maintenance. The trees on the project site provide nesting and roosting places for several urban bird species.

The urbanized character of the project site provides limited habitat for wildlife. Only small ground mammals and birds that are adaptable and tolerant of man's activities are able to survive in the project area. Mammal species include mice and gophers while larger species are non-existent. Urban bird species include House Finch, Song Sparrow, Common Raven and Mourning Dove. A list of the plant and animal species observed or expected to occur on the site is listed in Appendix I.

5.4.2 Impacts

Project Impacts

The construction of the proposed project will not result in any reduction in the amount of ornamental trees, shrubs and grasses on the site, although the location will be changed. A project landscaping plan will be required subject to Agency approval per the Participation Agreement.* During the demolition and construction phases of the

* City of Santa Ana Redevelopment Project Santa Ana, California, Fashion Square Commercial Center Site Participation Agreement By and Between Community Redevelopment Agency, City of Santa Ana and Federated Department Stores, Inc., and Santa Ana Venture, p. 16.

project, the small ground-dwelling animals and the birds would be forced to migrate to the outlying areas. When the project is completed and the project area is re-landscaped, wildlife would probably return.

Cumulative Impacts

The proposed project, in conjunction with other development in the area, would result in a cumulative reduction of existing vegetation and habitat during construction of these projects and consequently, a reduction of bird and mammal species. However, the vegetation and landscaping that would be provided by the cumulative developments after project completion could actually result in an overall increase of urban bird and mammal species.

5.4.3 Mitigation Measures

The Participation Agreement requires the Project Participant to provide adequate landscaping on the site and provide for the Redevelopment Agency to approve all preliminary and final landscaping plans submitted by the Participant.

5.4.4 Significant Environmental Effects

There are no substantial adverse biological impacts anticipated as a result of project implementation.

5.5 Archaeology

5.5.1 Environmental Setting

An archaeological record search was conducted by Dr. David Van Horn to determine if there were any recorded archaeological sites on the project site. The record search indicated that there are no recorded sites on the property and only one archaeological site, Ora-278, has been recorded within a two-kilometer radius of the site. Archaeological site Ora-278 is located southwest of the project site.

5.5.2 Impacts

Project Impacts

Since most of the site is already developed and there are no recorded sites on the property, no impacts are anticipated.

Cumulative Impacts

No cumulative impact is anticipated.

5.5.3 Mitigation Measures

No mitigation measures are proposed.

5.5.4 Significant Environmental Effects

No substantial adverse impacts are anticipated.

5.6 Traffic and Circulation

5.6.1 Environmental Setting

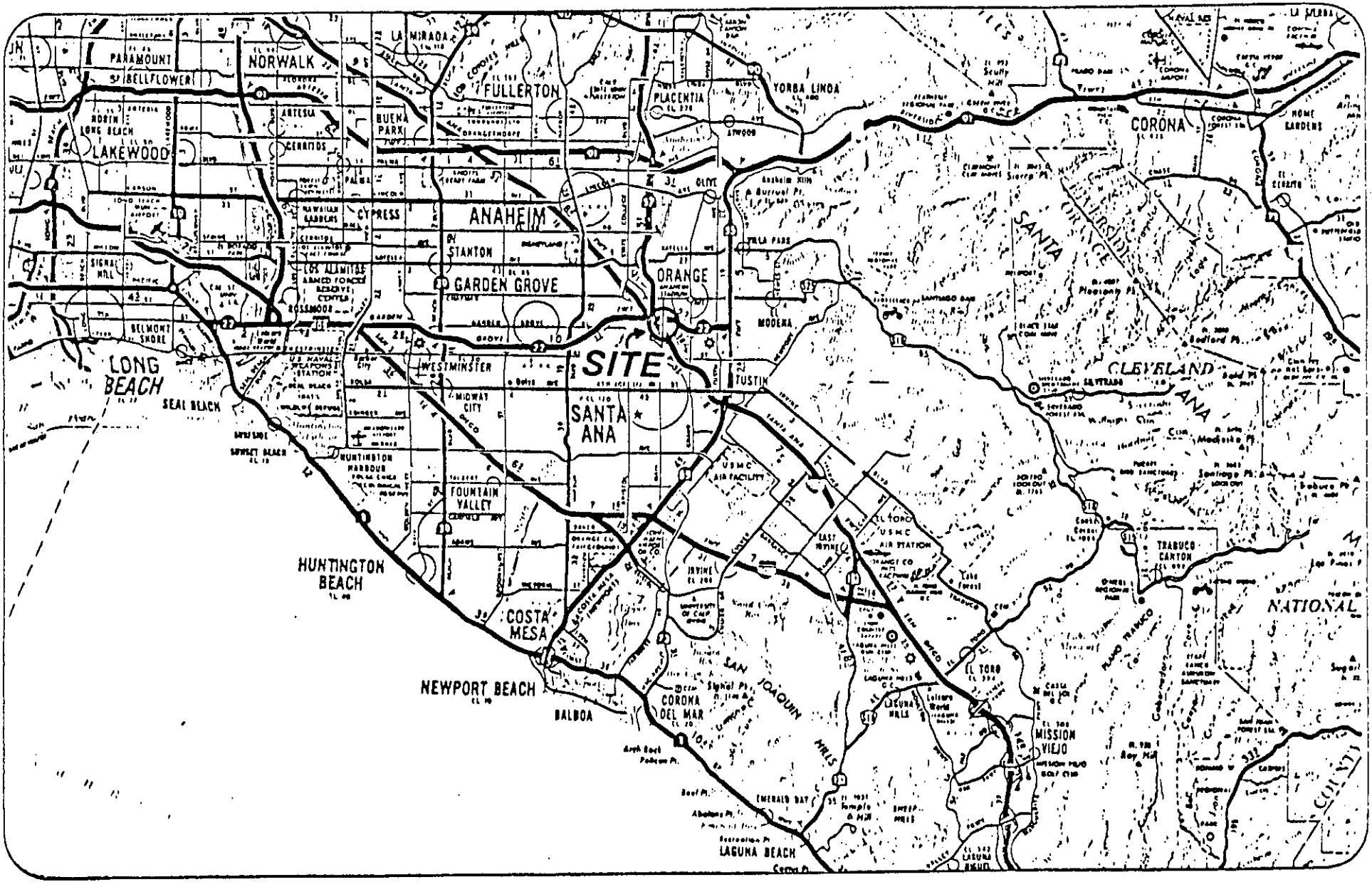
Santa Ana Fashion Square is an existing regional open shopping mall in Santa Ana, California. It is located immediately south of the boundary line with the City of Orange. Figure 20 illustrates the site and regional highway system. The site is bounded by Main Street to the east, the Garden Grove Freeway to the north, the Main Street Shopping Center to the south, and the interchange connector ramps of the Santa Ana and Garden Grove Freeways to the west. The site location and area highways are illustrated in Figure 21.

Presently, Santa Ana Fashion Square consists of approximately 512,595 square feet gross floor area (GFA) of retail space anchored by two major department stores - Bullocks and I. Magnin - together with mall specialty shops, on 35.21 acres of land.

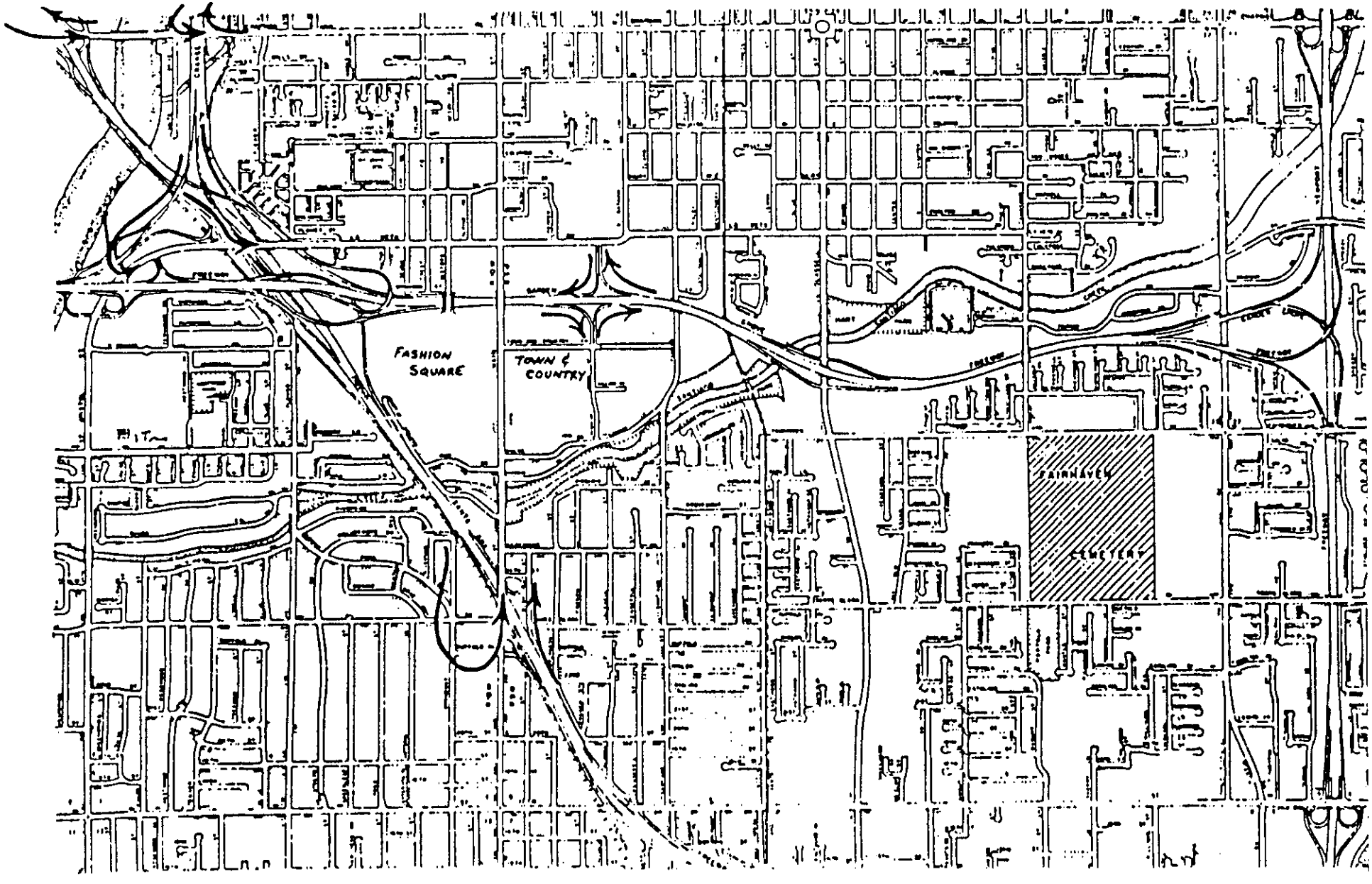
The Santa Ana venture proposes to redevelop and expand this facility by acquiring parcels of land to the south of the existing center. As presently conceived, the redevelopment and expansion of the center consists of the following:

1. Retail - 1,200,000 square feet in addition to 400,000 square feet of the existing Fashion Square Center that will remain
2. Office - 1,500,000 square feet
3. Hotel - 1,200 rooms.

The existing 163,403 square foot Main Street Center would be demolished under the proposal.



ultrasystems	Source: BARTON-ASCHMAN ASSOC., INC.	Title: SITE LOCATION AND REGIONAL ROADNET	20



ultrasystems	Source: JEF ENGINEERING	Title: SITE LOCATION AND AREA ROADNET	21

Freeway

The principal access to the study area is shown in Figure 21. The area is served directly by three freeways: The Santa Ana (I-5), the Garden Grove (Rte 22) and the Orange (Rte 57) and indirectly by a fourth - the Costa Mesa-Newport (Rte 55). Interchanges are provided with the main arteries (Main Street, Grand/Glassell, Chapman and a partial interchange with Bristol/LaVeta). The existence of the I-5/Rte 22/Rte 57 interchange creates a "spaghetti bowl" immediately adjacent to the study area. This severly limits opportunities for creation of new ramps without substantially reconstructing the existing facilities. The freeways themselves create significant travel barriers and bridge crossings are limited to relatively few locations. The City of Santa Ana and Caltrans have budgeted funds for construction of a new bridge over I-5 connecting Broadway with Owens Drive and linking with Parker Street and Lawson Way.

Interviews with the California Highway Patrol together with field observations indicate that the freeways are relatively free flow during the off peak periods. I-5 is congested in both directions during the AM and PM peak periods and is becoming increasingly congested during non-peak periods, especially noontime. Rte 57 is relatively free flow except for the southbound connector to I-5 in both the AM and PM peak periods. Northbound Rte 57 is congested north of the study area during the PM peak period at Ball Road. The Rte 22 Freeway is relatively free flow in the vicinity of the study area throughout most of the day. However, congestion does occur daily at locations outside the study area. Eastbound Rte 22 backs up from its transition with Rte 55 in the morning (for the southbound connection) and during the evening (for the northbound connection). CalTrans recently improved westbound Rte 22 in the vicinity of Bristol/LaVeta. This substantially reduced what was previously one of the most congested exists on eastbound Rte 22 in advance of the transition to I-5 and Rte 57 during both peak periods. However, through traffic eastbound on Rte 22 passes this congestion with

relatively minor delay by using the number one lane. All freeway to freeway connections to and from the study area are relatively free flowing with the following exceptions:

1. The southbound Rte 57 to southbound I-5 connector during both peak periods

2. The eastbound Rte 22 to northbound Rte 55 during the PM peak period.

Peak period congestion on the southbound I-5 creates a backup of traffic on southbound Rte 57 and eastbound Rte 22 Freeways. Once a motorist reaches the eastbound Rte 22 connector (from either southbound Rte 57 or I-5) then free flow conditions are encountered through the study area. Other than the existing congestion on the southbound I-5, nearly free flow freeway conditions are (or could be available) to/from the study area. To take advantage of this situation, access to the study area must be via Rte 22 rather than I-5.

Ramps

Several ramps serve the study area, but two in particular, are considered important. These are the two Main Street interchanges with I-5 and Rte 22. Neither of these interchanges is a conventional design nor is either particularly well suited to accommodate the high volume of traffic expected from new commercial development in the Main Street Area. The I-5/Main Street Interchange has one off-ramp directing traffic onto a residential street with a stop sign at the end of the ramp. The on-ramp directs on-ramp traffic through a circuitous "maze" of tight turns through a residential neighborhood. A third ramp directs Main Street traffic off to Broadway instead of Main Street and the Rte 22/Main Street Interchange is situated such that it does not serve Main Street directly. It directs freeway traffic on or off to two side streets -La Veta and Town and Country Road. In addition, the Main Street/Rte 22 Interchange has no bridge over the freeway to connect the on and off ramps.

Two isolated off-ramps which directly serve the Fashion Square area are particularly noteworthy. These are the La Veta off-ramps from southbound I-5 and southbound Rte 57. There are no corresponding on-ramps, but the return trip is facilitated via the Bristol Street on-ramp to eastbound Rte 22 and the "horseshoe" connector to northbound I-5 or Rte 57. These two off ramps serve Fashion Square in a reasonably direct manner with little delay encountered. However, the return trip via the "horseshoe" involves considerable out-of-direction travel. The severe congestion associated with the "horseshoe" connector makes the return trip to the freeways particularly unsuitable.

Arterials

The Orange County Master Plan of Arterial Highways (MPAH) shows relatively few main arterials serving the study area. These arterials are shown in Table 4.

Lawson Way, an existing 406 lane wide street, which provides direct access to the Rte 22 Freeway, is not included on the MPAH. This appears to be a significant omission particularly since the road does provide direct access to a freeway. Furthermore, with the completion of the Broadway Overcrossing (including construction of Owens Drive), Lawson Way offers a more attractive routing to and from Rte 22 than Main Street. This fact becomes increasingly more important if, as will be discussed later, a bridge is constructed at the Main Street/Rte 22 Interchange connecting the ramps.

Although the MPAH indicates the future configuration of arterials serving the study area, there are substantial gaps in what exists today. Glassell Street north of La Veta Avenue is essentially a two lane roadway with several four-way stop controlled intersections and a traffic circle located at the intersection of Chapman Avenue. These restrictions effectively limit the capacity of Glassell Street, to little more than its present volume unless a major widening program is completed.

Natural barriers to travel such as the I-5 and Rte 22 Freeways and Santiago Creek restrict north-south travel. Santiago Street, the only crossing of Santiago Creek between Main Street and Grand Avenue, has been closed to protect the residential area south of the creek from traffic generated by new development in the study area.

TABLE 4

ARTERIALS SERVING THE STUDY AREA

	Arterials	MPAH Classification
	N-S	
1.	Main Street	Major/Primary
2.	Grand/Glassell	Major/Primary
3.	Batavia Street	Secondary
4.	Flower Street	Commuter
5.	Broadway/Owens Drive/Parker	Secondary/Primary
6.	Lawson Way	Not Included
	E-W	
1.	17th Street	Major
2.	La Veta Avenue	Primary
3.	Town and Country Road	Primary
4.	Chapman Avenue	Primary

With Santiago Street closed and Glassell Street offering limited capacity, at least for the foreseeable future, the principal north-south access to and through the Fashion Square area will be Main Street. Parker Street has an undercrossing of Rte 22 but offers only limited possibilities. Its principal function is to provide the north-south link for the Rte 22/Main Street Interchange. With the completion of the Broadway Overcrossing, Lawson Way offers an excellent opportunity to supplement north-south access.

The cross section of Main Street varies considerably throughout the study area. North of La Veta, Main Street has four lanes and a left turn median. Signals exist at two intersections between Chapman Avenue and La Veta Avenue, but they do not seriously effect street capacity. The capacity of Main Street is determined at the intersections with La Veta and Chapman. South of La Veta, Main Street generally has three lanes northbound and two southbound with median turning lanes. The curb widths vary, but the five travel lanes exist between 17th and La Veta. Main Street, in the vicinity of I-5, has experienced severe congestion in years past. Recent improvements by the City of Santa Ana including relocation of the southbound on-ramp, elimination of parking and left turns at several locations and restriping have significantly improved the level of service. Left turn restrictions associated with the I-5/Main Street Interchange (southbound off and northbound on) have increased the inconvenience for some freeway traffic. However, this inconvenience is offset by a significant improvement in the level of service provided on Main Street. Several "complaints" were registered by residents during the Phase One TSIP Study regarding the inconvenience caused by left turn restrictions but actual measurements show relatively little impact whereas travel time on Main Street is much improved.

Traffic Volumes

Peak hour traffic volumes were used for analytical purposes for both present and future conditions. Peak hour volumes for all signalized intersections in the study area are presented in Appendix II-A. The source of data is existing counts from the two cities, both of whom maintain active annual counts programs, and several additional counts collected expressly for the Phase Two Transportation System Improvement Study. The machine counts along with several individual intersection peak hour turning movement counts were collected by Newport Traffic Studies (NTS). CalTrans provided information on freeway counts as well as selected on and off ramp peak hour counts. Travel time and delay data were collected for all major roadways in the study area and is presented in Appendix II-B.

A special Christmas season traffic count was conducted during the peak hour at the intersection of Main and Town and Country (Fashion Square Entrance) to determine what changes occurred during peak shopping periods. The surprising results showed that typical Christmas and non-Christmas peak hourly intersection volume (5:00 PM - 6:00 PM) was the same (2,535 vph during Christmas compared to 2,566 vph during the non-Christmas season).

Intersection Capacity Analysis

An intersection capacity analysis was conducted utilizing PM peak hour turning movement counts collected at all signalized intersections. Appendix II-A shows the existing number of approach lanes at each signalized intersection along with the PM peak hour traffic volume. This information was used as the basis for the capacity analysis using an Intersection Capacity Utilization (ICU) technique to report the Level of Service. In order to calibrate the ICU analysis to the actual driving characteristics of motorists encountered in the study area, a special study of lane capacities was undertaken.

The results indicate the following lane capacities per hour of green time at signalized intersections:

Lane Designation	Capacity*
Single Left Turn Lane	1600
Dual Left Turn Lanes	2750 (1500 one lane, 1250 2nd lane)
Thru Lane (including right turns)	1700

* These are actual flow rates observed at the four approaches on the intersection of Main/La Veta. The flow rate is expressed in terms of vehicles per hour of green signal time.

An independent ICU capacity analysis was conducted for the intersections along Main Street by the firm of Linscott, Law and Greenspan, Inc., (LL&G) on behalf of the developers of Fashion Square. Although there were some differences in assumptions and lane designations made by the analysis, the results of the two ICU studies corroborated one another. (The LLG study was done to determine the extent of additional development which could be accommodated by the existing arterials without necessitating a major widening program. That analysis indicates that six travel lanes will be required on Main Street to accommodate the traffic to be generated by approved projects and that expected in the first phase of the proposed Fashion Square Expansion and a number of other approved or anticipated developments in the area. LL&G's study presumed the completion of the Broadway Overcrossing Project.)

The existing level of service provided by the arterial highway system was examined using ICU type of analysis. Supplemental information in the form of a signal cycle inventory of the existing signalization was conducted. The results of the Intersection Capacity Utilization for critical signalized intersections in the Study Area is shown in Table 5. The results of the signal cycle inventory is presented in Appendix II-C.

TABLE 5

INTERSECTION CAPACITY UTILIZATION

1981 - PM PEAK HOUR

Location	Total Vol. Entering	ICU	LOS
1. Main/Chapman	3,292	0.77	C
2. Main/Almond	2,128	0.54	A
3. Main/Culver/Stewart	2,606	0.55	A
4. Main/La Veta	4,855	0.93	E
5. Main/Town & Country	2,414	0.47	A
6. Main/Edgewood	2,226	0.49	A
7. Main/Santa Clara	2,942	0.56	A
8. Main/Buffalo	2,443	0.71	C
9. Main/17th	4,450	0.69	B
10. 17th/Spurgeon	2,779	0.52	A
11. 17th/Penn Way	2,731	0.67	B
12. 17th/Valencia	3,142	0.81	E
13. 17th/Santiago	2,828	0.49	A
14. 17th/Lincoln	3,421	0.84	D
15. 17th/Grand	4,425	0.77	C
16. Grand/Santa Clara	2,942	0.56	A
18. Glassell/Garden Grove FWY Ramps	3,031	0.75	C
19. Glassell/La Veta	2,388	0.79	C
20. La Veta/Pepper	3,052	0.85	D
21. La Veta/Garden Grove FWY Ramps	3,312	0.62	B
22. Garden Grove FWY/Town & Country	1,784	0.64	B

City Parking Requirements

The City of Santa Ana's code required parking for land uses anticipated in the study area was investigated. The code requirements are shown in Table 6.

Comparison of the code requirements with typical code requirements existing elsewhere and with actual parking experience shows the City of Santa Ana's requirement is high with respect to retail parking but adequate for office parking. The City of Los Angeles has recently completed a study of parking usage. The study indicates employment is a more predictable unit of measure for parking than square footage. Their study shows offices generate an average parking demand of 0.70 spaces per employee. However, in the downtown CBD area which is

well served by transit, the actual parking demand ranges between 0.41 and 0.68 spaces per employee. This indicates that transit service can produce a significant reduction in the need for office parking.

Another parking study recently completed in Anaheim showed actual parking usage rates of 5.0 spaces/1,000 SF for retail and 3.0 spaces/1,000 SQ for high rise offices. This is the same as required in the massive Century City office development. Examination of the parking being provided by the Continental Cities Development shows 3.0 spaces/1,000 SF are being supplied.

The City of Santa Ana code requirement of 6.7 spaces/1,000 SF of retail is higher than necessary to satisfy normal or even peak retail parking demand.

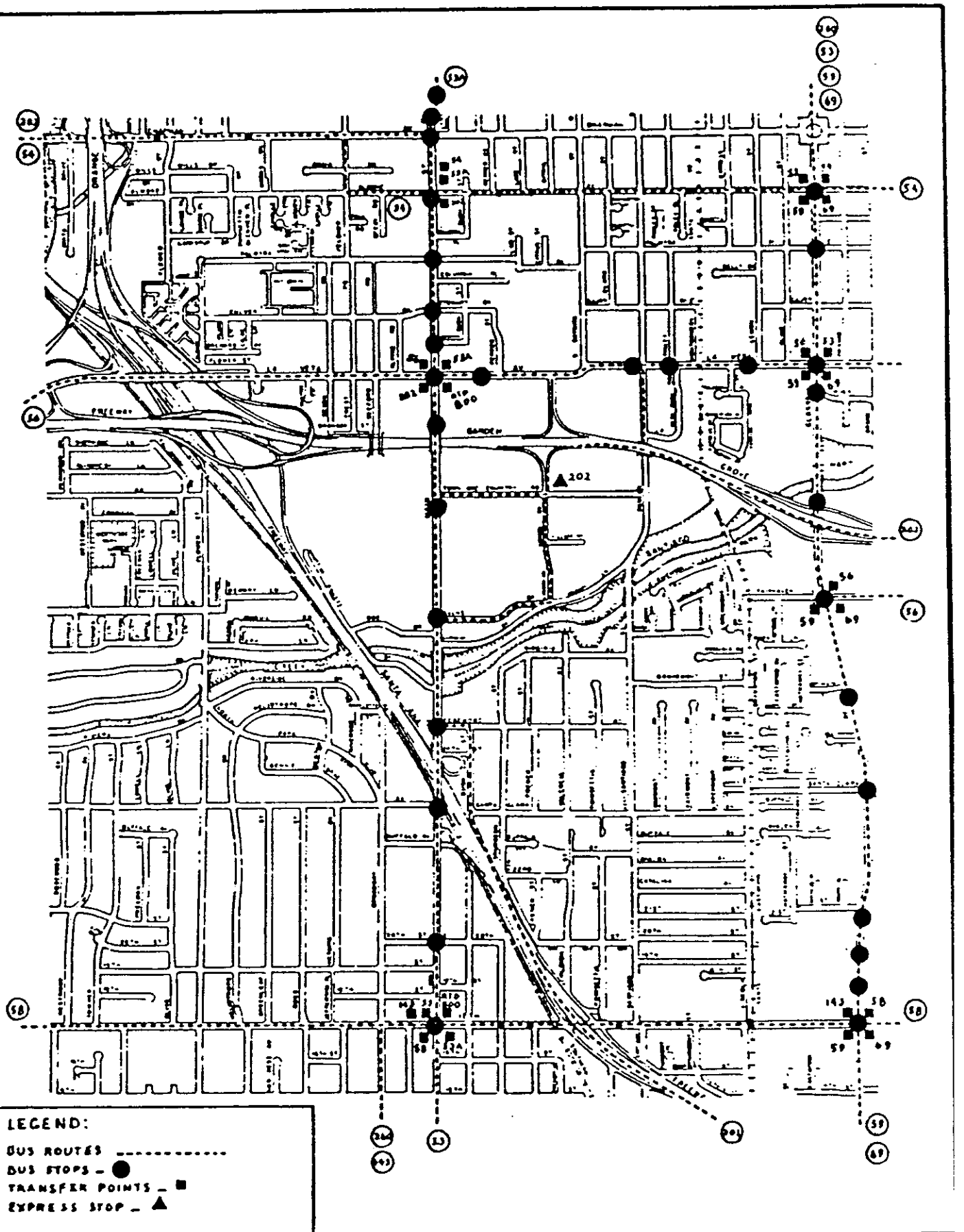
TABLE 6

CITY CODE PARKING REQUIREMENTS

Land Use	Unit	Parking Required (spaces per unit) Santa Ana	Typical Requirements
Office	1,000 SF	3	2.4 - 4.0
Retail	1,000 SF	6.7	4.5 - 5.0
Hotel	Room	0.5+0.33/ employee	1.0

Transit Service

Existing bus routes, stops and transfer locations serving the study area are presented in Figure 22. Information was obtained from the Orange County Transit District (OCTD) of residence of employees who work in the North Main Street area and for bus patronage. This information is presented in tabular form in Appendix II-D. Table 7 shows a breakdown of the typical driving distance for employees of the Main Street area.



ultrasystems

Source: JEF ENGINEERING

Title: EXISTING BUS ROUTES AND STOPS

22

Examination of the existing transit service in the study area shows most service is concentrated on Grand/Glassell Street. Main Street has only one line (53/53A) which does have 20 minute service in peak periods. East-west service is provided on Chapman Avenue/Almond Avenue, La Veta Avenue, and 17th Street. One express bus line (202) does service the Main Street area with one stop. RTD provides service from one line (800) on Main Street.

An investigation was conducted to determine the total time required to use existing bus service from Fashion Square to the Amtrak Station in Santa Ana. The total time required (including waiting between transfers) is 45 minutes to an hour.

TABLE 7

DISTANCE OF EMPLOYEE RESIDENCES
FROM NORTH MAIN STREET

Distance	Number of Employees	Percent
Less than 5 miles	1,535	41%
5 to 10 miles	1,645	43%
10 to 15 miles	502	13%
15 to 20 miles	50	1%
Greater than 20 miles	57	2%
Total	3,789	100%

One transfer is required to complete the trip. Frequent transit service does exist along Main Street, but the Amtrak Station is too far from Main Street to walk. A similar situation exists for the future Amtrak Station planned in Anaheim Stadium where no direct bus service is provided between the rail station and Fashion Square. Consequently, it is expected that a shuttle bus system operating between the two Amtrak stations and the Main Street portion of the study area is going to be needed to take advantage of expanded commuter rail service proposed in the future. The City of Santa Ana is expanding the parking

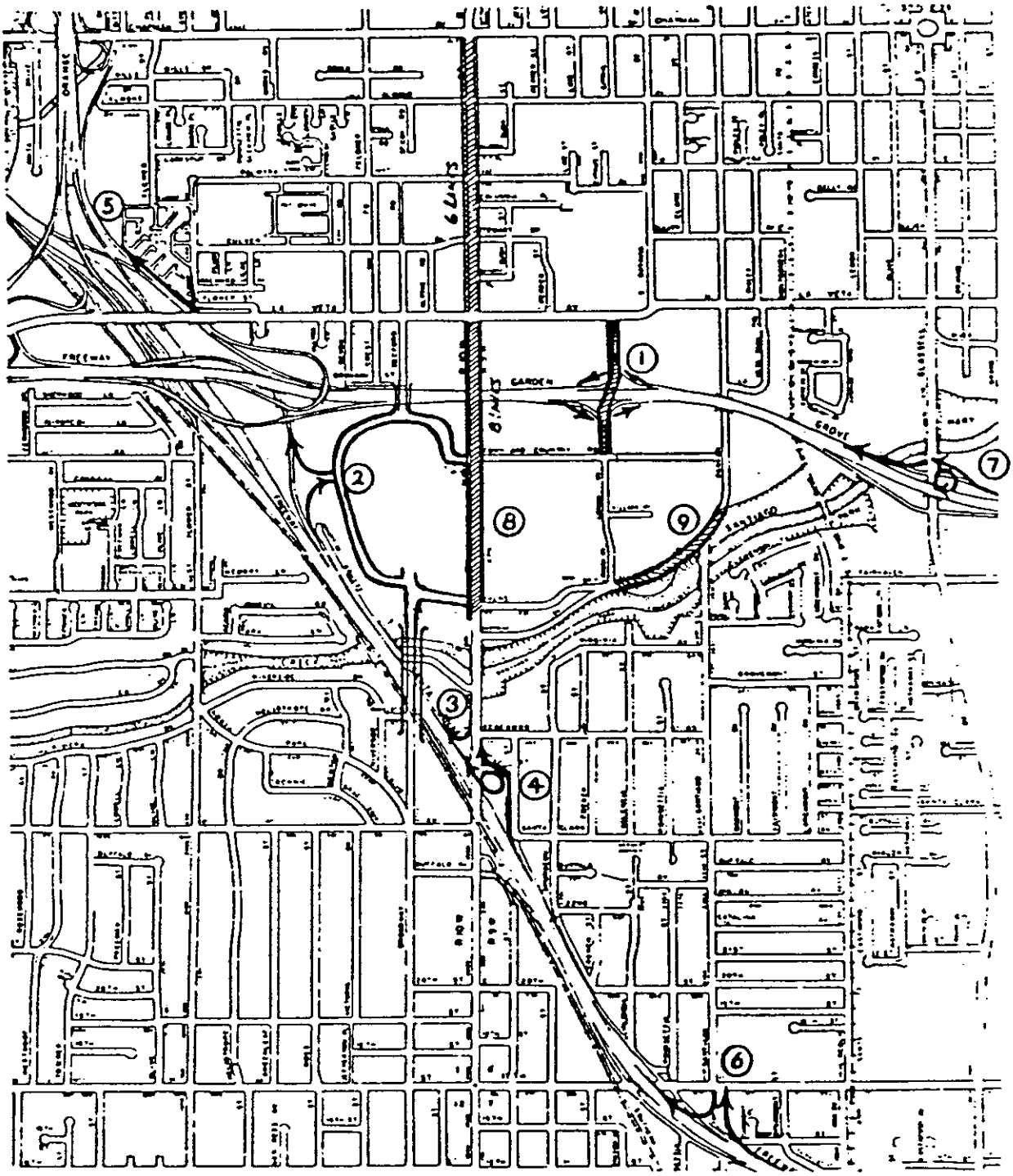
capacity of its Amtrak Station through relocating to Santa Ana Boulevard. Relocation to Santa Ana Boulevard will effect available transit serving the station. Two lines (61 and 75) serve the present location for the Amtrak Station and two lines (69 and 85) serve the future Santa Ana Boulevard location.

Reasonably good and relatively direct bus service is provided between Fashion Square and the downtown Santa Ana Park and Ride Station and the future Santa Ana Multi-modal Terminal. If the first phase of the future rapid transit starter line were to be the PERR alignment (as opposed to both the N-S and PERR Lines), then reasonably frequent (10-20 minute) and direct service between Fashion Square and the PERR Starter Line would be provided by the fixed route feeder bus system. Upon completion of the N-S Transit Line, direct accessibility to a rapid transit facility will be available in the Fashion Square area.

Status of TSIP Agreement

The Cities of Santa Ana and Orange have adopted a Transportation Systems Improvement Program (TSIP) Agreement to fund construction of transportation improvements needed to support the proposed development in the Main Street area. The agreement establishes a one percent assessment fee on all new development in the TSIP area to be used for implementation of improvements identified in the Phase Two TSIP Study and mutually agreed upon by the Cities. The consultant's recommendations for the Phase Two TSIP master plan are presented in Figure 23 and Table 8 and are currently under review by both of the Cities involved. Review by outside agencies such as CalTrans, etc., have indicated that the project proposals are feasible although a funding shortfall has been identified.

The entire TSIP plan, exclusive of the widening of the Santa Ana Freeway which is a project of regionwide interest, is estimated to cost $16.66 million (1982) dollars. Full development of the one percent TSIP assessment fund will generate approximately $8 million - creating a



LEGEND:

1. LAWSON WAY INTERCHANGE
2. FASHION SQUARE RAMPS
3. NEW S/B MAIN ST. ON-RAMP
4. REALIGN MAIN ST. OFF-RAMP
5. LA VETA AVE. ON-RAMP
6. 17TH ST. RAMP MODIFICATION
7. GLASSELL RAMP MODIFICATION
8. WIDEN MAIN STREET
9. WIDEN MEMORY LANE

	Source:	Title:	
ultrasystems	JEF ENGINEERING	TSIP IMPROVEMENT PLAN	23

TABLE 8

PHASE TWO
TRANSPORTATION SYSTEM IMPROVEMENT PROGRAM

Project	Cost	Priority
Complete TSM/Parking Management Program	$485,000	I
Auxiliary Lane S/B I-5	7.0 M	III
Auxiliary Lane N/B I-5	8.0 M	III
Lawson Way Bridge	4.5 M	I
Fashion Square Service Road Ramps	0.5 M	I
New S/B Main St. on-ramp	1.0 M	I
Realign N/B I-5/Main St. off-ramp	2.0 M	II
New La Veta Ave on-ramp	1.0 M	II
Modify 17th St./I-5 Interchange	2.5 M	II
Modify Glassell St./Rte 22 Interchange	2.0 M	III
Widen Main St. (8 lanes Memory Lane to La Veta)	2.0 M	I
Complete Memory Lane (east of Lawson Way)	75,000	II
Complete Santa Ana Residential Traffic Control Plan	50,000	I
Develop Orange Residential Traffic Control Plan	50,000	I
Widen Bedford Road	500,000	III
Total	$31.66 Million	

shortfall of $8.66 million. In order to fully implement the transportation improvements necessary to support maximum development envisioned in the Main Street area, an additional $8.66 million (1982 dollars) will be necessary. As a result, the Fashion Square project (including developers and the City's Redevelopment Agency), and all other future developments in the TSIP area as well, must be prepared to fund transportation system improvements substantially in excess of what the one percent assessment fee would otherwise support.

5.6.2 Impacts

Introduction

The entire vicinity of Main Street, including Fashion Square and Town and Country, is undergoing intensive new development. As a result, the Cities of Santa Ana and Orange jointly developed a computerized travel model to analyze the traffic impacts of new projects in the area. (That travel model, referred to as the SATC/TSIP Model, is a derivative of the regional Multi-Modal Transportation Study (MMTS) - Santa Ana Transportation Corridor (SATC) Model. The only difference is that the SATC/TSIP version of the model disaggregates the area of North Santa Ana/South Orange into smaller zones and includes a highway network with Primary and Secondary classifications rather than only the "Majors" included in the MMTS/SATC Model).

The SATC/TSIP Model was created for the purpose of analyzing traffic impacts of various development proposals as they come forth. The SATC/TSIP Model incorporates an estimate of the maximum density envisioned for each zone along Main Street as well as current estimates for additional development in the remainder of the region. This model formed the basis for travel forecasts expected from the maximum planned development in the Main Street area and a master plan of transportation improvements for highway and transit facilities was developed.

The availability of the travel model and the designation of the zones in the vicinity of Main Street are well suited for the traffic analysis necessary in the EIR process. In fact, the regional model, which has been refined for detailed analysis of the study area, provides considerable more information for an EIR study than is normally available. The model provides for distribution and assignment of travel on region-wide basis. Frequently, traffic studies for EIR purposes must make large assumptions as to the trip generation distribution and assignment from a new or expanded facility. These assumptions can be a weakness when the project under consideration is large and the resulting

peak hour trips are sufficient to cause a significant shift in both mode selection and time of travel. Such is the case with the proposed Fashion Square project. The anticipated trip generation is large compared to traffic presently existing on the streets. Several new highway facilities are proposed which will cause significant changes to occur in existing travel patterns that accompany major changes in demand (such as created by Fashion Square) and highway and transit capacity. As a result, the SATC/TSIP regional model was selected as the basis for the Fashion Square EIR traffic analysis.

Scope of Work

Much of the traffic analysis presented in the Fashion Square EIR traffic study was performed during the Phase Two TSIP study conducted jointly by the Cities of Santa Ana and Orange. The primary effort undertaken with regard to the preparation of the traffic study for the Fashion Square project was:

1. A comparison of the current proposal's density with that programmed in the SATC/TSIP Model.

2. The conduct of a selected link analysis to isolate that traffic specifically generated by the Fashion Square project.

3. Evaluate that portion of the highway assignments attributable directly to Fashion Square.

4. Identify any impacts resulting from the Fashion Square proposal that were not included (or differed with) the overall master plan developed in the Phase Two TSIP Study.

In addition, comparable trip generation rates were studied for high density commercial retail/office developments. It was noted during the Phase Two TSIP study effort that the MMTS/SATC Model tended to forecast less traffic, particularly for large scale commercial developments, than some trip generation studies would otherwise indicate. Such a relationship seemed reasonable since it was recognized that large commercial developments offered better opportunities for ride sharing, transit and staggering of work hours. However, rather than to simply rely on this intuitive assumption, comparisons were conducted on commercial developments similar to that proposed in Fashion Square to ensure the trip generation model was realistic.

To the extent possible, an intersection level capacity analysis was conducted as part of the EIR traffic study. The Phase Two TSIP Study conducted a capacity analysis at the arterial scale in sufficient depth to size the main arteries but had not extended the study to the detail of intersection level capacity analysis. Such was attempted in the EIR traffic study, primarily for the purpose of comparison with the classical Intersection Capacity Analysis (ICU) approach, but the effort was abandoned. Highway assignments are forecast on an individual link by link basis, but intersection turning movements are not readily obtainable. Assumptions would have to be made as to the percentage of thru and turning traffic at each intersection and these assumptions significantly influence the resulting capacity evaluations. Existing traffic data is available but does not necessarily provide an indication of future turning patterns because the proposed roadway network is substantially different than present. As a result, the comparison of ICU's was abandoned and a more generalistic approach taken whereby individual intersection approach volumes were compared against capacity to ensure a minimum level of Service D was provided. The typical cross section of Main Street is presumed to provide a median wide enough for dual left turn lanes.

The proposed expansion of Fashion Square is one of the first projects to proceed after completion of the Phase Two TSIP Study. The

section of the Fashion Square EIR Traffic Study relies on the travel forecasts produced by the Phase Two TSIP Study and expands and focuses the analysis on the Fashion Square project. Included in the detailed analysis of the Fashion Square expansion is an investigation of trip generation rates for large commercial projects and examination of the impact of Fashion Square on the entire Main Street area. Freeway access recommended by the Phase Two Study is examined as well as changes in travel patterns that will occur and impacts on Main Street of a failure to provide any or all of the recommended freeway ramp additions. An intersection capacity analysis is performed which provides an indication of the impact newly generated Fashion Square traffic will have on two key Main Street intersections. This capacity analysis, which is based on the conventional "existing plus project traffic" approach is intended for comparative purpose only since existing conditions will be changed dramatically by planned development and roadway improvements in the area.

Trip Generation

Trip generation forecasts were prepared for the proposed maximum density development of the Fashion Square/Town and Country areas as part of the Phase Two TSIP Study. A "reasonableness" check was performed on the MMTS/SATC Model as a part of that effort to ensure that the trip generation aspect of the model realistically predicted travel demand. That analysis indicated that the MMTS/SATC Model's trip generation procedures did produce reliable estimates of total trip generation. The results of the trip generation for Fashion Square are presented in Table 9.

TABLE 9

FASHION SQUARE TRIP GENERATION

	AM Pk (2 hrs)	PM Pk (3 hrs)	Off Peak	Daily
Inbound	6,668	4,552	17,317	28,537
Outbound	729	10,832	17,147	28,708
	7,397	15,384	34,464	57,245

In order to test the validity of the MMTS/SATC Model's trip generation algorithm, extended peak period driveway counts were conducted at a number of office buildings in the vicinity of Main Street and trip generation information for other large scale office developments in the metropolitan area was researched. The results are presented and shown graphically in Table 10. The graph indicates that while the peak trip generation may be highly concentrated for relatively small office buildings (one hour and frequently less) it tends to become a peak period of 2 hours or longer for large office complexes. Prediction of these changes in travel patterns is an inherent characteristic of the regional travel model and is particularly appropriate in analyzing the changes that can accompany a proposed high density development such as Fashion Square.

TABLE 10

OFFICE TRIP GENERATION RATES
(PM PEAK PERIOD)

Location	Size (SF)	Vacancy	PM Pk Hour Enter	PM Pk Hour Exit	Peak 2 Hr Enter	Peak 2 Hr Exit
1. 2525 N. Main	84,500	NA	0.16	1.73	0.40	2.37
2. Wells Farbo/ Caldwell/Banker	103,000	6.4%	0.71	1.61	1.33	2.85
3. Holmes & Narver	100,000	NA	0.10	2.17	0.19	2.59
4. Fidelity Savings	110,000	6.0%	0.29	1.53	0.49	2.99
5. Union Square Plaza	363,000	3.9%	0.09	1.63	0.17	2.24
6. Newport Center	812,000	NA	0.23	1.16	0.42	2.00
Comparable Projects which Indicate Trends Only (Data not Complete)*						
7. Century City	907,000	NA	0.27	1.02	0.57	1.81
8. Continental Cities (EIR)	754,850	NA	0.20	1.03	NA	NA

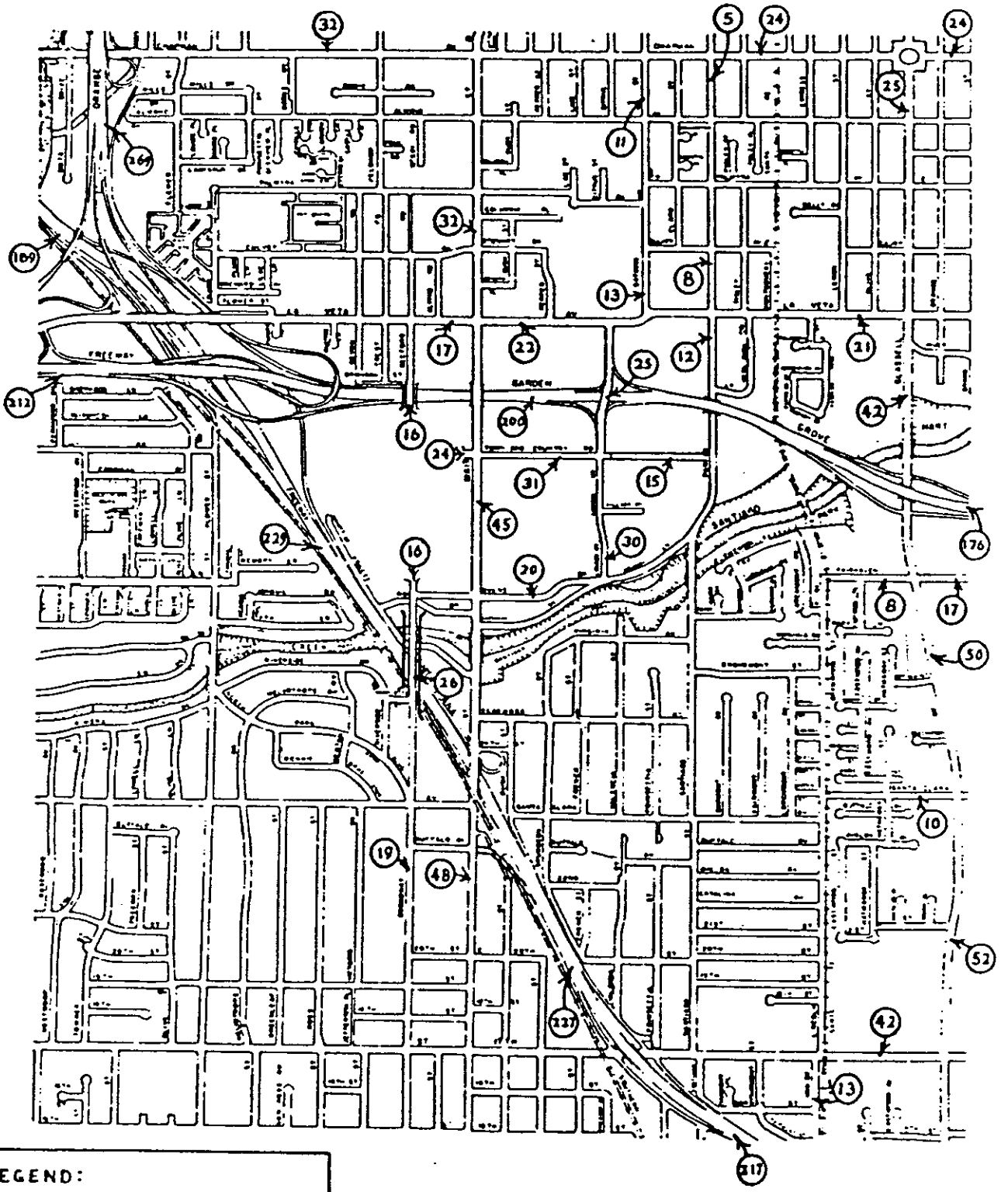
* Note: This data presented to indicate trend of large office complexes is toward lower trip generation rates per 1,000 SF but data is incomplete - actual trip generation rates may be different.

Trip Distribution and Assignment

Distribution and assignment of trips generated by the Fashion Square project was obtained from the regional model. Figure 24 presents the 1995 travel forecasts obtained from the TSIP/SATC Model for maximum development of the Main Street/Town and Country area. A "selected link analysis" was performed on the highway assignment for the critical afternoon peak period. Two freeway flow conditions were examined. First, the freeway was treated as if sufficient capacity were available, and/or ramp metering were provided, which permitted the freeways to operate at near optimum flow rates, i.e., 35-45 miles per hour. Secondly, the freeway assignment resulting from a congested (stop and go) condition on the freeways was examined.

The typical trip length for travel associated with Fashion Square was also investigated. Analysis shows that 57.2 percent of the trips to and from Fashion Square will be less than 5 miles in length. Similarly, 95.9 percent of all trips will remain within Orange County whereas only 4.1 percent will travel to/from destinations beyond County boundaries. This information is corroborated by the Orange County Transportation Commission's employment study of Main Street which revealed 41 percent of existing employees live within five miles and 84 percent live within a 10 mile radius of the Fashion Square. With several commercial centers located close by, it appears reasonable that most shopping trips will be less than five miles in length. The combination of short shopping trips with the employment based trips show good correlation between the model output and survey data and provides reasonable assurance that the model's forecast of trip lengths is reliable.

The distribution of inbound and outbound trips from Fashion Square during the critical PM peak period is presented in Table 11. This table shows that 72.3 percent of the highly directional outbound peak period Fashion Square traffic is oriented directly to the freeways. This demonstrates the importance of providing direct freeway access from the site.



	Source:	Title:	
ultrasystems	JEF ENGINEERING	1995 TRAVEL FORECAST	24

TABLE 11

FASHION SQUARE FREEWAY TRAVEL DEMAND
(PM PEAK PERIOD)

Freeway	Direction	Outbound Trips
I-5	S/B	25.0%
I-5	N/B	12.7%
Rte 57	N/B	3.9%
Rte 22	W/B	16.7%
Rte 22	E/B	14.0%
		Inbound Trips
I-5	N/B	19.0%
I-5	S/B	15.5%
Rte 57	S/B	6.0%
Rte 22	W/B	16.7%
Rte 22	E/B	6.0%
		63.2%

Examination of peak-period highway assignments for the overall Fashion Square/Town and Country area revealed a significant portion of the would-be freeway trips generated may, in fact, travel by the arterials rather than the freeways. The MMTS/SATC Model's capacity restraint program continually adjusts the freeway speeds (downward) as additional traffic is assigned. Freeway speeds slow to the point where travel by the arterials is faster. The model assigns trips to the fastest routing timewise, which results in freeway trips being assigned to arterial streets.

To determine the effect of the diversion of freeway oriented traffic to the arterials, a "selected link analysis" was run on the SATC model. An optimum capacity condition was assumed for the freeways. Such a condition might be achieved by an effective ramp metering program. The freeways were assigned a speed of 40 miles per hour, a

speed generally associated with the maximum flow rates on the freeway. The analysis was conducted for the critical PM peak period (3:30-6:30 PM) Table 12 shows the results. Analysis shows that as a result of increasing freeway congestion, approximately 20% of would-be freeway traffic may be diverted from the freeways to arterial streets during the peak periods unless the freeways themselves are improved.

The SATC model was also examined to determine how extensive the trip diversion from freeways to arterials was at some distance from the study area. The analysis revealed that motorists whose trips originate in the study area continued to avoid the freeway at locations away from the study area. Typical examples are indicated in Table 13. Analysis of Table 13 shows motorists will continue to utilize arterial streets in lieu of the freeways at distances considerably remote from Fashion Square unless the freeways themselves are improved.

TABLE 12

PORTION OF TOTAL TRAVEL ASSIGNED TO FREEWAYS (PM PEAK PERIOD)

Freeway Flow Condition	Direction	Percentage
Congested	To study area	11.8%
Congested	Out of study area	56.1%
Maximum Capacity (40 MPH)	To study area	57.8%
Maximum Capacity (40 MPH)	Out of study area	70.6%

TABLE 13

COMPARISON OF FREEWAY ASSIGNMENT VS
TRAVEL DEMAND AT VARIOUS LOCATIONS

Location	Direction	PM Peak Period Volume (x100) FWY Demand	FWY Assignment
I-5 @ Rte 91	N/B	3	1
I-5 @ Rte 91	S/B	2	1
Rte 57 @ Rte 91	N/B	7	8
Rte 57 @ Rte 91	S/B	3	4
Rte 22 @ Beach	W/B	11	5
Rte 22 @ Beach	E/B	4	1
I-5 @ Rte 55	S/B	31	38
I-5 @ Rte 55	N/B	7	5
Rte 91 @ Rte 55	E/B	9	3
Rte 91 @ Rte 55	W/B	3	1
Rte 55 @ I-5	S/B	21	0
Rte 55 @ I-5	N/B	5	0

Freeway Access to Fashion Square

Existing and proposed access to Fashion Square is shown in Figure 25 and the resulting directional distribution of ingress/egress is presented in Table 14.

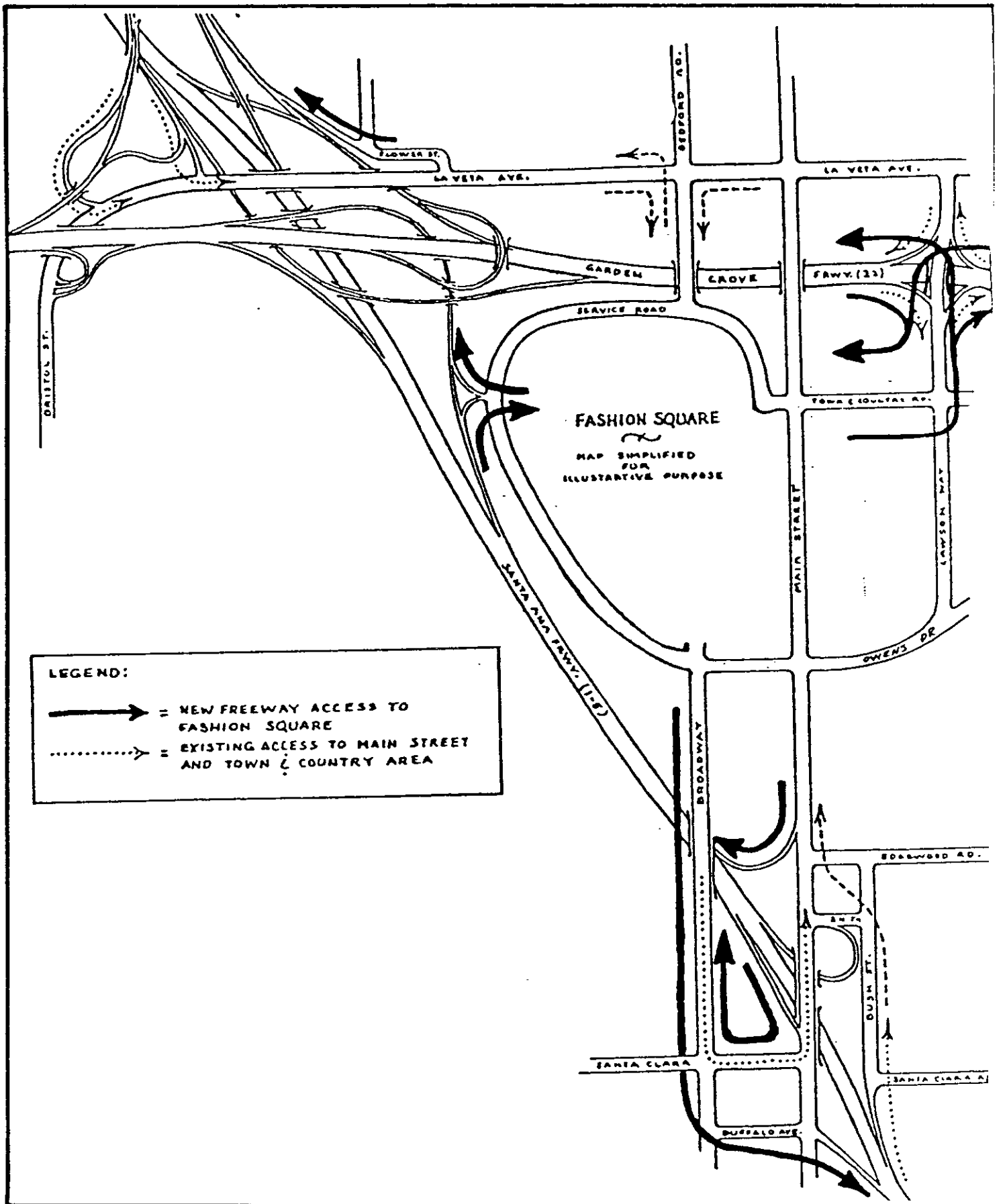
TABLE 14

DISTRIBUTION OF ACCESS TO FASHION SQUARE

Entrance Exit	AM	PM	Daily
Town and Country	49.0%	41.6%	42.3%
Broadway	28.6%	34.5%	28.75
Bedford Road	12.6%	13.4%	19.2%
Service Road Ramps	9.8%	11.0%	9.8%

Figure 25 illustrates that traffic generated by Fashion Square will not necessarily be concentrated on Main Street. Access to and from the freeways is designed to disperse traffic away from Main Street by taking advantage of Town and Country Road and Broadway and La Veta Avenue. In fact, Main Street does not provide any direct freeway access except for the Santa Ana Freeway and the revised circulation system provides alternative access to the Santa Ana Freeway. For example, southbound Santa Ana and Orange Freeway traffic have two off-ramp choices other than Main Street Interchange. These are the Bristol/La Veta off-ramps and the Main Street ramp from the Garden Grove Freeway.

An Origin and Destination survey conducted during the Phase One TSIP study revealed most motorists coming from the north, who are familiar with the area's freeway system, preferred to use the eastbound Garden Grove Freeway for access to the Fashion Square/Town and Country area rather than the southbound Santa Ana Freeway.



	Source:	Title:	
ultrasystems	JEF ENGINEERING	FREEWAY ACCESS TO FASHION SQUARE	25

Fashion Square traffic destined for the southbound Santa Ana Freeway will have a choice between Main Street and Broadway south to the Buffalo on-ramp. Inbound Fashion Square traffic from the southbound Santa Ana Freeway has a choice of using either Main Street or Broadway. However, most of this traffic will have been intercepted and diverted to the La Veta off-ramps or the Garden Grove Freeway. Northbound Santa Ana Freeway will be provided with a direct off-ramp to the Fashion Square Service Road. Outbound Fashion Square traffic headed north will have an opportunity to use a new Main Street on-ramp or avoid Main Street altogether by using the Rte 22 Freeway.

Fashion Square will probably be identified with Main Street and many motorists, particularly retail and hotel customers and visitors to the office buildings may use Main Street solely because of this identity. But more than half of peak periods travel will be by employees (commuters who seek out the shortest time paths which will be via freeway access other than Main Street.

Capacity Analysis

An arterial capacity analysis was conducted using the traffic assignment forecasts from the SATC/TSIP travel model. A detailed location by location Intersection Capacity Utilization (ICU) analysis was not conducted since the highway assignments do not include intersection turning movements. An assumption that the turning movements will remain similar to those existing today is highly speculative given that intensive development of the Fashion Square/Town and Country area will cause substantial changes in existing travel patterns. These changes will result from modifications to the existing highway network (new ramps, Broadway Overcrossing, Memory Lane, Lawson Way) and improved transit service as well as from increased ride sharing and staggering of work schedules.

The intersection capacity analysis involved a transportation planning approach. The number of arterial lanes required to accommodate the directional design hourly volume (DDHV) was determined.

The High Flow Arterial Concept Feasibility Study completed by the Orange County Transportation Commission examined several high volume intersections in Orange County. The study disclosed that 70-80 percent of traffic approaching a signalized intersection is thru traffic which receive 35-40 percent of the green time.

From this information, an intersection capacity was estimated for thru and right turn traffic. This capacity is based on actual experience at Main/La Veta where flow rates equivalent to 1,700 vehicles per lane per hour of green were observed. A theoretical approach capacity of 750-800 vplph was used in conjunction with SATC/TSIP Model forecasts of the DDHV to predict intersection capacity.

Table 15 presents results of arterial capacity analysis showing the forecasted DDHV compared with the current peak hour volume and the number of arterial lanes required to satisfy the demand. In the case of Main Street and La Veta Avenue, a curiosity is noted with respect to a significant difference in the directionality of the DDHV flows. This situation is partially created by the construction of a new off-ramp directly into Fashion Square which eliminates the necessity to use Main Street northbound from the Santa Ana Freeway. A similar situation occurs on La Veta Avenue where inbound traffic from the southbound Santa Ana Freeway can use eastbound La Veta Avenue (from Bristol/La Veta off-ramp) and return using eastbound La Veta Avenue to the La Veta Avenue on-ramp.

In addition to the arterial lane requirements shown in Table 15, a center median is recommended on Main Street with sufficient width to accommodate dual left turn lanes and a future mass transit guideway. The capacity analysis for Main Street indicates something less than 8 lanes may be sufficient to satisfy thru traffic requirements, but it is

expected that high volume turning movements into the adjacent commercial developments will be needed. Consequently, an eight lane section with the curb lanes functioning more as right turn lanes and bus stops is required.

TABLE 15

ARTERIAL DIRECTIONAL DESIGN HOURLY VOLUMES

Street	Direction	Current Peak Pk. Hr. Vol.	Future DDHV	Arterial Lanes Required
Main Street	N/B	1,450	2,450	3
	S/B	1,100	2,950	4
La Veta Ave.	E/B	2,140*	2,000	3
	W/B	1,100	1,500	2
Town & Country Rd.	E/B	850	1,600	2
	W/B	425	1,600	2
Owens Drive	E/B	Negl.	1,300	2
	W/B	Negl.	1,450	2
Broadway	N/B	N.A.	1,600	2
	S/B	N.A.	1,700	2
Lawson Way	N/B	100	2,150	3
	S/B	125	2,150	3

* East of Main Street; 1,100 vph west of Main Street.

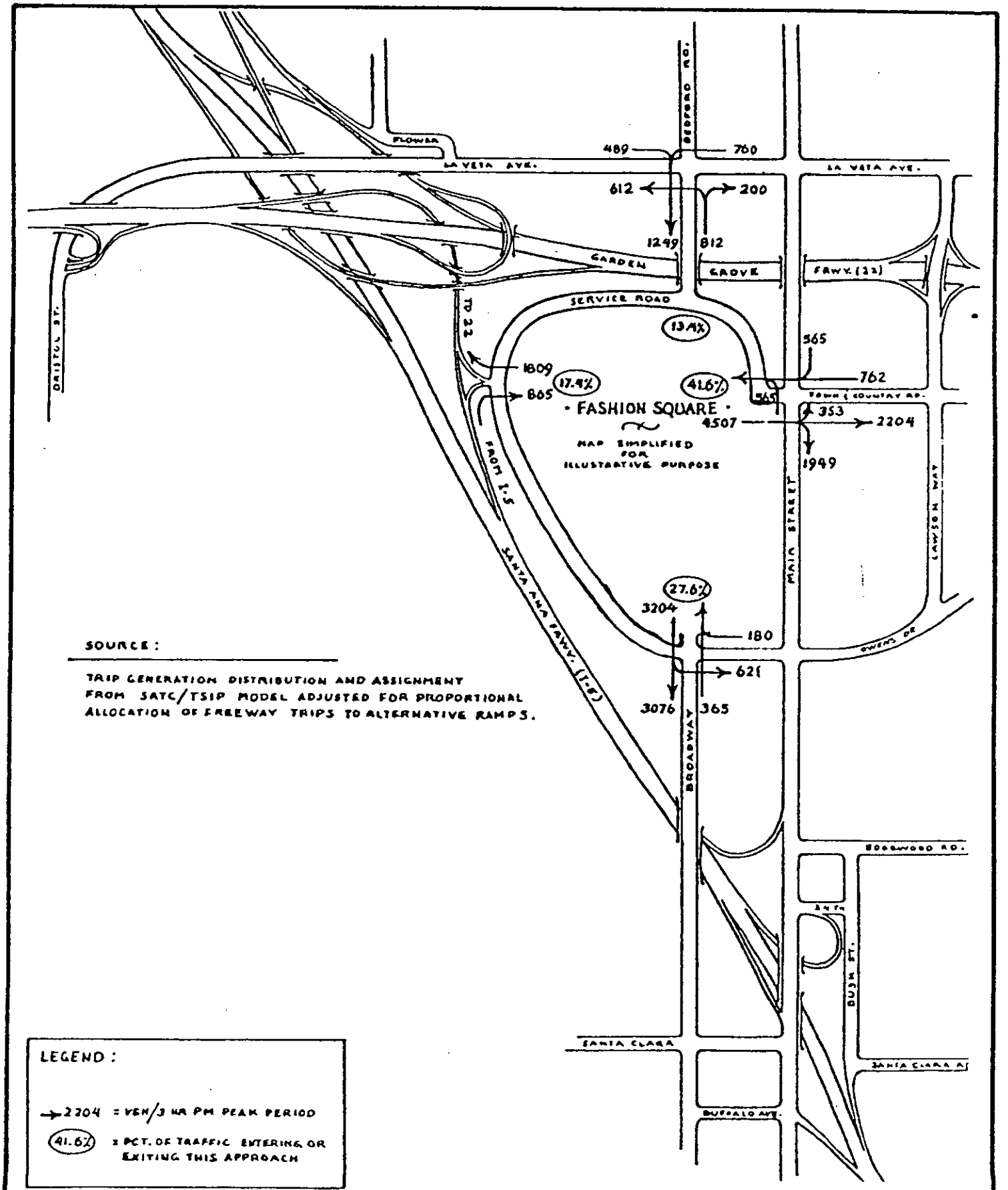
Fashion Square Impact on Main Street

An analysis was conducted of the volume of the Fashion Square traffic that would use or cross Main Street and its impact on the existing levels of service. The SATC/TSIP Model was used for trip generation distribution and assignment and a selected link analysis was performed on the highway assignment for Fashion Square traffic. It was noted that the computerized assignment model allocates all freeway trips to the shortest time path to the freeway. In some cases, the computer assignment had to be adjusted to reflect that a proportionate share of freeway trips exiting from Fashion Square would use alternative routings

to the freeways. For example, the computer assignment directs all the southbound I-5 trips to Main Street. In reality, this demand will be distributed between both Main Street and Broadway. Similarly, all southbound Route 55 Freeway trips are assigned to the Santa Ana Freeway (via southbound Main Street) then to southbound Route 55. Origin and Destination information obtained in the Phase One TSIP Study indicates this travel demand is distributed among both the I-5 and Route 22 Freeways, both of which interchange with the southbound Route 55 Freeway. The MMTS/SATC's assignment model has a capacity restraint feature which continually monitors volume to capacity ratios and assigns traffic around bottlenecks (such as the Main/La Veta Intersection). Consequently, appropriate refinements were necessary to use the computer assignment.

A diagram of the adjusted trip assignment for the Fashion Square entrance/exit locations is presented in Figure 26. Examination of this assignment reveals the area's revised circulation system enables approximately half (46.9 percent) of the Fashion Square traffic to avoid Main Street altogether while another one quarter (24.2 percent) only crosses Main Street in an east-west direction. Less than one-third of trips generated by Fashion Square (28.9 percent) will utilize Main Street for direct access into/out of the center. The trips assigned to the Main Street entrance/exits of Fashion Square, while shown as concentrated at Town and Country Road, will be distributed among a number of driveways situated along the Fashion Square/Main Street Center frontage.

An intersectional capacity analysis using the adjusted Fashion Square driveway assignment was conducted to demonstrate the relative impact of superimposing the Fashion Square development on two key intersections immediately surrounding the site - Main at La Veta and Main at Town and Country. It must be cautioned that this is an exercise for comparison purposes only and does not necessarily reflect a realistic portrayal of future conditions since new arterials and freeway ramps to be constructed will dramatically alter the current travel patterns at these two locations.



ultrasystems	Source: JEF ENGINEERING	Title: FASHION SQUARE DRIVEWAY ASSIGNMENT (PM PEAK PERIOD)	26

This analysis does provide at least a frame of reference by which a decision maker can comprehend the order of magnitude represented by the Fashion Square project by itself without including other approved or proposed projects and the effect it would have on these two key intersections. For this analysis, existing conditions were taken as those counted in 1981 and the future peak hourly volume is assumed to be equivalent to 35 percent of the PM peak period travel forecast.

The results of the "comparative" critical intersection capacity analysis is presented in the following table.

TABLE 16

COMPARATIVE IMPACT OF FASHION SQUARE
ON
CRITICAL MAIN STREET INTERSECTIONS

Intersection	Existing vol/cap	Future vol/cap*
Main St./La Veta Ave.	0.93	1.10
Main St./Town & Country Rd.	0.47	0.97

* Note: Use for comparison purposes only. This is a theoretical calculation based on Fashion Square trip distribution superimposed on existing (1981) traffic volumes.

This theoretical capacity analysis indicates that Fashion Square considered by itself and in conjunction with the freeway/ramp improvements proposed in the Phase Two TSIP Master Plan would increase traffic at the two critical Main Street intersections by 18 percent at La Veta Avenue and 106 percent at Town and Country Road. This would cause the volume/capacity (vol/cap) ratio to exceed capacity (capacity = 0.90 to 1.00) but remain within limits manageable by reasonable mitigation measures.

It is evident from this analysis that a capacity restraint encountered at the Main and La Veta intersection in combination with the principal design feature of the Phase Two TSIP master plan, (i.e., diversion of traffic away from Main Street by providing parallel arterials and freeway access) does create a substantial dispersion of traffic around the Fashion Square site.

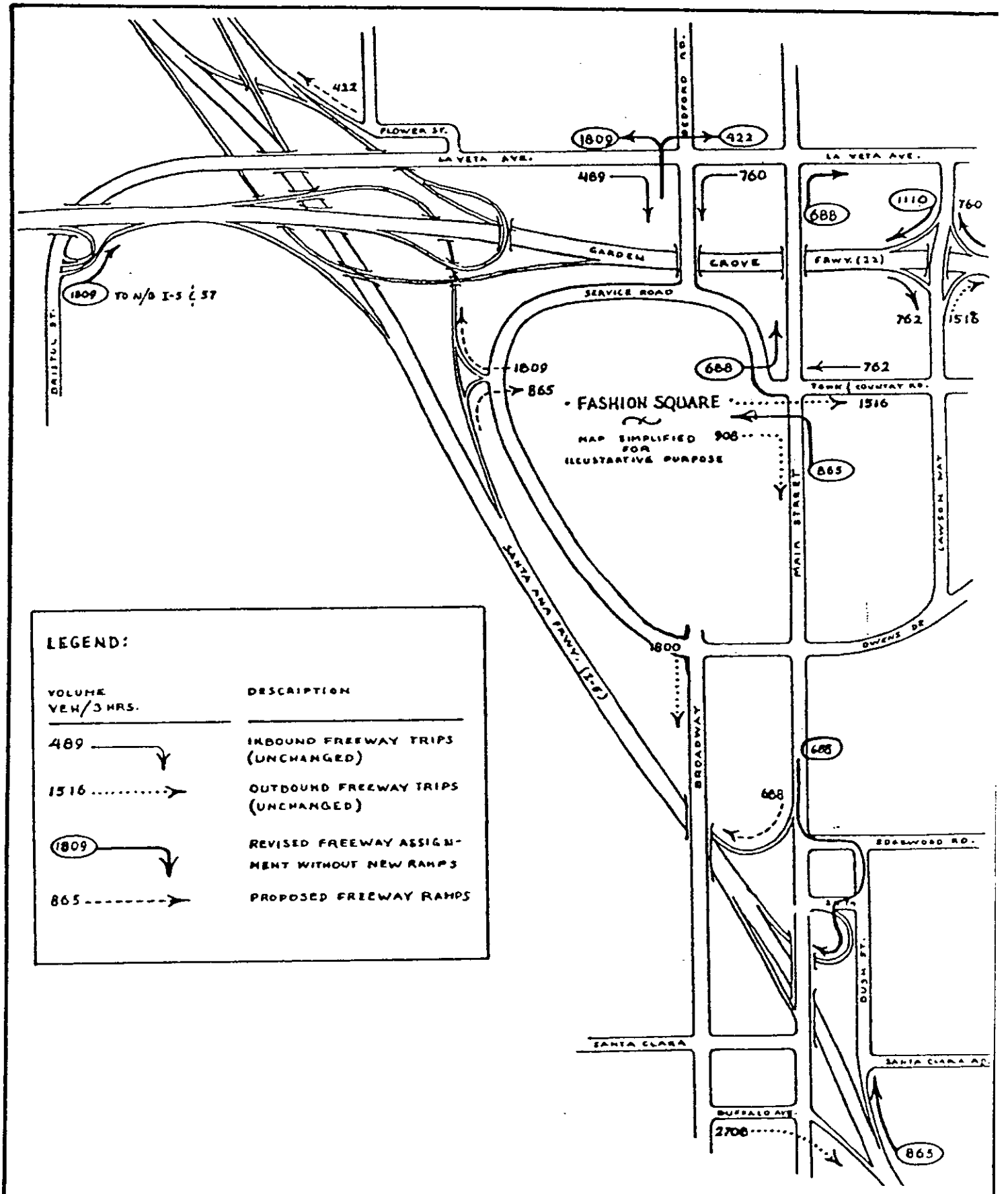
This analysis should not be used to reach conclusions regarding design details since, as was cautioned, the conditions simulated do not necessarily represent realistic ones. Rather, the arterial level capacity analysis and the highway trip assignments indicate the redistribution of travel patterns that will occur and form the basis for identification of appropriate mitigation measures.

Fashion Square Trip Assignment Without New Freeway Ramps

A qualitative "what if" type of analysis was conducted regarding the effect of a failure to implement all or part of the proposed new freeway ramp additions in the vicinity of Fashion Square. The effect of the redistribution of freeway oriented traffic shown in Figure 27. It should be noted that his assignment is for freeway trips only (69.6 percent of total trips) and intended to depict only the changes to travel patterns resulting if none of the new ramps are constructed.

The two new freeway ramps to be located on the west side of Fashion Square are the most important ones in terms of diverting traffic away from Main Street. If these two ramps are not constructed, then an additional 2,674 vehicles in the peak period (935 vehicles in the peak hour) will be superimposed on the arterial streets surrounding Fashion Square. With the new ramps, this same traffic would not impact any arterial streets. Failure to provide these two ramps will have a significant detrimental impact on both Main Street and La Veta Avenue. All of this traffic will involve left turn maneuvers from arterial streets further magnifying the impact. Likewise, concentration of all this new freeway traffic at the existing on/off ramp location will overload those facilities.

Aside from the two new freeway ramps which directly serve Fashion Square, significant impacts will result from failure to provide several other new ramp installations or modifications. Failure to



ultrasystems	Source: JEF ENGINEERING	Title: REDISTRIBUTION OF FASHION SQUARE FREEWAY TRIP ASSIGNMENT WITHOUT PROPOSED NEW RAMPS	27

provide the Flower Street on-ramp will cause Fashion Square traffic to use Flower Street or other residential streets to reach the northbound 57 Freeway on-ramp at Chapman Avenue.

Failure to provide the new Main Street slip ramp to northbound I-5 would increase the southbound left turning movement to Edgewood by 688 veh in the peak period (240 veh/pk hour). An equal volume of freeway bound trips will use Main Street northbound through the La Veta Avenue intersection to the westbound Route 22 on-ramp. In effect, the entire northbound I-5 travel demand (1,376 vehicles in the 3 hour peak period) would use Main Street thereby increasing turning movements all along Main Street. Construction of the new Main Street slip ramp eliminates left turns on Main Street and necessitates only right turns and use of thru lanes, both of which have substantially less impact on critical intersection capacity.

This analysis has been qualitative rather than quantitative because construction of the Broadway Overcrossing and the Owens Drive connection to the east will significantly alter existing travel patterns particularly in the vicinity of Main Street and the Santa Ana Freeway. Superimposing the freeway ramp traffic on existing intersection traffic would not be realistic. In addition, several alternate routings to the freeways do exist. The travel patterns shown in Figure 27 are the most direct routes to the freeways, but commuters will opt for alternates (which avoid left turns) if substantial congestion is experienced at their primary ramp location. As an example, many motorists may opt to use the Route 22 Freeway for access to the I-5 and Route 55 Freeway rather than Main Street particularly if the I-5/Main Street interchange is not improved.

It can be concluded from this qualitative analysis that failure to provide the freeway ramp improvements proposed would severly limit development opportunities in the entire Main Street/Town and Country area. With regard to Fashion Square, the two new ramps on the

west side providing direct connection with the freeways are essential if the traffic from the size of development contemplated is to be accommodated.

TSM/Parking Management

Development and implementation of a TSM/Parking Management Program to promote ride sharing (including car pooling, van pooling, and transit) is essential if the traffic created by the Fashion Square development is to be accommodated by the transportation system. TSM/Parking Management Programs implemented in dense commercial office/retail projects elsewhere have produced a twenty percent mode shift. Examples are Century City, Newport Fashion Square, Fluor Corporation and several others.

A TSM Program could include some combination of the following:

1. Preferential parking for ride-sharing vehicles

2. Transit subsidy - in a dollar amount at least equal to the value of parking otherwise provided

3. Flex time and staggered hours and work schedules

4. Promotion of pedestrian and bicycle traffic

5. Employer-sponsored car pool/van pool/bus pool programs

6. Transit system coordination (developers working with OCTD to set up programs to maximize use of transit)

7. The elimination of the "hidden subsidy" for single-occupant vehicles (by paying all employees the equivalent of the free market value of parking, then charging for parking - thus only parking users would pay the cost of parking).

8. Remote area parking with shuttle service for employees to the office location

9. Variable parking fees according to time of arrival/departure to promote staggering of work hours

10. Other programs offering any prospect of reduced or shifted travel patterns.

It is probable that pay parking must be required for the employees in the buildings of Fashion Square, in order for TSM parking management strategies to reduce the overall travel demand.

Initially, it would be expected that many employers will subsidize their employee's parking costs in order to attract key personnel. This practice tends to penalize employees who share rides. Another method of accomplishing the same purposes while rewarding ride-sharing employees would be to "pay" all employees the monthly equivalent of the cost of providing their parking. Others (those sharing rides or transit users) would realize a financial benefit. The total monthly cost would be about the same for the employer (depending upon what rate is charged for an individual parking stall), but the subsidy encouraging use of a single occupant vehicle would be removed and ride-sharing would be rewarded. Considering the current monthly parking cost of about $40-50 per space, the financial benefit would be significant.

Although pay parking offers opportunities to reduce employee's vehicular trips, it creates spill-over problems with the "free" residential and retail/commercial parking situated nearby. The extent of the spill-over is directly related to the cost of parking. Employees seeking to avoid paying the parking charges will attempt to park in these free areas causing complaints from those adversely affected and requests of the city to enforce parking regulations. These regulations may take the form of residential permit parking programs.

Experience with enforcement of residential parking permit programs shows they are reasonably successful when the undesired parking is by repeat users, such as employees working in the vicinity. On the other hand, when the undesired parking is by occasional users, enforcement of residential permit parking is frequently ineffective. There are costs of administration and enforcement associated with residential permit parking programs which would be borne by the appropriate jurisdiction.

The spill-over parking problem can be dramatically reduced by the TSM parking management program previously described. The employer charges back employees in single occupant vehicles for their parking whether or not they park in the company lot. This removes the temptation to park in adjacent free area. This requires minor administration and enforcement on the employer's part to ensure the monthly cost of parking is paid by all employees who drive alone.

Elimination of the "hidden parking subsidy" is but one way of encouraging ride-sharing. The advantage to the transportation system is that less traffic is generated. The advantage to the employers is that they would have to provide less parking which would save (1982 dollars) the equivalent of $10,000 per space in capital costs or about $480.00 per space per year in annual costs for maintenance, operation, and capital recovery.

Parking charges can be varied not only to encourage ride-sharing but also to promote travel during other than peak periods. For example, employees arriving and departing before or after the peak hour(s) would pay less for parking. This would not reduce the required parking spaces of the office unless employee times did not overlap. But it would distribute travel over the off-peak period since it would provide a direct financial incentive to employees to adjust working hours.

A TSM Program might also include payment of transit subsidies for implementation of a shuttle bus connection to the Amtrak station and improved fixed route bus lines with direct service to Main Street. One area in particular is the residential area of Orange located to the northeast of Fashion Square. The Main Street Employment Study isolated this as an area with a high concentration of residences for Main Street area employees. Examination of the existing bus service shows no convenient transit service from this area to Fashion Square.

An opportunity also exists to negotiate an agreement with OCTD to provide improved transit service to Fashion Square. Given the intensity of office development in the limited area of Fashion Square, all of which is within convenient walking distance from Main Street, ideal conditions are provided for transit usage to be maximized. The OCTD has expressed an interest in providing increased transit service to such intense employment centers.

Experience shows one way to make a TSM program successful is through provision of a financial incentive in addition to conditional approvals. One incentive could be a potential reduction in required parking. The developer would set up a pilot program consisting of appropriate ride-sharing elements, and the performance of that program in terms of reduced vehicular trip generation would be evaluated. Based upon the success achieved, the City of Santa Ana may consider reductions in parking requirements as a means to promote additional participation in these elements with a demonstrated effectiveness in reducing vehicular trip generation.

Neighborhood Traffic Control

Phase Two of the TSIP Study identified the residential area north of La Veta Avenue and Bedford Road as potentially receiving an impact from increased traffic emanating from Fashion Square. The EIR investigated that impact in more depth and determined that such an impact will occur unless mitigated.

Investigation of trip generation from Fashion Square revealed a spill-over parking problem existed. Several employees and students who work or attend school in the Union Bank Plaza park in Fashion Square walk to the Union Bank Buildings. Closer investigation revealed that increased parking charges created this situation and that spillover parking was not limited to Fashion Square but occurred in the retail lots on the northwest corner of Main and La Veta and in the adjacent residential area. It was noticed that St. Joseph Hospital employees also park in the same residential area. Since employees have demonstrated a willingness to park in surrounding lots and residential areas to save the cost of parking, then the same would probably apply to future employees of Fashion Square as well as for other proposed projects in the area.

In addition to increased parking in the adjoining residential neighborhood, increased traffic as well may result. Bedford Road north of La Veta Road offers an excellent opportunity for commuters to avoid congestion at the intersection of Main Street and La Veta Avenue. Some area employees were observed using this route. Bedford Road provides a convenient by-pass for commuters headed north either to the Orange or Santa Ana Freeway. Flower Street provides a similar by-pass routing. The only difference is that Flower Street is a master planned commuter route passing through a multi-family area. Bedford Road is purely a residential street in a single family neighborhood. Flower Street also poses a by-pass routing for northbound Bristol Street commuters seeking to avoid congestion on the connector ramp enroute to the Orange Freeway.

The impact of installation of a new traffic signal on La Veta Avenue at Bedford Road to serve Fashion Square (and Union Bank Plaza) traffic will enhance opportunities for commuters to use adjacent residential streets. The signal will be needed to control a high volume (16,000 ADT) entryway to Fashion Square. But the new signal also poses the potential for encouraging commuters to use Bedford Road. To preclude such, it may be necessary to force northbound traffic on Bedford Road to burn right or left at La Veta Avenue. This, in itself,

may not be sufficient. Commuters may turn on Crest or Devon Road and it may become necessary to prohibit right turns onto Crest and Devon during commuter hours to prevent intrusion of traffic into the residential area.

(Fortunately, the reverse direction of these by-pass routing does not appear to pose as serious a problem. Southbound commuters on the freeways are not likely to exit at Chapman Avenue although some east-west commuters on Chapman Avenue could opt to use Feldner/Bedford instead of Main Street.)

Construction of a new La Veta on-ramp to the Orange Freeway, as recommended in the Phase Two TSIP Master Plan, would eliminate the time advantage offered to Fashion Square commuters (as well as others) of by-pass routings through the residential neighborhood north of La Veta Avenue. Upon completion of this ramp, commuters would simply proceed westbound on La Veta to the on-ramp and immediately enter the northbound Orange Freeway at a location where free flow conditions are encountered.

Reduction of the spillover of parking, whether caused by employees of Fashion Square or other office developments, may involve signing of limited time curb parking or a residential permit parking program. In either case, additional police enforcement from the City of Orange would be necessary.

As demonstrated by the Phase One TSIP Study, residential traffic control is a sensitive issue and the affected residents must be involved in any program designed to reduce or prevent commuter traffic through their neighborhood. Some suggestions have been presented, but these may not be acceptable to the City of Orange or the residents. Consequently, an effort similar to that in the Phase One TSIP study should be undertaken to determine the extent of the problem and more importantly, the measures the residents want (or will accept) as mitigation.

5.6.3 Mitigation Measures

Description of Mitigation Measures

One transportation system improvement currently underway is construction of the Broadway Overcrossing and Owens Drive. Completion of the Broadway Overcrossing will significantly increase north-south capacity and provide direct connection to Fashion Square without necessitating use of Main Street. The Broadway Overcrossing will provide direct access to/from the Santa Ana Freeway without increasing Main Street traffic.

The following mitigation measures are recommended to reduce the traffic impacts of the proposed Fashion Square project:

1. Contribute a one percent (1%) assessment fee to the Joint City of Santa Ana and City of Orange Transportation System Improvement Program (TSIP) to fund needed transportation improvements in the area identified in the Phase Two TSIP Study.

   The TSIP Assessment Fee of one percent of project building cost is expected to generate only half of the cost of the recommended Phase Two TSIP Plan. The Fashion Square development (the developers themselves and the Redevelopment Agency alike) must be prepared to fund those areawide transportation improvements which principally benefit their project as well as contribute a one percent assessment to the TSIP Program.

2. Provide funding for the construction of a pair of new freeway ramps on the west side of Fashion Square linking the Santa Ana Freeway with a public road surrounding the project.

These two new ramps will connect with a public street and as such, provide overall benefit to the general public. However, the primary need for and beneficiary of this improvement is the Fashion Square development itself. The cost of this improvement is included in the overall TSIP Plan, but that program is underfunded by approximately 50 percent. Consequently, the cost of any transportation improvements which relate to and directly benefit a single development, should be borne by that development.

Construction of these two ramps will substantially improve the freeway access of the Fashion Square site and permit traffic to enter and exit the development with no delay from traffic congestion on the surrounding arterial street system.

3. Widen Main Street along the Fashion Square frontage to provide four southbound lanes and a 26 foot wide median island to accommodate dual northbound left turn lanes and the columns of the future North-South Transit Guideway. A total curb to curb width of 124 feet will be required for an ultimate eight lane section planned on Main Street. The increased width will be the general responsibility of developments planned on both sides of Main Street, but some transitions in alignment may be necessary to minimize impacts to existing buildings.

4. Construct a public roadway around the west side of the site from the intersection of Owens Drive/Broadway to Main/Town and Country. This public road shall have a capacity of 16,000 ADT and connect the new freeway ramps with Main Street and Broadway/Owens Drive. This public road will provide an alternative means of access to Fashion Square and allow traffic to virtually avoid use

of (and impact upon) Main Street. This new road will provide direct access to/from the I-5 Freeway in order to relieve pressure at the existing Main Street Interchange. Dedication of the roadway as a public street is required to satisfy CalTrans standards for construction of ramp facilities on public roads.

5.A. Provide for redesign and reconstruction of the Main Street Entrance to Fashion Square to accommodate two entry and exit lanes and a left turn pocket. The entrance shall be integrated with the new public roadway planned around the site to link with Bedford Road, the freeway ramps and Broadway/Owens Drive. The signalized entrance shall be modified to include separate left turn phasing.

B. Provide sufficient funding for the reconstruction of the median island on Town and Country Road to include a separate westbound left turn lane. The existing median is a wide landscaped island with no separate turning lane.

Fashion Square will be the primary beneficiary of this reconstruction even though the new westbound left turn lane is not intended to directly serve Fashion Square traffic. Widening of the Main Street Entrance will mitigate the effect of increased traffic (primarily east-west direction) created by expansion of the shopping center.

6. Provide for installation of two new traffic signals on La Veta Avenue at Bedford Road and the off-ramp from the southbound Rte 57 Freeway.

In order to facilitate access to Fashion Square from the Rte 57 Freeway a traffic signal will be needed on Bristol Street/La VEta at the off-ramp location. Presently, this intersection is controlled only by stop signs and a left turn from the off-ramp to La Veta Avenue involves considerable delay. This off-ramp provides a convenient route to Fashion Square and allows southbound freeway traffic to avoid congestion encountered at the I-5/57/22 Interchange. To promote use of this alternative access, especially by commuters, signalization of two intersections is necessary. One location, Bristol/La Veta at the Freeway off-ramp is under the jurisdiction of the State and the other intersection, La Veta/Bedford is the responsibility of the City of Orange.

7. Develop and maintain an aggressive Transportation Systems Management (TSM) Program designed to maximize use of transit and ride sharing and staggering of work hours.

   A realistic target of 20 percent increase in ride sharing and transit usage is established as the goal for a TSM Program. The developer shall be required to develop a program designed to achieve the goal and submit this program to the City for approval. In addition, the developer will be required to provide a Transportations System Management Coordinator to actively pursue implementation of the TSM/Parking Management Program. This position need not necessarily be on a full time basis until such time as implementation of a substantial portion of the proposed office use is underway.

   The developer also shall be required to provide and maintain a security force whose task, among others, shall be to enforce all on-site parking regulations.

8.A. Design buildings to accommodate second level access from a future transit station on Main Street in the vicinity of Town and Country Road and/or a possible future grade separated pedestrian bridge connecting developments on both sides of Main Street. The buildings and internal pedestrian circulation should be designed to allow for such future improvements, which would serve to minimize at-grade pedestrian crossing of Main Street at street level. (Main Street will be a 124 foot wide with high volumes of turning traffic and transit operations).

B. On-site pedestrian circulation must be maximized to facilitate easy movement of people between buildings. Vehicular traffic must be intercepted at major entrances along the public service road and channelized quickly to parking areas. Convenient pedestrian facilities must be provided from the parking areas to the buildings and to the transit station/bus stops.

Priority of Mitigation Measures

The project does not have a defined phasing plan. The developers acknowledge that the maximum development would only be realized in 5-10 years if the market has sufficient demand to support such intense development. The traffic study is based on the maximum allowable development with a recognition that a lesser density may ultimately result. This means that if the maximum development in the Main Street/Town and Country area materializes, then all the improvements identified in the Phase Two TSIP Plan will be needed. To determine at what stage these improvements will be needed, the phasing of transportation improvements was compared with project implementation.

Linscott Law and Greenspan prepared an estimate of the magnitude of Fashion Square development that could proceed with only relatively minor additions of turning capacity at critical intersections.

That analysis concluded that 400,000 SF of additional development could proceed if 6 lanes are provided on Main Street, the entrance to Fashion Square is improved, and a separate right turn lane provided on westbound La Veta Avenue at Main Street. This analysis included traffic created by other projects affecting Main Street. Any further development would require significant modification to existing freeway access such as proposed in the Phase Two TSIP Plan.

Next to the construction of the Broadway Overcrossing, the most important transportation system improvement is implementation of the new freeway ramps on the west side of Fashion Square. (Widening of Main Street in front of Fashion Square will provide only a marginal increase in capacity. The full capacity of Main Street will not be available until such time as the entire Main Street improvement is completed.) Consequently, the next increment of development of Fashion Square will be dependent upon construction of the two new freeway ramps. Construction of these two ramps will allow an estimated 80 percent of development of Fashion Square to proceed. These two ramps, in combination with the Broadway Overcrossing, provide Fashion Square with direct access to the freeways, minimizing the impact on Main Street.

Full development of Fashion Square will depend upon completion of a new Main Street on-ramp to northbound I-5 or construction of the new Lawson Way Bridge. Either of these projects alleviate the congestion caused by Fashion Square traffic using the existing northbound on-ramp to the I-5 Freeway. (A temporary alternative to these freeway projects is implementation of a new right turn lane on northbound Main Street at La Veta Avenue. This will permit Fashion Square traffic to use the Rte 22 Freeway westbound in lieu of the northbound I-5).

The success of the TSM/Parking Management Program will effect the magnitude of development that could accompany various levels of transportation system improvements. If the TSM program were to achieve

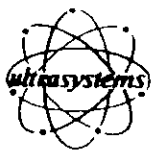
more than a 20 percent mode shift, the trip reductions would translate into more square footage that could be developed within available transportation capacity.

5.6.4 Significant Environmental Effects

The redevelopment of Fashion Square will substantially increase employment in the area and generate an estimated 57,245 trips daily. This equates to 429,337 vehicle miles of travel daily based on average lengths of 10 miles for work and hotels and 3.0 miles for shopping. It should be noted that this is not entirely new travel since many of the trips will be diverted from elsewhere on the existing system.

Large increases in traffic created by redevelopment of Fashion Square will significantly impact the surrounding arterial highways and the freeways. Analysis shows that if the new ramps proposed in the Phase Two TSIP Plan are implemented, then approximately 30 percent of the Fashion Square traffic will directly impact local arterials. The remaining 70 percent will directly impact on the surrounding freeways causing severe congestion to occur. The capacity of the existing freeways will have to be enhanced to accommodate the increased regional travel or the freeway oriented trips generated by Fashion Square will use local arterial streets in lieu of the freeways. This will create congestion on the arterial highways such as Main Street and nullify the basic goal of the Phase Two TSIP Plan. Improvement of the freeway ramps and widening of the freeways themselves is essential if traffic generated by Fashion Square is to be accommodated.

Redevelopment of Fashion Square and the surrounding area will cause substantial changes in existing travel patterns. The complete character of travel in the area will change. The highly peaked travel condition currently encountered only during one hour in the afternoon will become a peak period of approximately three hours in duration. Capacity of the highway and transit elements will limit the travel that



can occur during the peak hour forcing trips to be redistributed over a longer span of time. Employees and shoppers will have to accept and adjust to new peak period conditions.

Construction of transportation facilities will change the entire look of the area into a high density downtown CBD rather than the suburban character that exists today.

If the development proceeds and the associated transportation improvements either fail to materialize or lag the pace of development, then severe congestion will develop on Main Street. Main Street congestion is influenced not only by Fashion Square but by redevelopment in the area. Implementation of the Phase Two TSIP Plan is dependent upon securing additional funds to cover $8.66 Million for identified but unfunded projects.

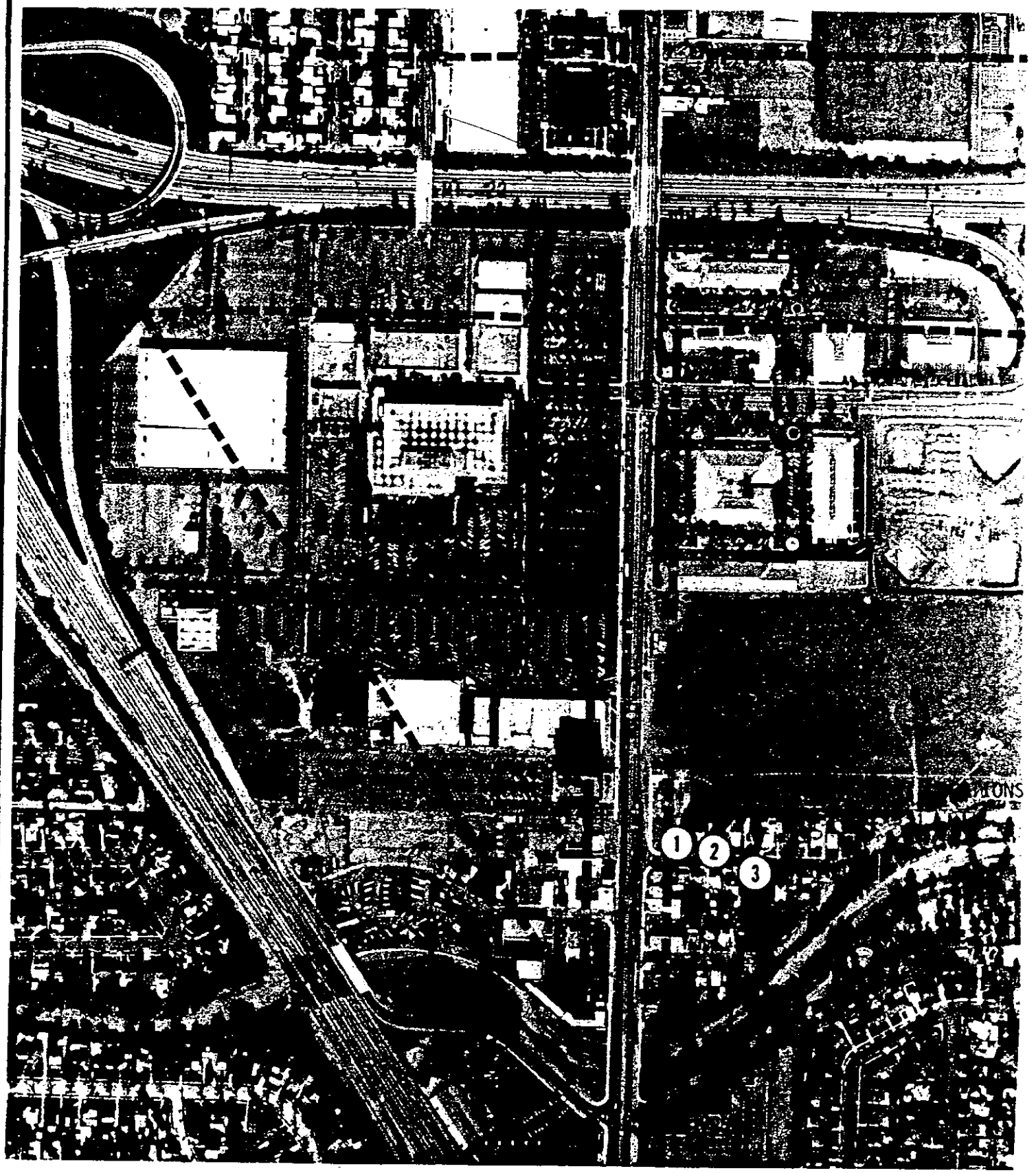
Implementation of some of the freeway ramp improvements on Main Street will require acquisition and relocation of residential and commercial properties. Four single family homes and one or two commercial businesses on Main Street will be eliminated to make way for the new freeway ramps.

5.7 Noise

5.7.1 Environmental Setting

Vehicle traffic is the primary noise source in the project area. The Santa Ana Freeway (I-15), Garden Grove Freeway (Route 22), and Main Street are all located within close proximity to the site. Noise exposure contours for these highway segments were calculated and are presented in Appendix III of this report. Figure 28 illustrates the general outline of the unattenuated 65 dB contour in the project area. 65 dB or greater is typically considered excessive for certain types of "noise sensitive" uses, i.e., residential.

Since the primary access to the site will be along Main Street, "peak hour" traffic noise measurements were made at a residential area which is located near Owens Drive and Main Street (Refer to Figure 28). A series of noise measurements were made at locations 1, 2, and 3 to establish ambient levels in this area which could be impacted by increased traffic from the project along Main Street. Noise samples of 12-minute periods taken at each location exhibited a range of 64 dB(A) at location 1, 57 dB(A) at location 2, and 52 dB(A) at location 3. Results of the noise survey also indicated that any change in traffic volumes along Main Street would change noise levels that would only be noticeable within the first 100-200 feet of Main Street. This is due to the shielding effect of homes along Owens Drive as one proceeds in an easterly direction away from Main Street. (Refer to noise measurement data in Appendix III of this report). Appendix III also contains supplemental noise measurement data collected near Broadway Street located southwest of the project site. CALTRANS proposes to extend Broadway Street over the Santa Ana Freeway. This overpass will provide an additional link for traffic between the project site and the west side of the Santa Ana Freeway. Results of this noise measurement study indicated that the noise levels are in the



	Source: ULTRASYSTEMS, INC.	**Title:** NOISE EXPOSURE CONTOURS OF 65 dB (CNEL)	28

same noise range as the noise levels measured by CALTRANS.* CALTRANS will construct a noise barrier along the west side of Broadway between the freeway and Santa Clara Avenue.

5.7.2 Impacts

Project Impacts

The project will generate additional noise in the local area due to demolition of existing on-site structures, construction activities, construction traffic, and project-generated traffic. As with most development projects, there will be an increase in noise in the immediate vicinity of the site during project construction. Since construction activities are limited to daytime hours and there are no "noise sensitive" land uses immediately adjacent to the site, no adverse noise impacts are anticipated during phase development of the project. It is not anticipated that construction related truck traffic would use residential streets. City regulatory control over truck routes and street load limits is adequate to assure such use does not occur.

The proposed project will generate a additional volumes of vehicle traffic. The majority of this traffic will utilize Main Street or Broadway Street when the Broadway overpass is completed. The two areas of concern which may experience an increase in traffic noise are the first few homes along Owens Drive east of Main Street and residences on the west side of Broadway Street between the Santa Ana Freeway and Santa Clara Avenue. However, when the Broadway overpass is completed, CALTRANS will construct a noise barrier along the west side

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* California Department of Transportation, District 7. Physical Environmental Report, Broadway overcrossing Route 5 Freeway in Santa Ana.

of Broadway as previously mentioned. This will mitigate any increase in traffic noise along Broadway resulting from project traffic.

The following traffic noise level increases may be expected along Owens Drive within a couple hundred feet of Main Street as a result of the project and cumulative development traffic:

Development Scenario	Noise Level Increase
Proposed Project	3-5 decibels
Cumulative Development	4-6 decibels

Results of the analysis indicate that a noticeable noise level increase will occur near Owens Drive and Main Street. Implementation of the project could increase noise levels to 67-69db, 60-62db and 55-57db at locations 1, 2 and 3 respectively. Since the development plans are for commercial uses, the majority of traffic noise related to the project would occur during the daytime hours. Therefore, residents on Owens Drive closest to Main Street could anticipate increased noise levels only during the daytime.* Late night and early morning hour noise levels are not expected to be much different than existing conditions.

The development of hotel structures on site are not expected to affected by local traffic if standard design and construction materials are utilized.

5.7.3 Mitigation Measures

No mitigation measures are proposed.

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* Since there is no viable way to construct a noise barrier along the east side of Main Street in this area, this impact is unavoidable.

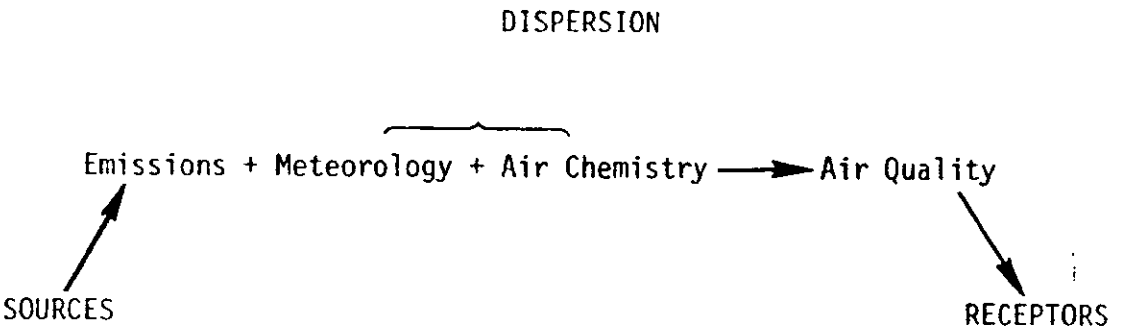
5.7.4 Significant Environmental Effects

Residents along Owens Drive within a few hundred feet of Main Street may receive an increase in local traffic noise resulting from the proposed project.

5.8 Air Quality

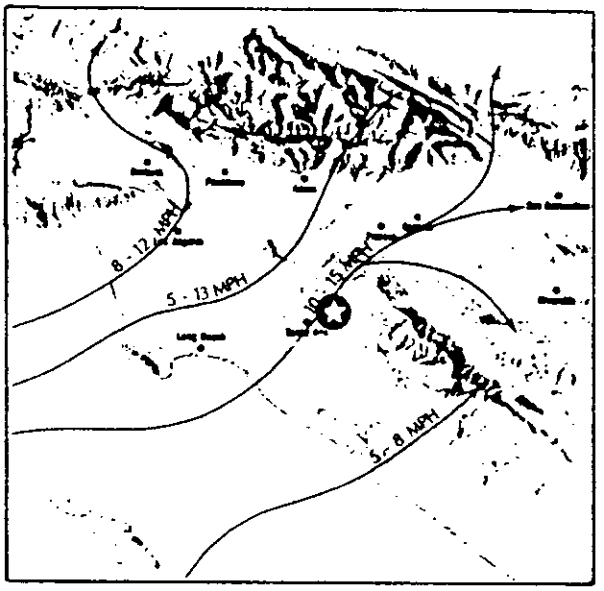
5.8.1 Environmental Setting

Air quality is dependent upon the source location, the amount and type of pollutants emitted, and on the subsequent atmospheric dispersion of the pollutants. Schematically, air quality may be described as follows:

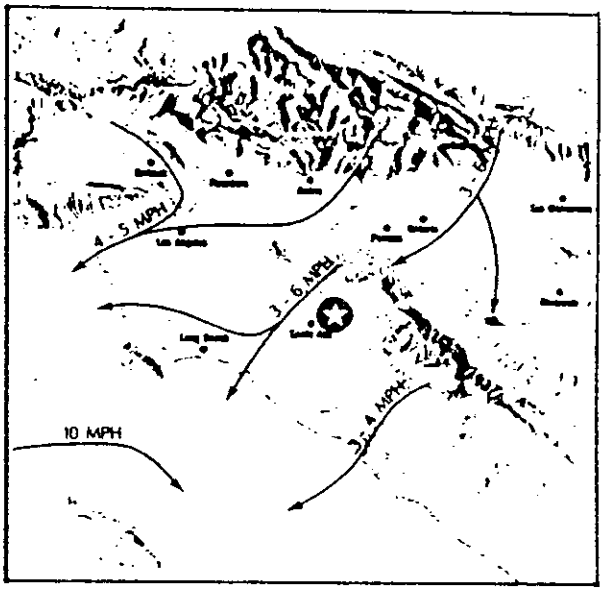


There are several distinctions made in the identification of air pollutants. One distinction made is between primary and secondary air pollutants. Primary pollutants are those pollutants that are emitted directly from sources. Carbon monoxide, hydrocarbons (organic gases), oxides of nitrogen, sulfur dioxide, and particulate matters are primary pollutants. Secondary pollutants are those pollutants formed by chemical and photochemical reactions in the atmosphere. Photochemical oxidants and nitrogen dioxide ($NO_x 2$) are principal secondary pollutants.

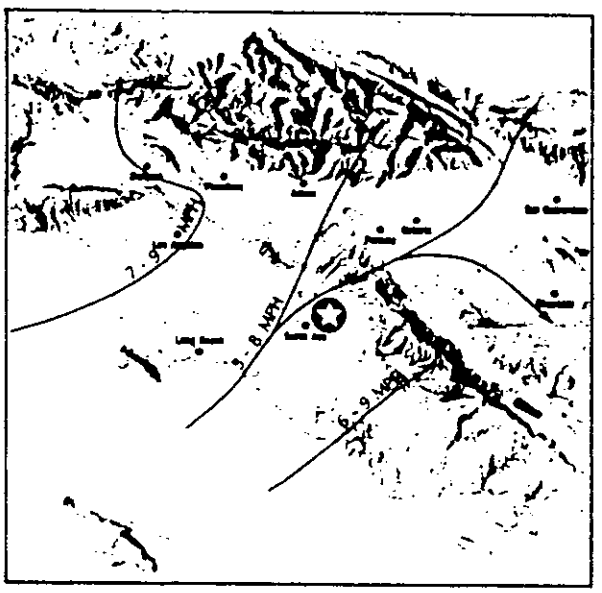
Primary and secondary pollutants are transported and dispersed by meteorological processes. Meteorological factors important to the transport of air pollution within the South Coast Air Basin, in which the proposed project site is located are wind speed and direction, and the presence of atmospheric temperature inversions. With very light wind speeds (average of 5.7 miles per hour) the basin atmosphere has a limited capability to disperse air pollutants horizontally. As shown in Figure 29, the dominate daily wind pattern is a northeasterly daytime sea breeze and southwesterly nighttime land breeze.



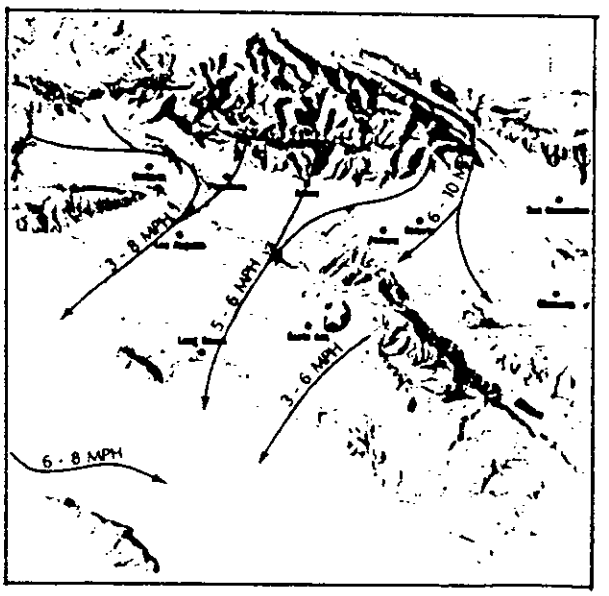
TYPICAL SUMMER DAYTIME OCEAN WINDS
(Noon to 7:00 PM)



TYPICAL SUMMER NIGHT DRAINAGE WINDS
(Midnight to 5:00 AM)



TYPICAL WINTER DAYTIME OCEAN WINDS
(Noon to 5:00 PM)



TYPICAL WINTER NIGHT DRAINAGE WINDS
(Midnight to 7:00 AM)

site

These maps show dominant summer and winter patterns in the South Coast Air Basin. For the period of the day shown, the net transport of air onshore usually is greater in the summer, while the net offshore transport as a rule is greater during the winter. Whether there is air movement or air stagnation during the morning and evening hours, before these dominant air flow patterns take effect, is one of the critical factors in determining the smog situation on any given day.

	Source:	Title:	
	SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT	TYPICAL WIND PATTERNS IN GENERAL VICINITY OF PROJECT SITE	29

Atmosphere temperature inversions are common in the South Coast Air Basin and inhibit the vertical dispersion of air pollution while they persist. As a result, air pollutants become more concentrated until the inversions either break or surface winds increase enough to disperse pollutants horizontally.

Levels at which air pollution produces adverse health or welfare effects on receptors are reflected in the Ambient Air Quality Standards. The Federal and State Air Quality Standards are represented in Table 17. The attainment of the Federal Primary Air Quality Standards is required by December 31, 1982,* but may be extended with EPA approval for carbon monoxide and oxidant to December 31, 1987. The California State Air Quality Standards were originally set as air quality goals and do not have a specific attainment date. In August, 1982, the Southern California Air Quality Management District (SCAQMD) and the Southern California Association of Governments (SCAG) revised the Air Quality Management Plan (AQMP)/State Implementation Plan (SIP) for the South Coast Air Basin. The plan was required by the Federal Clean Air Act and its revised goal is to attain federal and state ambient air quality standards in the basin as expeditiously as practical. However, modeling shows that even with the implementation of all reasonable measures which can be realistically implemented in the next five years, the region can not demonstrate attainment by 1987. Therefore, a long range plan has been prepared which includes provisions for annual increments of progress and interim air quality goals leading to the attainment of all standards at the earliest feasible date. The intent of the long range plan is to identify actions necessary to achieve attainment over a longer time frame, with the year 2000 selected as a target date.

Existing Air Quality

The South Coast Air Quality Management District measures air quality at their Anaheim Station, approximately seven miles north of the

* Clean Air Act Amendments, 1977.

project site. Air Quality information from this station can be assumed to be indicative of the general air quality for the project area. Air quality data for the year 1981, the most recent year for which annual air quality data are available, are presented in Table 17 for the Anaheim Station. As shown in the table, the State standard for carbon monoxide (CO $\geq$ 9 ppm), 8-hour standard) was exceeded for 4 days; the State oxidant standard $O_x \geq .10$ ppm, 1-hour average) was exceeded 65 days; the State nitrogen dioxide standard ($NO_x \geq .25$ ppm, 1-hour average) was exceeded a total of 4 days; and the particulate matter standard (TSP $\geq$ 100 ug/m^3, 24-hour) was exceeded a total of 26 days. The Federal standard for carbon monoxide (CO $\geq$ 9ppm, 8-hour) was exceeded for 14 days, the Federal standard for oxidant ($O_x \geq .12$ppm, 1-hour) was exceeded on 32 days; particulate matter (TSP $\geq$ 260 ug/m^3, 24-hour) was exceeded one day.

5.8.2 Impacts

Project Impacts

Short-Term Impacts

The construction phase of the project would produce two sources of air pollution emissions. These are exhaust emissions from construction and grading equipment and dust generated as a result of earth movement and equipment traffic on local streets. The dust emissions may cause a nuisance to persons and businesses located on adjacent properties or along roadways used by the earth-moving equipment or to motorists who park motor vehicles in the vicinity of the project. The exhaust emissions would be of short-term duration during the construction phase only. Based on EPA estimates of dust emissions from construction projects, an estimated 80 pounds of dust per day per acre of grading activity is expected to occur. The actual daily dust emissions would vary depending on the amount of land and the type of soil being graded. Upon completion of construction, the dust emissions would cease.

TABLE 17

SUMMARY OF EXISTING AIR QUALITY DATA - 1981
FOR THE ANAHEIM AIR MONITORING STATION

CARBON MONOXIDE			OZONE			NITROGEN DIOXIDE	
Max. Conc. in PPM 1 Hour	No. Days Standard Exceeded		Max. Conc. in PPM 1 Hour	No. Days Standard Exceeded		Max. Conc. in PPM 1 Hour	No. Days State Std. Exceeded
	Federal (a)/(b)	State (c)/(d)		Federal 1 hr. > .12 ppm	State 1 hr. ≥ .10 ppm		1 hr. ≥ .25 ppm
19	14/0	14/0	.26	32	65	.30	4

REACTIVE ORGANIC GASES		SULFUR DIOXIDE			PARTICULATES (Hi-Vol)		
Max. Conc. in PPM 1 Hour	No. Days Federal Standard Exceeded	Max. Conc. in PPM 1 Hour	No. Days Standard Exceeded		Max. Conc.	No. Samples Exceeded Standard	
	.24 ppm: 6-9 A.M. (e)		Federal 24 hr. > .14 ppm	State (f)/(g)	ug/m^3	Federal 260 ug/m^3	State 100 ug/m^3
NM	NM	.04	0	0/0	362	1	26

(a)/(b) Federal Standards respectively: (a) 8 hours > 9 ppm and/or (b) 1 hour > 35 ppm.
(c)/(d) State Standards respectively: (c) 8 hours ≥ 9 ppm and/or (d) 1 hour ≥ 20 ppm.
(e) Reactive Organic Gases (Total Organic Gases minus methane). Expressed as days exceeded over total days data are available at the 6-9 interval.
(f)/(g) State Standards, respectively: (f) 24 hour ≥ .05 ppm with 1 hour ozone ≥ .10 ppm, or with 24 hours TSP ≥ 100 ug/m^3.
NM Pollutant not monitored.

Long-Term Impacts

Long-term impacts associated with the project consist of emissions generated by the following sources:

Stationary	Mobile
Off-site generation of electricity for project.	Motor Vehicles
On-site use of natural gas for space heating and water heating.	

Stationary Sources

The stationary on-site emissions resulting from natural gas consumption associated with the existing Fashion Square Commercial Center project are presented in Table 18. As shown in the table, the contribution of project emissions from on-site consumption of natural gas to the 1987 total emissions inventory projected for Orange County is considered negligible (i.e., less than 0.1 percent).

The stationary emissions resulting from project electrical energy consumption would occur off-site at electrical power-generating plants located throughout the utility's generating network. The total emissions due to the generation of electricity for the Fashion Square Center and the contributory effect from the proposed project are given in Table 19.

Mobile Source

An estimate of the total motor vehicle emissions generated by the traffic associated with the Fashion Square Center and the effect of the proposed project are presented in Table 20. The emissions

TABLE 18

ESTIMATED AIR POLLUTANT EMISSIONS
FROM ON-SITE USE OF NATURAL GAS

AIR POLLUTANT	EMISSION FACTOR[1] ($LBS/10^6$ CF)	EXISTING[2] (LBS/DAY)	PROPOSED PROJECT[3] (LBS/DAY)	TOTAL 1987 PROJECTED ORANGE COUNTY EMISSIONS (POUNDS/DAY)[4]	PERCENT OF COUNTY EMISSIONS
Carbon Monoxide	20	9.0	56.7	2,509,560	NEGL
Total Organic Gases	8	3.6	22.7	849,000	NEGL
Nitrogen Oxide	120	54.1	340.1	347,960	NEGL
Sulfur Oxide	NEGL	NEGL	NEGL	39,840	NEGL
Particulates	0.15	0.07	0.43	196,400	NEGL

[1] SCAQMD. Air Quality Handbook for Environmental Impact Reports, October 1980. Energy Use Emission Factors, Table XII.

[2] Existing Fashion Square development has estimated total natural gas consumption of 13,702,560 million cubic feet per month.

[3] Based on a natural gas consumption rate of 86,210,000 cubic feet per month.

[4] SCAQMD. Air Quality Management Plan, SCAQMD and SCAG, August, 1982, Table I.1, page B-14; converted from tons to pounds.

NEGL = Negligible (less than 0.1 percent).

TABLE 19

ESTIMATED AIR POLLUTANT EMISSIONS
FROM OFF-SITE GENERATION OF ELECTRICITY

AIR POLLUTANT	EMISSION FACTOR[1] (LBS/1000 KWH)	EXISTING[2] (LBS/DAY)	PROPOSED PROJECT[3] (LBS/DAY)
Carbon Monoxide	0.2	16.0	87.0
Total Organic Gases	0.17	13.6	74.0
Nitrogen Oxide	2.3	183.8	1,000.8
Sulfur Oxide	2.7	215.8	1,174.9
Particulates	0.401	32.1	174.5

1 SCAQMD. Air Quality Handbook for Environmental Impact Reports, October 1980. Energy Use Emission Factors, Table XII.

2 Existing Fashion Square development has estimated total electrical consumption of 2,397,948 KWH per month.

3 Based on electrical consumption rate of 13,054,240 KWH per month.

TABLE 20

ESTIMATED AIR POLLUTANT EMISSIONS
FROM MOTOR VEHICLES

AIR POLLUTANT	EMISSION FACTOR[1] (GRAMS/MILE)		EXISTING[2] (LBS/DAY)	PROPOSED PROJECT[3] (LBS/DAY)	TOTAL 1987 PROJECTED ORANGE COUNTY EMISSIONS (POUNDS/DAY)[4]	PERCENT OF COUNTY EMISSIONS
	55 mph	25 mph				
Carbon Monoxide	11.73	19.88	4,507	11,938	2,509,560	.5
Reactive Organic Gases	.77	1.43	300	710	424,300	.2
Nitrogen Oxide	2.49	1.75	868	2,149	347,960	.6
Sulfur Oxide	.20	.20	72	190	39,840	.5
Particulates	.32	.32	115	305	196,400	.2

1 1987 EMFAC6C Emission Factors, County of Orange, EMA, 1982. The assumed vehicular operating speed is 55 mph for highways and 25 mph for residential streets. The project traffic is distributed as 90 percent freeway and 10 percent residential.
2 The existing Fashion Square development generates 163,000 vehicle trip miles per day (Barton-Aschman).
3 Based on a project generation of 588,000 vehicle miles traveled per day.
4 Air Quality Management Plan, SCAQMD and SCAG, August, 1982, Table I.1, page B-14, converted from tons to pounds.

associated with project traffic would incrementally contribute to primary pollutant concentrations near local intersections during peak traffic periods, and also result in an incremental air quality deterioration.

This analysis assumes that the vehicle trips, and therefore the motor vehicle emissions, are strictly a result of the proposed project. In reality, this project is a receptor of vehicle trips, not a generator. This means that the vehicle trips would most likely be generated to another location in the South Coast Air Basin (SCAB) if they were not generated to the proposed project site. Therefore, the motor vehicle emissions would still be generated in the SCAB regardless of the status of the project. However, this simplified analysis which conforms to the procedures provided in the "Air Quality Handbook for Environmental Impact Reports" as revised October, 1980, does not recognize this. The project would redistribute the motor vehicle emissions to the area of the project from another area in the SCAB.

Project Consistency with the Air Quality Management Plan

An EIR must demonstrate the project's consistency with the AQMP. This is done by showing consistency of local population and land use projections with those in the AQMP.

The AQMP utilizes the Growth Forecast Policy from the Southern California Association of Governments to prepare emission projections for future levels of air pollution in order to achieve air quality standards. The Draft SCAG-82 Growth Forecast Policy* expresses regional and local growth policies by providing projected population, housing, employment, and land use totals for Regional Statistical Areas (RSA's).

* Some changes to the SCAG-82 Growth Forecast Policy may occur prior to its finalization in approximately April, 1983.

The proposed project is located in RSA 42, which is in the Northwest Orange County Subregion. The Growth Forecast Policy shows a population increase of 95,900 during the period between 1980 and 2000 which is a 25.6 increase in growth for this RSA. This represents the fifth smallest population increase for the Orange County region, absorbing 11% of the County's growth. Most available land is developed within this urban area by 2000, and moderate recycle rates are forecasted." The proposed project is a commercial project that recycles existing urban land and will therefore, not directly increase the population in RSA 42. Such recycling of urban land uses is consistent with the AQMP population forecast.

According to The SCAG-82 Growth Forecast Policy, "Urban areas include the following land use categories which are generally associated with urban use: residential, commercial, industrial, transportation and utilities, and institutional. Non-urban acreage includes agricultural land, vacant land, water bodies, and undevelopable acreage. The forecast assumes that only vacant lands and agricultural lands will be converted to urban use." RSA 42 is forecasted to grow by 3,603 urban acres between 1979 and 2000, i.e., 3,603 non-urban acres will convert to urban use. The proposed project site is comprised of 63 acres of existing urban land which would be recycled to a greater intensity. Recycling of existing urban land uses is consistent with SCAG-82 and the AQMP.

Project Effects

The aggregate air quality emissions from on-site emission sources associated with the proposed project is shown in Table 21. As indicated in the table, only emission sources associated with the operational phase of the project were totaled. Emissions associated with the construction phase were considered short-term, and therefore, not considered in the long-term contribution of air emissions. The emissions associated with the generation of electricity were off-site

and therefore, not considered to be a contribution to the 1987 projected Orange County emission inventory. The total contribution of the estimated project emissions to the 1987 projected Orange County emission inventory is approximately 15,712 pounds per day and represents .4 percent of the total 1987 projected County emissions.

TABLE 21

SUMMARY OF PROJECT AIR EMISSIONS
IN POUNDS PER DAY

POLLUTANT	NATURAL GAS	MOTOR VEHICLES	TOTAL OF POLLUTANT	TOTAL 1987 PROJECTED ORANGE COUNTY EMISSIONS (POUNDS/DAY)[1]	PERCENT PROJECT EMISSIONS OF TOTAL ORANGE COUNTY IN 1987
Carbon Monoxide	56.7	11,938	11,494.7	2,509,560	0.5
Total Organic Gases	22.7		22.7	849,000	Negl.
Reactive Organic Gases		710	710	424,300[2]	.2
Nitrogen Oxides	340.1	2,149	2,489.1	347.960	0.7
Sulfur Oxides	Negl	190	190	39,840	0.5
Particulates	0.43	305	305.43	196,400	0.2

[1] Air Quality Management Plan, SCAQMD and SCAG, August, 1982, Table I.1, page B-14;
[2] converted from tons to pounds.
Reactive Organic Gases = Total Organic Gases less Methane.
Negl. = Negligible (less than 0.1 percent).

Cumulative Effects

The air quality emissions from mobile sources associated with the proposed project conbined with the cumulative projects (see Table 3) is shown in Table 22. The contribution of the estimated cumulative emissions to the 1987 Orange County emission inventory is approximately 23,514 pounds and represents .6 percent of the total 1987 projected Orange County emissions.

TABLE 22

SUMMARY OF PROJECT COMBINED WITH CUMULATIVE PROJECTS MOBILE SOURCE EMISSIONS IN POUNDS PER DAY

POLLUTANT	EMISSION FACTOR[1] (GRAMS/MILE)		MOTOR VEHICLES[2]	TOTAL 1987 PROJECTED ORANGE COUNTY EMISSIONS (POUNDS/DAY)[3]	PERCENT CUMULATIVE EMISSIONS OF TOTAL ORANGE COUNTY IN 1987
	55 mph	25 mph			
Carbon Monoxide	11.73	19.88	18,077	2,509,560	.7
Reactive Organic Gases	.77	1.43	1,205	424,300	.3
Nitrogen Oxides	2.49	1.75	3,482	347,960	1.0
Sulfur Oxides	.20	.20	289	39,840	.7
Particulates	.32	.32	461	196,400	.2

1 1987 EMFAC6C Emission Factors, County of Orange, EMA, 1982. The assumed vehicular operating speed is 55 mph for highways and 25 mph for residential streets. The traffic is distributed as 90 percent freeway and 10 percent residential.

2 Based on a cumulative generation of 653,909 vehicle miles traveled per day (JEF Engineering, Joe Foust, January 26, 1983).

3 Air Quality Management Plan, SCAQMD and SCAG, August, 1982, Table I.1, page B-14; converted from tons to pounds.

5.8.3 Mitigation Measures

Increased air emissions resulting from the project are due to (1) increased traffic and (2) increased use of electricity, and natural gas. Mitigation measures designed to reduce the generation of traffic and usage of electricity and natural gas are discussed in detail in sections 5.6, 5.13.1, 5.13.2 and 5.14 of this report therefore, no additional mitigation measures are proposed here.

5.8.4 Significant Environmental Effects

The proposed project will incrementally increase the air emissions in the SCAB; however, the proposed project would account for less than two percent of the County emissions, which is considered not significant.

5.9 Shade/Shadow, Solar Glare, Illumination

5.9.1 Environmental Setting

Most of the existing structures on the site are single-story buildings with some buildings in Fashion Square Center two-story in height. There are several 12-story buildings in the project area such as the Fidelity Savings building south of Mainstreet Center and two office buildings adjacent to and north of the Garden Grove Freeway.

The solar reflections originating from the project site are very minimal, if not non-existent, since none of the existing on-site buildings have reflective-type (mirror or reflective glass) surfaces. There may be some solar glare from the glass windows of the buildings, but the glare is not significant.

The illumination on the site (parking lot lights, security lights, store lights, signs, etc.) is not out of character with the surrounding developed urban areas. The light poles in the parking lots are used for lighting the parking lots only and are not directed off-site or used for flood-lighting large areas. There are light poles on the top level of the Fashion Square parking structure, but these are low-intensity lights and are used only to light the top level of the structure. There are no high-intensity illumination sources on the site.

5.9.2 Impacts

Project Impact

It is not known at this time the height or the location of the proposed buildings. Since the site is located in Height District II (see Figure 17), there is no absolute height limit.

Since the building heights are not known, and for the purposes of this report, the maximum height of a building that would cast a shadow on surrounding residential areas will be evaluated. There are three major residential areas in the project vicinity that will be used to determine the height of the buildings (See Figure 30). Table 23 lists the maximum estimated height of a building that could be constructed on-site and not cast a shadow on the adjacent neighborhoods. As listed in Table 23 and shown in Figure 30, a building varying in height from 13 to 25 stories, depending upon location, could be located in the southeast portion of the site and not cast a shadow on residential area "A". Shadows from a building located in this area would not cast any shadows to either of the other residential areas as well. A building between 8 and 19 stories tall could be located in the southwest portion of the site and not cast shadows to residential area "B". Again, none of the buildings in this area of the site would cast shadows to the other two residential areas. A building from 19 to 52 stories tall could be located along the northern project boundary before any shadows were cast to residential area "C".

There are many areas on the site where multi-story buildings could be located so that the shadows from the structures would not extend to adjacent residential areas. An analysis for each building and its location would have to be prepared when the plans are available in order to determine the shadow impacts. Generally though, the closer the proposed structures are located to the center of the site, the higher the buildings could be before they would cast shadows on adjacent residential areas. On the other hand, the closer that buildings are located to the project boundary in the vicinity of a residential area, the shorter a building would have to be in order that a building did not cast a shadow on an adjacent residential neighborhood.

Depending upon the type of building exterior of the proposed buildings (glass, reflective mirrors), there could be solar reflection impacts. Both on-site and off-site reflections could occur throughout

TABLE 23

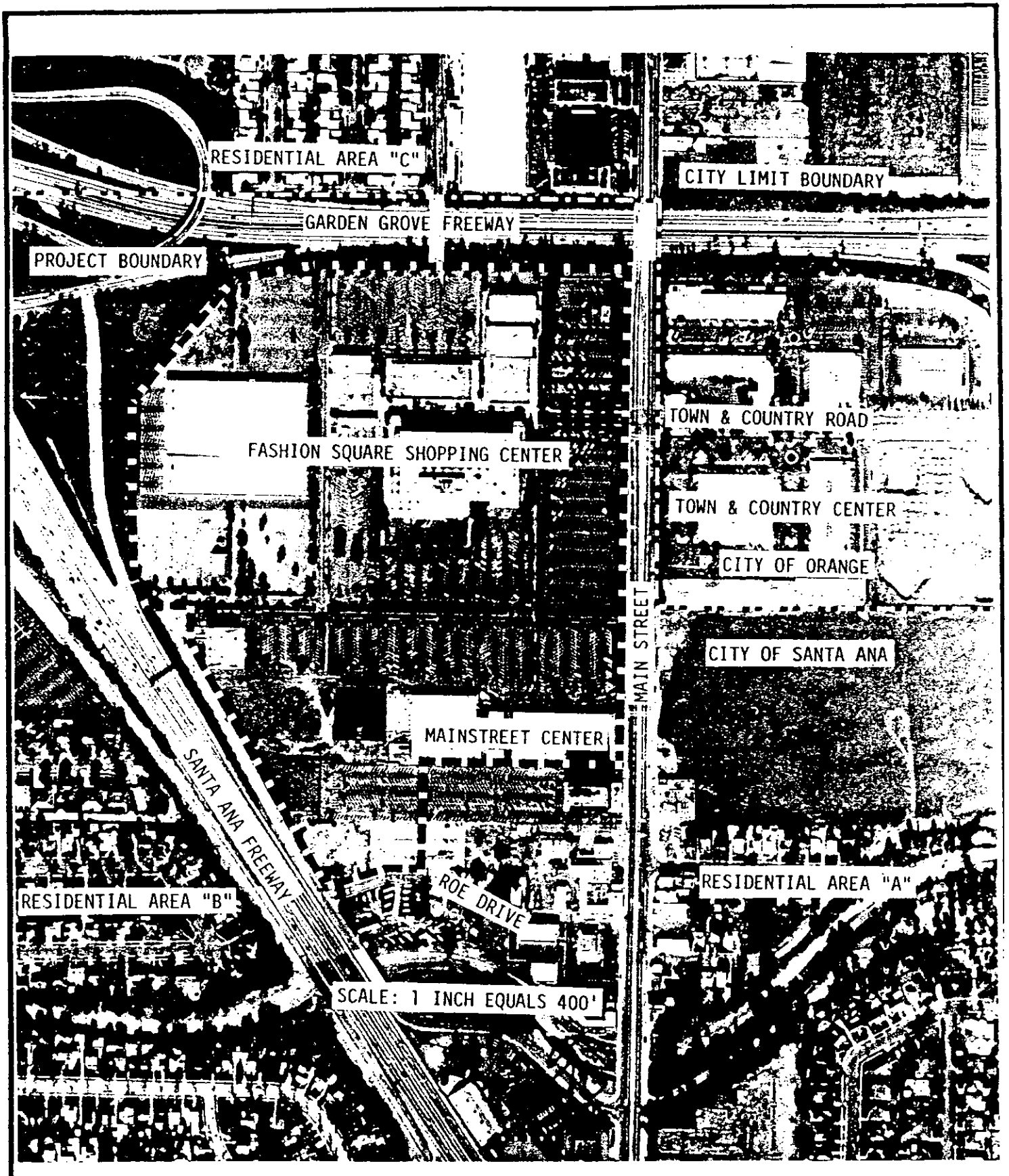
ESTIMATED MAXIMUM BUILDING HEIGHTS OF PROPOSED BUILDING
BEFORE THEY WOULD CAST A SHADOW TO ADJACENT RESIDENTIAL AREAS

RESIDENTIAL AREA	DISTANCE OF BUILDING SETBACK FROM PROJECT BOUNDARY (FEET)				
	100'	200'	300'	500'	700'
A*	13 Stories	15 Stories	17 Stories	21 Stories	25 Stories
B**	8 Stories	10 Stories	12 Stories	15 Stories	19 Stories
C***	19 Stories	24 Stories	30 Stories	41 Stories	52 Stories

* Only affected during summer solstice period.
** Ibid.
*** Only affected during winter solstice period.

the day if a reflective surface is used. The sun could be reflected by the proposed buildings to on-site parking areas as well as to the adjacent streets and freeways (Main Street, Santa Ana and Garden Grove Freeways). At certain angles these solar reflections could cause "blind" spots for motorists as well as be a nuisance and annoyance for pedestrians and shoppers. The reflections could also extend to surrounding residential areas and cause an annoyance to residents. At a long distance from the building, the solar reflection would not shine on one particular point for a very long time, however, in close proximity to the building, a reflection may occur for a relatively long period (possibly one-half hour to an hour).

The proposed project would probably require additional security and aesthetic lighting which would create increased on-site sources of illumination. In addition, there would be increased illumination after dark from the office buildings from cleaning crews and people working in the buildings. A specific determination and evaluation of illumination impacts cannot be made at this time since



	Source:	Title:	
	VTN	AERIAL PHOTO OF THE PROJECT AREA INDICATING RESIDENTIAL AREAS IN THE PROJECT VICINITY	30

there are no site specific development plans. However, any increased on-site illumination is not anticipated to have any significant impacts on surrounding land uses due to the existing illumination in the area. There would be, however, an incremental increase in the illumination on the project site.

Cumulative Impacts

The cumulative impact of this project in conjunction with other developments in the area that would have high-rise buildings would result in an increase of solar interruption (shade/shadows) in the area and possibly an increase in solar reflection.
Depending upon the location and height of the cumulative high-rise buildings, some of the local areas (residential and commercial) could experience an increase in solar interruption during certain periods of the year. The cumulative projects would also increase illumination in the area.

5.9.3 Mitigation Measures

Development plans submitted to the Agency for approval pursuant to the Participation Agreement should be accompanied by a shade/shadow analysis in order to determine the best building locations and building heights for the structures which could result in the least shade/shadow impact, if any, to the surrounding land uses.

Non-reflective building exteriors should be used, unless the buildings are oriented so that their surfaces are directed away from other structures, roadways and residential areas in the project area.

All on-site lighting should be directed downward and shielded from surrounding land uses. Low-intensity lighting in the parking areas should be utilized and flood lighting should be discouraged.

5.9.4 Significant Environmental Effects

The project would result in an increase in shadows and solar interruption in the area and possibly an increase in solar reflection. Depending upon final building heights, building locations and type of building exterior, the buildings could cause solar interruption and solar reflection to surrounding land uses.

5.10 Aesthetics

5.10.1 Environmental Setting

The project area is characterized by commercial uses, residential homes and freeways which are typical of an urban environment. Commercial development on the project site is generally in good condition, although aging with well-maintained, mature landscaping. The Mall area of Fashion Square was built in 1957, with I. Magnin completed in 1958. The Mainstreet Center was also built in 1958. The large trees and shrubs located within the surface parking areas around both shopping centers enhance the aesthetic appearance of the site. Figures 9-12, previously presented, illustrate existing aesthetic conditions on the site.

Surrounding commercial and residential development north of the site is generally in a well-maintained condition. Two high-rise buildings are located north of the Garden Grove Freeway in the City of Orange. The Town and Country Shopping Center located east of the site is very well maintained and characterized by extensive mature landscaping. The area south of the project site is characterized by mixed commercial and residential land uses in a general declining condition. New infill commercial development is occurring on isolated parcels along Main Street south of the project site. The 12-story Fidelity Federal Building is located adjacent to and east of the site on Main Street. Figures 13-15, previously presented, illustrate aesthetic conditions in the surrounding area.

5.10.2 Impacts

Project Impacts

The project would provide for the rehabilitation and redevelopment of the project site consistent with the Amended Redevelopment Plan for the City of Santa Ana Redevelopment Project. The aesthetic

appearance of the site would be altered by the removal of the existing Mainstreet Center and associated surface parking lot and the surface level parking lots south of Mainstreet Center, Parcels 3-5. New commercial development with associated landscaping would replace these existing uses. Consistent with the Redevelopment Plan, the existing Fashion Square Shopping Center would be rehabilitated and integrated into the proposed plan for new development of Fashion Square into an enclosed regional shopping center. The overall identity and architectural appearance of the site would be improved by development of a uniform urban design plan for the entire site. The proposed improvements would integrate and unify the land uses within the redevelopment area, revitalizing the area visually and economically. One of the objectives of the Redevelopment Plan is to create an attractive and pleasant environment within the Redevelopment area. Consistent with the objectives of the Redevelopment Plan, the aesthetic quality of the North Main shopping area in the City would be improved by the proposed rehabilitation and redevelopment.

Although no architectural designs are available at this time, the project will be designed to insure that the individual buildings will have a distinctive, but cohesive architectural appearance. All landscape plans, site plans and architectural drawings shall be reviewed and approved by the Agency. A master plan for the overall development will be prepared. The structure heights could exceed 35 feet if the provisions of the Height District II are complied with. The visual character of the site will be transformed from low intensity commercial development to an intensely developed commercial complex. The proposed new development will alter the view of the site by the introduction of vertical and horizontal building mass into existing visual open space. The proposed structures will be similar in scale with other high intensity commercial development in the area. However, when compared to the small scale of the older residential and commercial areas surrounding the site, the project could tend to visually dominate the area.

Since there are high-rise buildings in the project area, the development of high-rise buildings on the site should not result in an adverse impact. However, the possible addition of several high-rise buildings on the project site may have aesthetic impact to some people, depending upon individual preference.

Cumulative Impacts

Several of the cumulative projects proposed in the area consist of high-rise buildings similar to those that could be constructed on the project site. The cumulative aesthetic impact could be additional buildings in the area that would dominate the skyline and possibly interrupt existing views. The cumulative project area could become dominated by high-rise buildings as a result of the proposed project and other cumulative projects.

5.10.3 Mitigation Measures

The Participation Agreement incorporates standards and controls which would preclude any development which is unacceptable to the community on aesthetic grounds.

Pursuant to the Participation Agreement, all buildings would be constructed of high architectural quality with landscaped areas. The structures must be effectively and aesthetically designed. The shape, scale of volume, exterior design, and exterior finish of each building must be consistent with, visually related to, physically related to, and an enhancement to each other and the surrounding project area. Landscaping would be provided to integrate this project with adjacent projects. Architectural, landscape and site plans must be approved by the Agency.

5.10.4 Significant Environmental Effects

No adverse environmental effects are anticipated.

5.11 Housing/Population

5.11.1 Environmental Setting

Introduction

The proposed Fashion Square Commercial Center project is composed of office, retail and hotel land uses. Population growth and housing needs that would be created by future employees of that project, and how those needs might be satisfied are determined through the evaluation of various interrelated variables. Those variables, which are identified in this assessment are: 1) type of employee and related income, 2) existing labor supply, 3) housing market, 4) housing costs, and 5) housing assistance programs.

Type of Employee and Related Income

Tables 24 through 27 give the percentage of occupations that would result from office, retail, health, and hotel development. Table 28 shows the related incomes associated with the various business categories.

The Federal Department of Housing and Urban Development (HUD) has determined that in 1981 a single person making $620 a month, and a family of four making $887 a month are considered very low income households. HUD has also determined that in 1981 the median family income for Orange County was $29,900. Low and moderate income households are computed based on 80-120 percent of the median income. Given that fact, $23,920-$35,800 for 1981 are considered low to moderate family income categories. Broken down into monthly increments the range would be $1,993-$2,983. Medium to higher family income is considered to be $35,800 a year and above. Table 29 combines all the project related occupations and places them into expected income categories. As shown in Table 29 managers, officials, professionals and technicians comprise 23.6 percent of the expected work force and are the only occupations that can be expected to reach a higher income status. The remaining 76.4 percent of the work force would be comprised of sales, clerical,

TABLE 24

OCCUPATIONAL PROFILE
FINANCE, INSURANCE, AND REAL ESTATE INDUSTRIES (OFFICE)

OCCUPATION	PERCENTAGE EXPECTED EMPLOYEES*
Total Employment	100.0
Managers/Officials	15.2
Professional/Technical	11.7
Sales	8.3
Clerical	52.7
Maintenance, Construction, Repair	6.9
Service	5.0

Source: State of California Employment Development Department, Employment Data and Research.

* Percentages do not add to the total because of rounding.

TABLE 25

OCCUPATIONAL PROFILE
RETAIL TRADE INDUSTRIES

OCCUPATION	PERCENTAGE OF EXPECTED EMPLOYEES
Total Employment	100.0
Managers/Officials	9.4
Professional/Technical	2.2
Sales	26.3
Clerical	16.6
Maintenance, Construction, Repair	17.0
Service	28.5

Source: State of California Employment Development Department, Employment Data and Research

TABLE 26

OCCUPATIONAL PROFILE
HEALTH INDUSTRIES (EXCLUDING HOSPITALS)

OCCUPATION	PERCENTAGE OF EXPECTED EMPLOYEES*
Total Employment	100.0
Managers/Officials	6.7
Professional/Technical	41.5
Sales	0.0
Clerical	18.2
Construction, Repair	4.5
Service	29.2

Source: State of California Employment Development Department, Employment Data Research.

TABLE 27

OCCUPATIONAL PROFILE
HOTEL INDUSTRY

OCCUPATION	PERCENTAGE OF EXPECTED EMPLOYEES
Total Employment	100.0
Managers/Officials	6.5
Professional/Technical	1.3
Sales	.4
Clerical	15.5
Maintenance, Construction, Repair	7.2
Service	69.1

Source: State of California Employment Development Department, Employment Data and Research

TABLE 28

AVERAGE WAGE FOR VARIOUS BUSINESS CATEGORIES

Occupation	Average Monthly Pay Per Employee*	Estimated Annual Pay Per Employee**
Office	$1,321	$15,852
Retail	783	9,396
Hotel	656	7,872
Health	1,366	16,392

* Based on Third Quarter 1980 data. Includes all employees, even those who worked only part-time. Therefore, pay shown is lower than the average for full-time workers.

** Estimated by multiplying third quarter average by 12.

TABLE 29

OCCUPATIONAL PROFILE
COMBINED INDUSTRIES

OCCUPATION	PERCENTAGE OF EXPECTED EMPLOYEES	INCOME CATEGORY*
Total Employment	100.0	
Managers/Officials	9.5	Moderate to High
Professional/Technical	14.1	Moderate to High
Sales	8.8	Very Low to Low
Clerical	25.7	Very Low to Low
Maintenance, Construction, Repair	8.9	Low to Moderate
Service	33.0	Very Low to Low

* State of California Employment Development Department, Employment Data and Research. Estimated from Wage and Salary Study Orange County, May 1981.

and maintenance related occupations. Therefore, 76.4 percent of project related occupations would, when considered as the sole source of family income, be classified as either very low or low income households. It is assumed however, that in many cases income levels are raised through the existence of a second and third family income. The nature of both the retail and hotel related industries indicate that many employees in those industries will be part-time employees providing a secondary income. A study conducted by the Irvine Company concluded that up to 80 percent of wage earners in regional shopping centers are second and third wage earners in the family.*

Existing Labor Supply

Table 30 indicates the occupation of primary wage earners provided in the 1976 Special Census for persons living in the City of Santa Ana.

Table 31 indicates the location where the primary wage earner is employed.

As shown in the above Table 31, only about 26 percent of the respondents who live in the City of Santa Ana actually work in the City.

The data from the 1976 Special Census (Tables 30 and 31) indicate that there are qualified workers in all the project related occupations living in the City of Santa Ana. Since approximately 74 percent of those workers commute to work, it is possible that some of those workers would welcome the opportunity to leave their present place of employment to work in the City, if given the opportunity.

* Earl Timmons, Director of Marketing Services, The Irvine Company conversation, April 14, 1982.

In addition to future employees who already live in the City, there are those workers who live in neighboring communities who might be willing to commute into Santa Ana to work. Table 32 presents a breakdown of distances people are willing to travel to work. Based on

TABLE 30

OCCUPATION OF PRIMARY WAGE EARNER
1976 SPECIAL CENSUS

OCCUPATION	PERCENTAGE
No Response	11.38
Professional, Technical	10.10
Managers, Officials and Proprietors	7.46
Clerical	6.60
Sales	5.12
Craftsman, Foremen	16.58
Operatives	8.54
Service	6.83
Laborers	3.93
Retired	15.36
Other	8.09
TOTAL	99.9*

* Does not equal 100% because of rounding.

TABLE 31

LOCATION OF EMPLOYMENT
PRIMARY WAGE EARNER
1976 SPECIAL CENSUS

LOCATION	PERCENTAGE
No Response	12.48
Santa Ana Central Business District/Civic Center	7.32
Remainder of Santa Ana	18.74
Anaheim/Garden Grove	8.28
Irvine/Newport/Costa Mesa	10.67
North Orange County	5.30
South Orange County	5.16
City of Los Angeles	1.57
Remainder of Los Angeles County	4.03
Other	26.44
TOTAL	99.9*

* Total does not equal 100% because of rounding.

Table 32 estimates, 79 percent of workers living in surrounding communities would be willing to travel a distance of up to 15 miles to work. This represents a substantial labor market for employment in Santa Ana. The existing labor supply in both the City of Santa Ana and in surrounding communities is further evidenced by the current rate of unemployment, which was 6.1 percent in February, 1982 and expected to climb to 9.0 percent by the end of the year. The unemployment rate represents 72,200 unemployed individuals, many of which are concentrated in the Santa Ana and Central Orange County area.*

* State of California, Employment Development Department, Alta Yetter, Labor Market Analyst, telephone conversation, April 10, 1982.

TABLE 32

JOURNEY TO WORK

MILES FROM PROPOSED DEVELOPMENT	PERCENT OF EMPLOYEES WHO TRAVEL THOSE MILES*	SELECTED CITIES WITHIN THAT DISTANCE
0-5	39	Santa Ana, Garden Grove, Anaheim, Orange, Tustin, Villa Park
6-10	26	Fullerton, Anaheim, Westminster, Stanton, Yorba Linda, Irvine, Costa Mesa
11-15	14	Buena Park, La Mirada, La Habra, El Toro, Huntington Beach
16-20	9	Long Beach, Lakewood, Whittier, Mission Viejo,
21+	12	Compton, East Los Angeles, Corona, San Juan Capistrano
TOTAL	100	

* SCAG, Los Angeles Regional Transportation Study, 1979.

Evidence of an existing labor market is further supported by labor statistics for Orange County as a whole. In 1981 there were 1,200,000 adult workers in the County; however, only 1 million jobs were available in the County for those workers. The result is that approximately 200,000 workers each day must travel outside of Orange County to work. The creation of new jobs in Orange County average about 30,000 annually.*

Housing Market

The Southern California Association of Governments (SCAG) reports that the housing demand in the region for the past five years has exceeded the supply by 180,000 units.** The housing market in Orange County in particular is very short in terms of affordable housing relative to the demand placed on it by low and moderate income households.

Based on the findings of the 1980 federal census, the City of Santa Ana has a population estimated at 204,000 residents. The City of Santa Ana experienced rapid growth from 1945 to 1965 when a substantial portion of the residential dwelling units were built.

The existing housing stock in the City of Santa Ana is comprised of a mixture of single-family dwelling units, multiple-family dwelling units, apartments, and mobile home units. A Southern California Association of Governments (SCAG) 1980 study identified that the majority of the housing stock was in "good" condition, with approximately 6,000 dwelling units in need of repair. Santa Ana is essentially a built-out city and, therefore, experiences only modest levels of new residential construction.

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* Earl Timmons, Director of Marketing Services, The Irvine Company, presentation before the Orange County Chamber of Commerce", Economic Review and Forecast for Orange County, April 14, 1982.

** The SCAG region is composed of the counties of Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura and the cities within those counties.

The 1976 special federal census estimated that the City of Santa Ana has approximately 62,135 total dwelling units. Of the 62,135 total dwelling units, 33,900 or 55 percent are categorized as single-family dwelling units, 8,923 or 14 percent are categorized as multiple-family units with two to four occupancies, 15,335 or 25 percent are categorized as multiple-family units with five or more occupancies, 3,666 or six percent are categorized as mobile home units, and 311 or .005 percent are categorized as "other" forms of housing.

Based upon the SCAG 1980 study, 33,488 dwelling units in the City were owner-occupied, and 29,560 dwelling units were renter-occupied. Of the 33,488 owner-occupied units, 1,451 were identified as being suitable for rehabilitation, with 4,045 renter-occupied units being suitable for redevelopment.

The vacancy rate for rental dwelling units in Santa Ana is considerably less than in neighboring cities. In Santa Ana, the vacancy rate was estimated to be 0.5 percent by the SCAG 1980 study. To contrast, a vacancy rate under three percent is considered critical. Apparently, many residential dwelling units in Santa Ana exist in overcrowded conditions due to a shortage in rental units.

Table 33 provides the vacancy rate in 1979 for selected cities where some future employees of the proposed project might seek housing. As that table indicates, vacancy rates in surrounding communities are also below the standard of three percent.

The cost of all forms of housing, particularly single-family housing, has risen so drastically over the last ten years that households of moderate to medium levels of income are to a large extent purchasing less desirable homes which they would not purchase under normal circumstances. Or if they cannot afford to buy a home, they remain as tenants of rental units that otherwise would filter down to lower income households. The effects of this trend has caused even more narrowing of housing opportunities for low and moderate income households.

TABLE 33
VACANCY RATES

Buena Park	0.7
Garden Grove	1.4
Orange	1.3
Westminster	0.9
Anaheim	2.0

Source: State of California, Employment Development Department, Annual Planning Information, 1980-81.

Housing Costs

The results of housing demand exceeding the supply has been a low vacancy rate and high prices. A consequence of the disparity between supply and demand is that homebuyers in the SCAG region paid an average of $124,000 for a single home in 1980. This exceeded the national average by more than $29,000.* It is apparent that the low income levels of the occupation categories previously listed, even when combined with a second income, would prevent most families from purchasing a home in Orange County. As a result most employees would be restricted to the rental market to satisfy their housing needs.

Table 34 illustrates housing costs for the City of Santa Ana and other cities in the Central Orange County area.

Table 35 presents the price of housing and rents affordable for various income levels. Realistically, families with incomes under $30,000 a year would not qualify to purchase a house in Orange County, unless assistance is provided.

* SCAG, 1979-80 Report of the Southern California Association of Governments.

For purposes of comparison with rents indicated in Table 34, the Fair Market Rents as determined by HUD for 1981 are presented Table 36.

TABLE 34

HOUSING COSTS*
1981-1982

CITY	PRICE RANGE	RENTALS
Anaheim/Anaheim Hills	$ 80,000 - 400,000	$400 - $1,000
Brea	95,000 - 300,000	250 - 1,200
Buena Park	88,000 - 250,000	350 - 900
Fullerton	90,000 - 650,000	350 - 1,500
Garden Grove	80,000 - 200,000	300 - 1,000
Placentia	100,000 - 250,000	350 - 900
Santa Ana	70,000 - 400,000	400 - 1,000
Tustin	110,000 - 750,000	400 - 2,500
Villa Park	225,000 - 900,000	900 - 2,500
Yorba Linda	100,000 - 300,000	350 - 1,200

Source: Moving to Publications, Ltd., 1981-82.

* House prices include single-family detached, condominiums and townhouses. Rental prices include houses and apartments.

The Fair Market Rents presented in Table 36 apply to the cities of Buena Park, Garden Grove, Orange, Westminster and Anaheim. As indicated by the Fair Market Rents table, the rents are on the lower end of the scale of actual rents as indicated in Table 34, previously presented.

In summary, there is an existing shortage of dwelling units affordable to low and moderate income families.

TABLE 35

AFFORDABLE HOUSING*

ANNUAL INCOME	HOUSING AFFORDABLE INTEREST RATES 15%	16%	17%	18%
$30,000	$ 62,000	$ 58,000	$ 54,000	$ 51,000
40,000	82,000	78,000	73,000	69,000
50,000	103,000	97,000	91,000	86,000
60,000	124,000	116,000	109,000	103,000
70,000	144,000	136,000	127,000	120,000

Source: Moving to Publications, Ltd., 1981-82.

* Assumes 20 percent down payment and a 30-year loan.

TABLE 36

FAIR MARKET RENTS
1981

NUMBER OF BEDROOMS	RENT*
Single	$ 287
1	345
2	406
3	556

Housing Assistance Programs

City of Santa Ana Community Redevelopment Agency

State of California Redevelopment Law in Section 33000 of the Health and Safety Code (1976) stipulates that redevelopment projects must set aside 20 percent of designated funds for housing. The Santa Ana Community Redevelopment Agency is currently half way through the

process of establishing four new redevelopment districts which would provide low cost housing. Currently, the Agency provides 398 apartment units for senior citizens. It is also providing 157 condominium units which are under construction, and 157 condominium units which are occupied.*

Section 8 Housing Program

The cities of Santa Ana, Garden Grove, Anaheim and the County of Orange have their own Housing Authorities which assist families through the use of Federal Section 8 Certificates. Families are required to pay 25 percent of their income towards rent for their unit. The Housing Authority pays the owner the remainder of the contract established rent. Maximum rents per unit per family are established by HUD for each area such as Orange County. Those rents have previously been presented in Table 36.

The program was established by the 1974 Housing and Community Development Act, and is the Federal Government's major operating program for assisting lower income families to secure adequate housing.

Table 37 indicates the maximum income that an individual or family can earn to qualify for Section 8 Housing Assistance.

TABLE 37
MAXIMUM INCOME
SECTION 8 HOUSING ASSISTANCE

Family Size	1	2	3	4
Income	15,250	17,400	19,550	21,750

*Alice McCullough, City of Santa Ana Community Redevelopment Agency, telephone conversation, February 3, 1982.

As of February, 1982 the Housing Authority is assisting 560 households and has a waiting list of an additional 370 households.

5.11.2 Impacts

Project Impacts

Table 38 displays the estimated number of employment opportunities generated by each land use. Currently there are approximately 1,370 retail occupation related employees in the existing Fashion Square and Mainstreet Center shopping centers.

As shown in Table 38, the proposed project has the potential to generate an estimated 8,630 employees. This represents approximately 29 percent of the average annual job growth for the County.

The occupational profile of those projected employees is shown in Table 39.

The creation of 8,630 employment positions in the City of Santa Ana will have an impact on housing demands. However, there are several factors that should be considered in analyzing the nature of this impact.

- 6,593 (refer to Table 39) of the projected employees will be low income employees many of which will be lower-skilled part-time workers. It is anticipated that most of those positions will be filled by persons already residing in Santa Ana or in the surrounding area and willing to commute to work (Refer back to Table 32).

- Many of the lower paying service and clerical positions will be filled by women and by recent high school graduates entering the job market. Those incomes, for the most part, will not be primary incomes.

TABLE 38

ESTIMATED EMPLOYMENT GENERATION
PROJECT SPECIFIC

LAND USE	SQUARE FEET	GENERATION FACTOR	ESTIMATED EMPLOYMENT POSITIONS GENERATED
Office	1,500,000	1 employee/* 250 Sq. Ft.	6,000
Commercial/ Retail	1,600,000	1 employee/** 500 Sq. Ft.	3,200
Hotel	979,200 (1,200 rooms)		800***
Less Existing Employees			1,370
TOTAL			8,630

* City of Los Angeles, EIR Manual for Private Projects, 1975, update 1976.
** Ibid.
*** Los Angeles Hilton Hotel, Wilshire Boulevard, May 18, 1981.

TABLE 39

OCCUPATIONAL PROFILE
PROPOSED PROJECT

OCCUPATION	INCOME LEVEL	PERCENTAGE OF EXPECTED EMPLOYEES*	NUMBER OF EMPLOYEES
Total Employment	Moderate	100.0	8,630
Managers/Officials	Moderate-High	9.5	820
Professional/Technical	Moderate-High	14.1	1,217
Sales	Lower	8.8	759
Clerical	Lower	25.7	2,218
Maintenance, Construction, Repair	Low-Moderate	8.9	768
Service	Very Low	33.0	2,848

* Percentages used are derived from combining the occupational profile of all anticipated land uses (refer back to Table 29).

- As indicated in Table 31 previously shown, only about 26 percent of Santa Ana primary wage earners work in the City. The proposed project will give more residents an opportunity to work in Santa Ana.

- Table 39 indicates that approximately 2,037 of the future employees will be in the managerial, official, professional and technical fields. Incomes for those job categories would be expected to range from moderate to high. Some of those higher paid employees can be expected to prefer to transfer in from other areas, thus creating an increased demand for housing.

- Likewise, some of the 2,037 professionals, middle management and technical employees will be recent college graduates with moderate incomes wishing to establish new households. Those employees would desire to purchase moderate priced housing, but housing affordable to households making $30,000 a year or less can no longer be purchased in Orange County for that price (refer back to Table 34).

- The existing low vacancy rates in the City of Santa Ana (0.5) and in surrounding cities indicate that employees desiring moderately priced rental housing will experience difficulty finding it within short commuting distance of the proposed project (refer back to Table 33).

- The high unemployment rate, 6.1 percent (72,200 individuals) in Orange County during February, 1982 indicates that there is an existing work force in the County. This situation would mitigate housing impacts, especially at the lower income levels, which for the most part are lower skilled occupations.

Cumulative Impacts

Cumulative projects in the vicinity of the proposed Fashion Square Commercial Center project would generate an estimated 16,233 new employees, as illustrated in Table 40. The occupational profile of those employees is displayed in Table 41. The employees generated represent approximately 54 percent of the average annual job growth for Orange County.

The creation of 16,233 employment positions within the Santa Ana area could potentially have a significant impact on population growth and housing demands, subject to the same factors that were considered in analyzing the project impact.

TABLE 40

ESTIMATED EMPLOYEE GENERATED
CUMULATIVE PROJECTS

NAME	PROPOSED USE	SQUARE FOOTAGE	EMPLOYEE GENERATION*
Hurwitz	Office	2,300,000	9,200
	Hotel	450 Rooms	675
	Retail	500,000	1,000
Homes and Narver Expansion	Office	98,239	393
Continental Center	General Office	754,850	3,019
Tooley	Office	400,000	1,600
Medical Offices	Medical Offices	86,600	346
Town and Country Condominiums	Residential	500 Units	Not Applicable
TOTAL			16,233

* Employee generation is based on the following generation factors. General and medical offices, 1 employee per 250 Sq. Ft.; Retail Commercial, 1 employee per 500 Sq. Ft.; Hotel, based on information provided by Los Angeles Wilshire Hotel.

TABLE 41

OCCUPATIONAL PROFILE
CUMULATIVE PROJECTS

OCCUPATION	INCOME LEVEL	PERCENTAGE OF EXPECTED EMPLOYEES*	NUMBER OF EMPLOYEES
Total Employment		100.0	16,233
Managers/Officials	Moderate-High	9.5	1,542
Professionals/Technical	Moderate-High	14.1	2,289
Sales	Lower	8.8	1,429
Clerical	Lower	25.7	4,172
Maintenance, Construction Repair	Low-Moderate	8.9	1,445
Service	Very Low	33.0	5,357

* Percentages used are derived from combining the occupational profiles of all anticipated land uses (refer to Table 29).

The proposed Fashion Square Commercial Center project combined with cumulative projects could potentially generate 24,863 new employment opportunities. The population growth and increased housing demands resulting from those employment opportunities will be of lesser magnitude because of the existing labor market both in the City of Santa Ana and in the surrounding communities. That labor market has the capacity to provide most of the low skilled employment needs anticipated frp, both the proposed project and cumulative projects. Housing difficulties will be more evident for those employees in higher income occupations who wish to move into Santa Ana or nearby communities.

5.11.3 Mitigation Measures

No mitigation measures are proposed.

5.11.4 Significant Environmental Effects

Even though most of the job opportunities created by the project will be filled by persons already residing in the area, the project will result in some increase in the demand for housing. Some of the new employees will be persons residing a considerable distance from the project who will desire to more into Santa Ana or other neighboring communities in order to shorten their commuting distance. By contributing to the general demand for housing in the area, such persons will add somewhat to the existing housing market problems, such as the difficulties of finding affordable housing and upward pressures on housing costs.

5.12 John Wayne Airport

5.12.1 Environmental Setting

The project site is located outside the 60 CNEL noise contour for John Wayne Airport and is located over one mile from the area designated as the approach and horizontal surface. Figure 31 illustrates the location of the site in relation to John Wayne Airport's approach and horizontal surfaces. The existing commercial development on the site generates minimal impact upon John Wayne Airport operations. The airport is currently operating at over-capacity conditions and airport parking is grossly inadequate to meet existing demand. Based upon existing conditions and current projections, John Wayne Airport will not be able to satisfy short-term demand without significant expansion of airport operations and facilities.

5.12.2 Impacts

Project Impacts

The proposed retail, office and hotel development would increase demand for air service and parking at John Wayne Airport in common with all new development approved for construction in Orange County. The project would probably result in additional passenger demand at John Wayne Airport, where even the existing demand is presently not being met by the airport.

As shown in Figure 30, the project is not located under the approach or horizontal surface of the airport. However, the Federal Aviation Administration regulations, as cited in Part 77, require a determination as to the aeronautical hazard of structures which intrude into an imaginary horizontal surface of 203 feet above sea level.*

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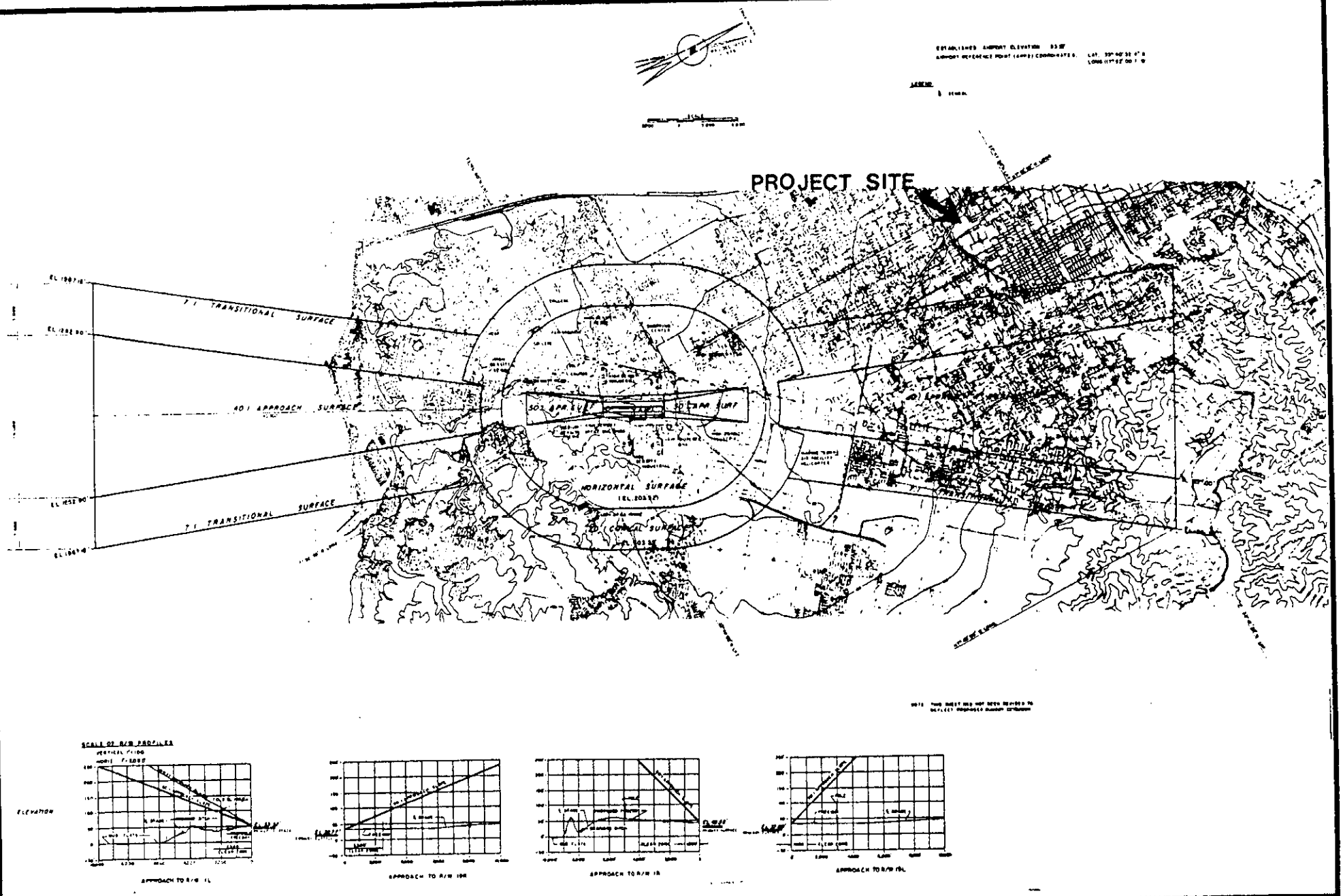
* Shirli Reithard, Supervising Planner, Orange County, Airport Land Uses Commission.



Source:

JOHN WAYNE AIRPORT

Title:

JOHN WAYNE AIRPORT APPROACH
AND CLEAR ZONE PLAN

31

Assuming an average ground elevation of 145 feet above sea level, FAA approval would be required for any structure over 58 feet in height.

The Federal Aviation Administration would make a determination as to the aeronautical hazard of any proposed structures which intrude above the imaginary horizontal surface of 203 feet above sea level. Flashing-red obstruction lights might be required as a precaution for aircraft safety.*

Cumulative Impact

The cumulative impact would result in additional passenger demand at the airport. As the case with the proposed project, the airport is not capable of meeting the existing demand, and therefore, the cumulative demand would also not be met. The additional passenger demand by the cumulative projects would probably be met by alternative airports or travel methods.

5.12.3 Mitigation Measures

No mitigation measures are proposed.

5.12.4 Significant Environmental Effects

The project will contribute toward increased demand for air service and parking John Wayne Airport.

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* Elly Stanson, Federal Aviation Administration, Air Space and Procedures Branch.

5.13 Public Services and Utilities

5.13.1 Natural Gas

5.13.1.1 Environmental Setting

Natural gas is currently provided to the existing uses on the project site by the Southern California Gas Company. Gas service could be provided to the proposed project by existing gas mains on the site. Natural gas service would be provided in accordance with the Company's policies and extension rules on file with the California Public Utilities Commission.*

5.13.1.2 Impacts

Project Impact

The existing uses on the project site consume approximately 13,702,560 cubic feet of natural gas per month. Mainstreet Center and Fashion Square consume approximately 3,268,060 and 10,434,500 cubic feet of natural gas per month respectively.** As indicated in Table 42, the proposed project would consume approximately 86,210,000 cubic feet of natural gas per month.

The removal of Mainstreet Center and the construction of the proposed project would result in a net increase in consumption of natural gas of approximately 72,507,440 cubic feet per month. The Southern California Gas Company has indicated that the proposed project would not have a significant impact on its ability to provide natural gas service to the project*** (Refer to Appendix IV).

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* J. D. Allen, Southern California Gas Company.
** Based on 20 cubic feet a month per square foot.

TABLE 42

PROJECT NATURAL GAS CONSUMPTION

Land Use	Square Feet	Consumption Rate*	Consumption
Office	1,500,000	3.5 CU.FT./MONTH/SQ.FT.	5,250,000 CU.FT./MONTH
Retail	1,600,000	20 CU.FT./MONTH/SQ.FT.	22,000,000 CU.FT./MONTH
Hotel	979,200 (1,200 Rooms)	50 CU.FT./MONTH/SQ.FT.	48,960,000 CU.FT./MONTH
TOTAL	4,079,200		86,210,000 CU.FT./MONTH

Cumulative Impacts

As indicated in Table 43 cumulative projects in the vicinity of the proposed project site would consume approximately 43,598,912 cubic feet of natural gas per month. The net increase in consumption, considering cumulative projects and the proposed project, would be 116,106,352 cubic feet per month.

5.13.1.3 Mitigation Measures

Energy conservation measures are discussed in Section 5.14 of this report. No additional mitigation measures are proposed here.

5.13.1.4 Significant Environmental Effects

No substantial adverse impacts are anticipated.

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* City of Los Angeles, EIR Manual for Private Projects, 1975, Updated, 1976.

TABLE 43

CUMULATIVE NATURAL GAS CONSUMPTION

Project Name	Land Use	Area	Consumption Factor*	Consumption Cu.Ft./Month
Hurwitz Site	Office	2,300,000 Sq.Ft.	3.5 Cu.Ft./ Month/Sq.Ft.	8,050,000
	Hotel	450 Rooms 367,200 Sq.Ft.	50 Cu.Ft./ Month/Sq.Ft.	18,360,000
	Retail	500,000 Sq.Ft.	20 Cu.Ft./ Month/Sq.Ft.	10,000,000
Homes & Narver Expansion	Office	98,239 Sq.Ft.	3.5 Cu.Ft./ Month/Sq.Ft.	343,837
Continental Center	Office	754,850 Sq.Ft.	3.5 Cu.Ft./ Month/Sq.Ft.	2,641,975
Tooley	Office	400,000 Sq.Ft.	3.5 Cu.Ft./ Month/Sq.Ft.	1,400,000
Medical Offices	Medical Office	86,600 Sq.Ft.	3.5 Cu.Ft./ Month/Sq.Ft.	303,100
Town & Country Condominiums	Residential	500 D.U.	5,000 Cu.Ft./ D.U./Month	2,500,000
Subtotal				43,598,912
Proposed Project: Fashion Square Commercial Center				86,210,000
Less existing uses				13,702,560
TOTAL				116,106,352

* City of Los Angeles, EIR Manual for Private Projects, 1975. Update 1976. Ultrasystems, Inc. planning factors.

5.13.2 Electricity

5.13.2.1 Environmental Setting

Southern California Edison currently provides electricity to the project site. This site is served by four 12 kV circuits served from four adjacent substations. Three of the circuits enter the site from overhead facilities and a fourth circuit enters the site as an underground facility. Edison maintains an extensive underground system within the northerly portion (Fashion Square Shopping Center) of the project site.*

5.13.2.2 Impacts

Project Impacts

The existing uses on the project site consume approximately 2,397,948 Kwh per month of electricity.** As indicated in Table 44, the proposed project would consume approximately 13,054,240 Kwh of electricity per month. The removal of Mainstreet Center and the construction of the proposed project would result in a net increase in electrical consumption of approximately 10,656,292 Kwh per month. The proposed project would be served by existing facilities located in the area and the electric loads of the project are within parameters of projected load growth which Edison is planning to meet in this area (refer to Appendix IV).***

* B. K. Smith, Southern California Edison Company.
** Based on 3.5 Kwh a month per square foot.
*** B. K. Smith, Southern California Edison Company.

TABLE 44

PROJECT ELECTRICAL CONSUMPTION

Land Use	Square Feet	Consumption Rate*	Consumption
Office	1,500,000	3.0 Kwh/Month/Sq.Ft.	4,500,000 Kwh/Month
Retail	1,600,000	4.0 Kwh/Month/Sq.Ft.	4,400,000 Kwh/Month
Hotel	979,200 (1,200 Rooms)	2.2 Kwh/Month/Sq.Ft.	2,154,240 Kwh/Month
TOTAL	4,079,200		13,054,240 Kwh/Month

Cumulative Impacts

As indicated in Table 45, cumulative projects in the vicinity of the proposed project would consume approximately 13,876,907 Kwh per month of electricity. The net increase in consumption, considering cumulative projects and the proposed Fashion Square Commercial Center project would be 24,533,199 Kwh per month.

5.13.2.3 Mitigation Measures

Energy conservation measures are discussed in Section 5.14 of this report. No additional mitigation measures are proposed here.

5.13.2.4 Significant Environmental Effects

No substantial adverse impacts are anticipated.

* City of Los Angeles, EIR Manual for Private Projects, 1975, Updated 1976.

TABLE 45

CUMULATIVE ELECTRICAL CONSUMPTION

Project Name	Land Use	Area	Consumption Factor*	Consumption KWH/Month
Hurwitz	Office	2,300,000 Sq. Ft.	3.0 KWH/ Month/Sq.Ft.	6,900,000
	Hotel	450 Rooms (367,200 Sq. Ft.)	2.2 KWH/ Month/Sq.Ft.	807,840
	Retail	500,000 Sq. Ft.	4.0 KWH/ Month/Sq.Ft.	2,000,000
Homes & Narver Expansion	Office	98,239 Sq. Ft.	3.0 KWH/ Month/Sq.Ft.	294,717
Continental Center	Office	754,850 Sq. Ft.	3.0 KWH/ Month/Sq.Ft.	2,264,550
Tooley	Office	400,000 Sq. Ft.	3.0 KWH/ Month/Sq.Ft.	1,200,000
Medical Offices	Office	86,600 Sq. Ft.	3.0 KWH/ Month/Sq.Ft.	259,800
Town & Country Condominiums	Residential	500 D.U.	300 KWH/ Month/D.U.	150,000
SUBTOTAL				13,876,907
Proposed Project: Fashion Square Commercial Center				13,054,240
Less existing uses				2,397,948
TOTAL				24,533,199

* City of Los Angeles, EIR Manual for Private Projects, 1975. Updated 1976.

5.13.3 Telephone

5.13.3.1 Environmental Setting

The Pacific Telephone Company currently provides telephone service to the project site. The project would be served from existing facilities in the project area.*

5.13.3.2 Impacts

Project Impacts

Although the project would be served from existing facilities, reinforcement of the existing telephone network would be necessary. The degree of reinforcement would vary from new cables being pulled through existing conduit systems to the installation of new conduit and cable systems. In any case, the existing facilities are inadequate to serve the proposed project** (Refer to Appendix IV).

Cumulative Impact

The proposed project in conjunction with other projects in the area would require additional telephone facilities, possibly new conduit and cable systems.

5.13.3.3 Mitigation Measures

No mitigation measures are proposed.

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* Marshall Andrews, Pacific Telephone.
** Ibid.

5.13.3.4 Significant Environmental Effects

No substantial adverse impacts are anticipated.

5.13.4 Water

5.13.4.1 Environmental Setting

The City of Santa Ana currently provides water service to the project site. Fashion Square is served by a 12 inch water main located at the southern boundary of Fashion Square center and the Mainstreet Center is served by an 8 inch water main located along its southern boundary. The City also has a 16 inch water main in Owens Drive at Main Street that is proposed to extend west to the proposed Broadway Street overcrossing. This 16 inch main could then be extended north to the proposed project to support the existing water distribution facilities.*

5.13.4.2 Impacts

Project Impacts

The existing uses on the site consume approximately 68,513 gallons of water per day, assuming a consumption rate of 100 gallons/ 1000 square feet/day. The proposed project is estimated to consume approximately 490,000 gallons of water per day (See Table 46).

The removal of Mainstreet Center and the construction of the proposed project would result in a net increase in water consumption of approximately 421,487 gallons per day.

* Walter Schraub, City of Santa Ana Public Works Department, telephone conversation May 8, 1981.

The project can be served by the existing water mains in the area. Some improvement to the system might be required, at the time that precise development plans are submitted, in accordance with the standard City building permit approved process. (Refer to Appendix IV).

The project would be required to meet all State mandated water conservation measures, including use of low-flush toilets, turn-off adapters and faucet flow control devices to reduce water consumption.

Cumulative Impacts

As indicated in Table 47, cumulative projects in the vicinity of the proposed project would consume approximately 624,969 gallons of water per day. The net increase in consumption, considering cumulative projects and the proposed Fashion Square project would be approximately 1,046,456 gallons of water per day.

TABLE 46

PROJECT WATER CONSUMPTION

Land Use	Square Feet	Consumption Rate*	Consumption
Office	1,500,000	100 Gal/1000Sq.Ft./Day	150,000 Gal/Day
Retail Retail	1,600,000	100 Gal/1000Sq.Ft./Day	160,000 Gal/Day
Hotel	979,200 (1,200 Rooms)	150 Gal/Room	180,000 Gal/Day
TOTAL	4,079,200		490,000 Gal/Day

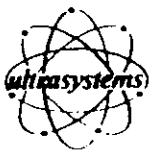
* City of Los Angeles, EIR Manual for Private Projects, 1975, updated 1976.

TABLE 47

CUMULATIVE WATER CONSUMPTION

Project Name	Land Use	Area	Consumption Factor*	Consumption Gallons/Day
Hurwitz Site	Office	2,300,000 Sq.Ft.	100 Gal/1000/ Sq.Ft./Day	230,000
	Hotel	450 Rooms (367,200 Sq.Ft.)	150 Gal/Room/ Day	67,500
	Retail	500,000 Sq.Ft.	100 Gal/Day/ 1000 Sq. Ft.	50,000
Homes & Narver Expansion	Office	98,239 Sq.Ft.	100 Gal/Day/ 1000 Sq. Ft.	9,824
Continental Center	Office	754,850 Sq.Ft.	100 Gal/1000/ Sq.Ft./Day	75,485
Tooley	Office	400,000 Sq.Ft.	100 Gal/1000/ Sq.Ft./Day	40,000
Medical Offices	Medical Office	86,600 Sq.Ft.	100 Gal/1000/ Sq.Ft./Day	8,660
Town & Country Condominiums	Residential	500 D.U. (2.2 persons/ D.U.	125 Gal/Day/ Person	137,500
SUBTOTAL				624,969
Proposed Project: Fashion Square Commercial Center				490,000
Less existing uses				68,513
TOTAL				1,046,456

* City of Los Angeles, EIR Manual for Private Projects, 1975, updated 1976.



5.13.4.3 Mitigation Measures

No mitigation measures are proposed.

5.13.4.4 Significant Environmental Effects

No substantial adverse impacts are anticipated.

5.13.5 Sewer

5.13.5.1 Environmental Setting

Sewage generated on the project site is presently collected by an on-site 8-inch sewage line that extends south through the middle of the site from Fashion Square Shopping Center to Roe Drive. This 8-inch line collects sewage from both Fashion Square and Mainstreet Center. The 8-inch sewage line extends west along Roe Drive to Arnett Drive where the line then extends in a northern direction for approximately 100 feet. At this point, the sewage line crosses underneath the Santa Ana Freeway to Jonquil Road. On-site sewage is treated at the regional sewage treatment located in Fountain Valley.

There is also a 12-inch sewer main in Roe Drive that could serve the proposed project. This line extends west from Main Street along Roe Drive, south to the north side of Santiago Creek where the main then crosses underneath the Santa Ana Freeway and extends in a westerly direction. Although this 12-inch main does not currently serve the site, it could provide sewer service to the proposed project.

5.13.5.2 Impacts

Project Impact

The existing uses on the site generate approximately 68,513 gallons of sewage per day, assuming a generation rate of 100 gallons a day per 1,000 square feet. As indicated in Table 48, the proposed project is estimated to generate 490,000 gallons of sewage per day.

The removal of Mainstreet Center and the construction of the proposed project would result in a net increase in sewage generation of

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* John Burk, City of Santa Ana, Public Works Department.
** Ibid.

TABLE 48

PROJECT SEWAGE GENERATION

Land Use	Square Feet	Generation Rate*	Generation
Office	1,500,000	100 Gal/1000 Sq.Ft./Day	150,000 Gal/Day
Commercial/ Retail	1,600,000	100 Gal/1000 Sq.Ft./Day	160,000 Gal/Day
Hotel	979,200 (1200 Rooms)	150 Gal/Room	180,000 Gal/Day
TOTAL	4,079,200		440,000 Gal/Day

approximately 421,487 gallons per day. Since the existing sewer lines do not have the capacity to serve the proposed project, additional sewer facilities would be required. The size and location of new sewer facilities would be determined when final site plans become available (Refer to Appendix IV)** and such new facilities will be installed as a condition to the approval of building permits in accordance with standard City procedures. The State-mandated water conservation measures referenced in Section 5.13.4 will likewise serve to reduce wastewater.

Cumulative Impact

As indicated in Table 49, cumulative projects in the vicinity of the proposed project would generate approximately 624,969 gallons of sewage per day. The net increase in generation, considering cumulative projects and the proposed Fashion Square project would be approximately 1,046,456 gallons of sewage per day. The cumulative projects would also probably require improvements to the local sewage collection system.

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* City of Los Angeles, EIR Manual for Private Projects, 1975, updated 1976.

** John Burk, City of Santa Ana, Public Works Department.

TABLE 49

CUMULATIVE SEWAGE GENERATION

Project Name	Not Available Land Use	Area	Generation Factor	Generation Gallons/Day
Hurwitz Site	Office	2,300,000 Sq. Ft.	100 Gal/1000/ Sq. Ft./Day	230,000
	Hotel	367,200 Sq. Ft. (450 Rooms)	150 Gal/Room	67,500
	Retail	500,000 Sq. Ft.	100 Gal/1000/ Sq. Ft./Day	50,000
Homes & Narver Expansion	Office	98,239 Sq. Ft.	100 Gal/1000/ Sq. Ft./Day	9,824
Continental Center	Office	754,850 Sq. Ft.	100 Gal/1000/ Sq. Ft./Day	75,485
Tooley	Office	400,000 Sq. Ft.	100 Gal/1000/ Sq. Ft./Day	40,000
Medical Offices	Medical Office	86,600 Sq. Ft.	100 Gal/1000/ Sq. Ft./Day	8,660
Town & Country Condominiums	Residential	500 D.U. (2.2 persons/D.U.)	125 Gal/Day/ Person	137,500
SUBTOTAL				624,969
Proposed Project: Fashion Square Commercial Center				490,000
Less existing uses				68,513
TOTAL				1,046,456

* City of Los Angeles, EIR Manual for Private Projects, 1975. Updated 1976.

5.13.5.3 Mitigation Measures

No mitigation measures are proposed.

5.13.5.4 Significant Environmental Effects

No substantial adverse impacts are anticipated.

5.13.6 Solid Waste

5.13.6.1 Environmental Setting

Solid waste on the site is presently serviced by a private collecting company and deposited at an Orange County sanitary landfill (Coyote Canyon). The County currently has four landfills with two new sites scheduled to open in the near future. Both the existing and new sites are Class II-2 landfills. The County has adequate landfill capacity to last beyond the year 2000.*

5.13.6.2 Impacts

Project Impact

The existing uses on the site generate approximately seven tons of solid waste per day . Mainstreet Center generates approximately two tons and Fashion Square approximately five tons. As indicated in Table 50, the proposed project would generate approximately 33.44 tons of solid waste per day .

The removal of Mainstreet Center and the construction of the proposed project would result in a net increase in solid waste generation of 26 tons per day. Since the County anticipates having adequate landfill capacity to last beyond the year 2000, no significant adverse impacts are anticipated (refer to Appendix IV). However, the project would have an incremental impact on the reduction of the life capacity of the Coyote Canyon landfill site.

Cumulative Impacts

As indicated in Table 51, cumulative projects in the vicinity of the proposed project would generate approximately 46 tons of solid waste per day. The net increase in generation, considering the Fashion

Square project would be approximately 72 tons of solid waste per day. The cumulative projects would incrementally impact the life expectancy of the Coyote Canyon landfill site.

TABLE 50

PROJECT SOLID WASTE GENERATION

Land Use	Square Feet	Generation Rate*	Generation
Office	1,500,000	2 Lbs/Day/100 Sq. Ft.	15 Tons/Day
Commercial/ Retail	1,600,000	2 Lbs/Day/100 Sq. Ft.	16 Tons/Day
Hotel	979,200 (1200 Rooms)	.5 Lbs/Day/100 Sq. Ft.	2.44 Tons/Day
TOTAL	4,079,200		33.44 Tons/Day

5.13.6.3 Mitigation Measures

No mitigation measures are proposed

5.13.6.4 Significant Environmental Effects

No substantial adverse impacts are anticipated.

* County of Orange, General Services Agency, Solid Waste Management Division.

TABLE 51

CUMULATIVE SOLID WASTE GENERATION

Project Name	Land Use	Area	Generation Factor*	Generation Tons/Day
Hurwitz Site	Office	2,300,000 Sq. Ft.	2 Lbs/Day/ 100 Sq. Ft.	23.0
	Hotel	367,200 Sq. Ft. (450 Rooms)	.5 Lbs/Day/ 100 Sq. Ft.	1.0
	Retail	500,000 Sq. Ft.	2 Lbs/Day/ 100 Sq. Ft.	5.0
Homes & Narver Expansion	Office	98,239 Sq. Ft.	2 Lbs/Day/ 100 Sq. Ft.	1.0
Continental Center	Office	754,850 Sq. Ft.	2 Lbs/Day/ 100 Sq. Ft.	7.55
Tooley	Medical Office	400,000 Sq. Ft.	2 Lbs/Day/ 100 Sq. Ft.	4.0
Medical Offices	Medical Office	86,600 Sq. Ft.	2 Lbs/Day/ 100 Sq. Ft.	.86
Town & Country Condominiums	Residential	500 D.U. (2.2 persons/ D.U.)	2.2 Lbs/Day/ Person	1.21
SUBTOTAL				45.61
Proposed Project: Fashion Square Commercial Center				33.4
Less existing uses				7.0
TOTAL				72.01

* City of Los Angeles, EIR Manual for Private Projects, 1975, updated 1976.

5.13.7 Police

5.13.7.1 Environmental Setting

Police protection is provided to the project site by the Santa Ana Police Department. The site is located in reporting district #161 which is served by twenty officers on a 24-hour seven day a week basis. There is currently no single major police problem associated with this reporting district.*

5.13.7.2 Impacts

Project Impact

The types of crimes that can reasonably be expected to increase due to the project would be larceny, crimes against persons, auto thefts, auto burglaries and commercial burglaries. These anticipated increases in crimes would increase the demand for police officers and equipment to properly patrol the area and respond to the needs of the citizens and business owners.**

On the other hand, the project will generate increased tax revenues available to provide additional police services and equipment. The extent to which such revenues are in fact used for such purposes lies in the future discretion of the City government.

Cumulative Impact

The proposed project in conjunction with other projects in the project vicinity that are located in the City of Santa Ana would result in an increase in the crime rate and the demand on police services. The overall effects of the project on police services are difficult to evaluate at this time, and are dependent upon the final development plans.***

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* Captain Robert H. Stebbins, City of Santa Ana Police Department.
** Ibid.
*** Ibid.

5.13.7.3 Mitigation Measures

The Participants should provide a private security force to respond to business and customer needs. The presence of a security force would also have a deterrent effect on crime.

5.13.7.4 Significant Environmental Effects

The project would result in an increased demand on police services.

5.13.8 Fire

5.13.8.1 Environmental Setting

The project site is provided fire protection by the City of Santa Ana. Table 52 lists the fire stations that presently serve the project.

TABLE 52
FIRE STATIONS SERVING THE SITE

STATION	LOCATION	RESPONSE TIME
#1	1029 W. 17th Street*	Approx. 3.4 min.
#10	2301 Old Grand	Approx. 4.0 min.
#5	120 W. Walnut*	Approx. 4.0 min.
#2	1688 E. 4th Street	Approx. 5.0 min.

* Paramedic service.

The City of Santa Ana and the City of Orange currently have a reciprocal automatic aid agreement whereby each city would respond to a fire in the other city, if called to respond.*

In addition to required on-site fire protection facilities, Fashion Square Shopping Center has a privately owned 200,000 gallon underground water reservoir with auxiliary pumps that provides a back-up supply of water for fire protection of Fashion Square.

5.13.8.2 Project Impact

The proposed project will result in increased demand on City fire suppression services. Due to the increased intensity of development on the subject site, more fire department men and equipment will be required to respond to any reported structure fire on the site, on a first alarm response, than are now required for such responses. Specifically, it is estimated that, upon maximum development, one Engine Company, one Truck Company and one Battalion Chief would have to be added to the current standard first response assignment.

It is possible that this increased first response assignment would require the City to provide an additional Engine Company in the area now serviced by Fire Station #1 in order to maintain an adequate level of fire emergency services. However, in the absence of actual experience with the area upon completion of the proposed project, such a need is quite speculative.

The proposed project, particularly the proposed hotel, will also increase demand for paramedic services. Again, it will require actual experience with the project upon completion to determine whether the City will be able to maintain an adequate level of paramedic service with its present City-wide complement of four Paramedic Units. On the other hand, the project upon completion will generate significant tax revenues available to the City to provide for expanded fire and paramedic services if the City Council determines such use of these revenues to be appropriate.

Cumulative Impact

The proposed project in conjunction with related projects will result in substantially increased demand for fire and paramedic services. In particular, the construction of a significant number of high-rise buildings will require the City to provide an additional Ladder Company in order to maintain the current level of Ladder Company Service. Increased tax revenues will presumably be available from these projects to pay for expanded services.

5.13.8.3 Mitigation Measures

The project developers shall maintain the current underground water reservoir with auxiliary pumps (or provide its equivalent at an alternative location) and expand such system upon development of the site as necessary for compliance with Fire Code requirements.

5.13.8.4 Significant Environmental Effects

The project will result in increased demand for fire and paramedic services.

5.14 Energy Conservation

5.14.1 Environmental Setting

The existing Fashion Square Shopping Center is comprised of 521,725 square feet of retail building space. Adjacent to Fashion Square is the Mainstreet Center which is comprised of 163,403 square feet of retail use.

Energy consumption by the existing land uses is pursuant to natural gas and electricity consumed by the existing Fashion Square Center and Mainstreet Center. As detailed in Section 5.13.1 of this report, the estimated natural gas consumption for the existing uses on the site is 13,702,560 cubic feet per month. Concurrently, and detailed in Section 5.13.2 of this report, the estimated electrical consumption for the existing uses on the site is 2,397,948 kilowatt hours per month.

5.14.2 Impacts

Existing Non-Residential Building Standards

The proposed structures will have to be designed for optimum energy efficiency in accordance with Energy Conservation Standards for non-residential buildings adopted by the State of California Energy Commission as amended July 26, 1978. The new regulations prescribe energy conservation standards for all new non-residential buildings in California and represent the state-of-the-art for most energy conservation measures related to building design and equipment selection. Specifically, the regulations specify energy-saving designs for roof, wall and floor installations, and also contain lighting, heating and air conditioning, and hot water supply specification standards. The regulations encourage the use of solar power and other

non-depleting energy sources. They offer builders the option of utilizing building designs that consume less energy than specified in the regulations. The regulations provide for their enforcement by local building departments through the building permit process.

Energy Consumption

The proposed expansion of Fashion Square can be expected to result in an increase in energy consumption.

The estimated net increase in energy consumption figures associated with the project are 8,656,292 kilowatt hours per month of electricity and a natural gas consumption of 62,507,440 cubic feet per month.

5.14.3 Mitigation Measures

The orientation of building glazing areas, overhangs, and site landscaping should be selected in order for solar radiation to reach indoor areas during the winter months to reduce heating loads. The same principal should be incorporated for the summer months so that building glazing, overhangs and landscaping will reduce the amount of solar radiation reaching the interior of the buildings which will reduce air conditioning loads.

5.14.4 Significant Environmental Effects

No substantial energy conservation impacts are expected to occur as a result of activities associated with project implementation.

6.0 ALTERNATIVES TO THE PROPOSED ACTION

6.1 No Project

The "no project" alternative would leave the project site in its existing condition which is characterized by declining commercial uses. This alternative would reserve the project area for future redevelopment options. Any adverse environmental impacts that may be associated with demolition, rehabilitation and development of the proposed project would be avoided by the "no project" alternative. Existing businesses would not be required to relocate or participate in the redevelopment process. However, the "no project" alternative would result in the social and economic consequences of continued deteriorating conditions with the Redevelopment Area.

Although the alternative of "no project" would serve to eliminate any adverse impacts of the project (i.e., traffic, noise, air quality), the integration and interdependence of the redevelopment objective of the Redevelopment Plan is such that this alternative would eliminate these intended beneficial effects. Allowing the existing development on the site to remain and continue to deteriorate could have serious aesthetic, social, and economic consequences for the land owners, tenants, patrons and the City. According to the Redevelopment Plan, the proposed project is in the best interest of the health, safety and general welfare of the people of the City of Santa Ana.

6.2 Alternative Location

Some of the uses proposed by the project could be located at an alternative project location. Obviously, rehabilitation of the Fashion Square Center would be site specific, but the proposed office, retail and hotel rooms could be located elsewhere in the City.

There are other sites in the City of Santa Ana, including locations within the City's redevelopment area, available for the type of development for the project site.

If the project was located in the southern portion of the City, then some of the impacts associated with the project (aesthetics, shade/shadow) may be even less significant since these impacts may currently exist with high-rise buildings in this area. On the other hand, the project could result in increased impacts to several of the disciplines that are presently impacted (traffic, noise, air quality). Any incremental increase to some of these disciplines may result in significant adverse impacts.

If the project were developed in an area of the City where high-rise buildings, office and retail uses are non-existent, then the project could result in greater impacts than the proposed site. If an alternative site was in a predominantly residential area, then impacts such as traffic, noise, land use compatibility, shade/shadow, etc., may be greater than the proposed site location. In addition, an alternative site may result in impacts that are not associated with the proposed location: hydrology; soils and geology; public services and utilities, etc.

The project site is designated for redevelopment by the Community Redevelopment Agency, and redevelopment will occur eventually as conditions continue to deteriorate and economic pressures increase. Redevelopment of Fashion Square Shopping Center and revitalization of the North Main shopping area, consistent with the Redevelopment Plan, necessitates implementation of the project on the proposed site.

6.3 Smaller Scale Development on the Same Location

6.3.1 In General

This section will evaluate the alternative of a project consisting of a smaller scale development on the same site as the project. Only those significant environmental impacts which were determined to exist for the maximum project will be examined in the discussing of this alternative, it being presumed (with one exception) that a smaller scale project could not result in the appearance of substantially adverse environmental effects beyond those identified for the maximum project.

(The one exception concerns the achievement of Redevelopment Plan goals. The imposition of a lesser maximum development may make the project unacceptable to the project participants, thus making this alternative equivalent to the "No Project" alternative. A large reduction in scale, even if accepted by the project participants, may result in redevelopment too minor to achieve the economic revitalization of the Fashion Square Main Street Shopping Center commercial area. The continued decline of that area would itself be a substantial adverse environmental effect.)

With respect to those significant effects identified for the maximum project, traffic impacts are by far the most serious and will be treated in considerable detail in the following subsection. The other identified significant effects can be discussed in more summary fashion as follows:

(1) Land Use - If the project site were reduced to avoid the acquisition of the Fidelity Savings building parking area, the potential parking problem involving that building would be eliminated. However, the project would lose the benefit of direct access from the Broadway overpass.

(2) Noise - To the extent that a reduction in scale of the project reduces project-induced traffic on Main Street (reference Section 6.3.2), the noise impact on Owens Drive residents will likewise be reduced.

(3) Shade/Shadow and Solar Glare - The potential adverse impacts of shadowing and glare are consequences of building height and materials rather than the overall size of the development. A low limit on building height could eliminate such effects, but would appear to be an unnecessarily drastic alternative to the mitigation measure recommended for the project.

(4) Housing and Airport Use - A reduction in the scale of the project would likewise reduce the demand for housing in the area by project employees and the demand for use of the John Wayne Airport.

(5) Demand for Police, Fire, and Paramedic Services - A reduction in the scale of the project would reduce the demand for use of police, fire, and paramedic services. It would also reduce city tax revenues from the site which would otherwise be available for possible augmentation of those services.

6.3.2 Traffic and Circulation

In order to determine the sensitivity of the transportation system recommended in the Phase Two TSIP to changes in the size of the Fashion Square project, a 33 percent across-the-board reduction in the project was tested. Two tests were conducted. The most meaningful was a comparison of the traffic reduction occurring on Main Street as a result of a 33 percent reduction in Fashion Square. To answer this question, peak period trips were reduced by one third and a computerized selected link analysis was used to determine the effect on the directional design hourly volumes (DDHV) for Main Street. The Phase Two TSIP

Study shows the DDHV for Main Street, given full development of the Fashion Square/Town and Country Area, is 2,950 vph southbound and 2,450 vph northbound. These DDHV/s translate into a 4 lane requirement for southbound and a 3 lane requirement for northbound traffic. This suggests the question, "Would a 33 percent reduction in Fashion Square reduce these lane requirements?" The analysis summarized in Table 53 shows it would not, although the level of service to be provided would be improved.

TABLE 53

COMPARISON OF DDHV FOR MAIN STREET
OF 33 PERCENT REDUCTION IN FASHION SQUARE

Condition	DHV		Lane Requirements*	
	North Bound	South Bound	North Bound	South Bound
Full development of Main Street area	2,950	2,450	4	3
33% reduction of Fashion Square	2,725	2,364	4	3
Percent reduction	7.6%	3.6%	-	-

* Based on capacity of 750-800 vplph.

This "What if" analysis indicates that the volume of traffic on Main Street is relatively insensitive to the changes in the size of Fashion Square. A 33 percent reduction in the size of Fashion Square only equates to a 7.6 percent reduction in the critical DDHV of Main Street. Intuitively, one may question this conclusion. Upon closer examination of the travel patterns to and from Fashion Square, the effectiveness of the Phase Two TSIP concept of providing alternative access to Fashion Square is evident. Previous analysis of Fashion Square's trip distribution and assignment indicates 69.6 percent of the trips desire access to/from freeways. An even higher portion (72.3 percent) of the outbound PM peak flow uses the freeways. Freeway access to/from Fashion Square is designed to minimize direct use of Main Street. The only freeway access serving Fashion Square traffic which

loads traffic directly onto Main Street is the new northbound I-5 on-ramp. All other ramps have alternative circulation available which provides quicker (time wise) access to the freeways than Main Street. The net result is a relative insensitivity of Main Street to peak period trip reductions by Fashion Square. Trips generated by Fashion Square will effect Main Street as much from crossing movements at several intersections as adding to the north-south travel. Previous analysis established that 24.2 percent of Fashion Square trips cross Main Street whereas another 28.9 percent use Main Street for access. These factors are largely responsible for Main Street's reduced sensitivity to trip generation by Fashion Square.

The same sensitivity relationship between trips generated by Fashion Square and Main Street does not apply to the surrounding freeways. Fashion Square trips will use the freeways in a much higher proportion than they use Main Street. As a result, while a reduction of 10 trips from Fashion Square only reduced traffic on Main Street by 2.89 trips, it will have a correspondingly greater impact on the freeways by reducing peak period trips by 6.9 trips. A reduction of Fashion Square by 33 percent will reduce PM peak hour freeway usage by 1,237 trips on the Rte 22 and I-5 freeways.

(b) Effect of Selectively Reduced Land Uses

The previous analysis has shown the sensitivity of the transportation system to uniform reductions in land use in Fashion Square. This analysis will examine the impact of selectivity in reductions of one land use compared to another. Three primary types of land use are planned in Fashion Square - retail, office and hotel. These three land uses have the following trip generation characteristics.

TABLE 54

TYPICAL TRIP GENERATION RATES FOR
FASHION SQUARE LAND USE
(PER 1,000 SF)

		Orange County Trip Rates (PM pk hr)			
Land Use	Daily	In	Out	Total	Dir. Distr.
Retail	26.5	0.60	0.80	1.40	57/43
Office	11.7	0.23	1.16	1.39	83/17
Hotel	10.5	0.36	0.37	0.73	50/50

Table 54 shows that reductions in the retail use are the most efficient in minimizing total trips. Retail traffic is approximately 2 to 2.5 times that of either office or hotel uses. However, reductions in the total daily trip generation are not necessarily a goal in itself. Transportation systems are designed for peak demand (usually one hour) not total daily travel. Therefore, reductions in land uses which produce off-peak travel are actually counter productive. In fact, a significant transportation system management (TSM) strategy is to encourage a shift in travel to off-peak periods rather than necessarily suppressing trips altogether. For example, analysis of the average daily vehicle miles of travel (VMT) produced by 1,000 SF of retail is 106 veh-miles compared to 117 veh-miles for equivalent sized offices. These two influences suggest it is essential to examine the peak period trip characteristics of land use even more so than total daily trip generations.

Table 54 indicates that the peak period trip generation characteristics of office and retail are nearly equivalent in total trips produced but differ in directional distribution and a major difference between retail and office uses is trip length. The average work trip is 10 miles compared to a 3-5 mile length for a typical shopping trip (to a regional center such as proposed for Fashion Square). Therefore, while it appears on the surface that reductions in either retail or office uses will produce the same magnitude of peak

hour trip reductions the longer average length and high directionality of the office trip are important considerations. Retail is a more efficient use of available transportation capacity in both directions and produces short trips compared to office use. Therefore, even though retail and office generate about the same number of trips in the peak periods, reductions in office usage will be more effective in mitigating peak hour congestion.

(c) Conclusion

The conclusion of the alternatives which examined the traffic mitigation effects of reducing the size of Fashion Square while retaining the number of proposed and approved development in the area shows that:

1. The traffic volume on Main Street is relatively insensitive to reductions in Fashion Square since only 28.9 percent of these trips are expected to use Main Street. A 33 percent across the board reduction in Fashion Square produces a 7.6 percent reduction in the critical design hourly volume on Main Street. Despite a reduction in the DDHV, the same number of lanes would be required on Main Street.

2. Trip reductions achieved by Fashion Square produce correspondingly higher reductions in usage of the freeways than Main Street. A 33 percent reduction in Fashion Square trip generation produces a net reduction of 1,237 freeway trips in the PM peak hour.

3. Selective reductions in office and retail space is about twice as efficient as hotels in reducing travel for the critical PM peak period.

4. Retail uses produce substantially higher total daily trips than office space, but those trips are more evenly distributed throughout the day. Peak hour trip generation and total VMT of both land uses are similar except for the highly directional nature of office travel, but reductions in office usage would be more effective than reductions in retail usage in mitigating peak hour congestion.

7.0 THE RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

The project site is currently developed with retail uses (Fashion Square Shopping Center and Mainstreet Center), surface parking lots, and vacant land. The proposed rehabilitation and redevelopment will commit the land to long-term use as a commercial/retail complex. The project area has faced deteriorating commercial services as a result of the decline of the downtown area. The lack of goods and services comparable to surrounding areas have forced residents to seek more competitive shopping than found in their own neighborhood. Over the long-term, the project will preserve those commercial services which are competitive and will provide new commercial opportunities for the residents in the area as the market allows. Fashion Square will be developed into an enclosed regional shopping center with supportive and complimentary commercial uses integrated into the development. Over the long-term, the project will preserve and substantially strengthen commercial/retail development, and concurrently the economic growth of the area. The project is in conformance with the long-range objectives of the City's Redevelopment Plan.

The proposed project will involve short-term activities such as building demolition, site preparation, and building construction. Along with other existing and planned developments in the area, the project will contribute to a decrease in air quality, increased energy consumption, increased automobile traffic and noise, and the depletion of natural resources.

8.0 ANY SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES WHICH WOULD BE INVOLVED IN THE PROPOSED ACTION SHOULD IT BE IMPLEMENTED

The proposed project will result in an intensification of land uses within an urban area. Irreversible environmental changes which could be expected from implementation of the proposed project include demolition of existing structures, and the consumption of energy utilized in demolition and construction activities.

There will be a permanent commitment to provide additional energy sources, particularly natural gas and electricity to the site. The fossil fuels consumed during demolition, construction, and those which will be consumed during the project's life are irreplaceable. There will be a permanent loss of natural resources for building material used to construct and finish the structures.

The project will result in increased vehicular traffic and congestion. There will be an incremental increase in air pollution as a result of the emissions from vehicles, power generated equipment, and grading activities. The increased traffic and urban activity will also result in increased noise levels in the local area. There will also be a permanent commitment to provide community services such as water, solid waste, sewage, police and fire services. The visual character of the site will be altered by the increased intensity of development, especially if high-rise buildings are developed on the site. If high-rise buildings are constructed, then shade/shadow impacts to adjacent developments, including residential areas, could result. Depending upon the type of exterior surfaces used on the structures, solar reflection could also cause an environmental change in the area.

9.0 THE GROWTH-INDUCING IMPACT OF THE PROPOSED ACTION

The proposed project is not anticipated to have a direct growth-inducing impact. Although the project is anticipated to generate approximately 10,000 new employment positions, there is adequate labor supply in the City of Santa Ana to meet the labor demand of the project. Future employees could also commute from surrounding cities, such as Orange, Westminster, Buena Park, Anaheim and Garden Grove, and therefore the project would not result in growth-inducing impacts since there is an adequate labor force in the project area.

The proposed revitalization and new construction will result in increased retail/commercial activity within the North Main Street shopping area. The project is intended to promote economic growth within the redevelopment area consistent with the Redevelopment Plan by restoring the economic, social and physical health of the area. The project will stimulate and attract private investment, while improving the City's economic health, employment opportunities and the tax base. The economic growth generated by the project is considered significant, however, the revitalization and redevelopment will have a positive economic impact upon the community.

The project may contribute to development of other property in the area, particularly within the Redevelopment Area, for ancillary commercial-related services and competitive land uses.

The project will have a growth-inducing effect upon utilities and public services because of increased demand. The project will also result in increased motor vehicle traffic.

10.0 ORGANIZATIONS AND PERSONS CONTACTED

Mr. Walter D. Schraub	City of Santa Ana Public Works Department
Mr. B.K. Smith	Southern California Edison Company
Mr. J.D. Allen	Southern California Gas Company
Mr. D.G. Poer	County of Orange Solid Waste Management Division
Mr. Marshall B. Andrews	Pacific Telephone
Captain Robert H. Stebbins	City of Santa Ana Police Department
Mr. John Burk	City of Santa Ana Public Works Department
Chief Montgomery	City of Santa Ana Fire Department
Mr. Dave Ream	City of Santa Ana Community Redevelopment Agency
Mr. Tom Hammill	City of Santa Ana Community Redevelopment Agency
Mr. Stan Soo Hoo	City of Orange

APPENDIX I

PLANT AND ANIMAL SPECIES LIST

APPENDIX I

PLANTS OBSERVED ON PROJECT SITE

COMMON NAME	SCIENTIFIC NAME
TREES	
Ash	Fraxinus spp.
Atlas Cedar	Cedrus atlantica
Banana	Musa spp.
Canary Island Pine	Pinus canariensis
Cape Chestnut Tree	Calodendrum capense
Common Olive	Olea europaea
Flaxleaf Paperbark	Melaleuca linearifolia
Indian Laurel Fig	Ficus microcarpa nitida
Jacaranda	Jacaranda mimosifolia
Jack Pine	Pinus banksiana
Japanese Maple	Acer palmatum
Kaffirboom Coral Tree	Erythrina caffra
Lemon Bottlebrush	Callistemon citrinus
Lemon Scented Gum	Eucalyptus citriodra
London Plane Tree	Plantanus acerifolia
Nikau Palm	Rhopalostylis sapida
Palm	Brahea armata
Podocarpus	Podocarpus gracilor
Red Flowering Gum	Eucalyptus ficifolia
Sago Palm	Cycas revoluta
Silk Tree	Albizia julibrissin

APPENDIX I

WILDLIFE OBSERVED OR EXPECTED ON PROJECT SITE

COMMON NAME	SCIENTIFIC NAME
BIRDS	
American Robin	*Turdus migratorius*
Breweris Blackbird	*Euphagus cyanocephalus*
Common Crow	*Coryus corax*
House Finch	*Carpodacus mexicanus*
House Sparrow	*Passer domesticus*
Inca Dove	*Scardafella inca*
Mockingbird	*Mimus polyglottos*
Rock Dove	*Columbria livia*
Spotted Dove	*Streptopelia chinensis*
Starling	*Sturnus vulgaris*
MAMMALS	
Black Rat	*Rattus rattus*
Brush Rabbit	*Sylvilagus bachmani*
California Ground Squirrel	*Citellus beecheyi*
House Mouse	*Mus musculus*
Norway Rat	*Rattus norvegicus*
Valley Pocket Gopher	*Thomomys bottae*
REPTILES	
Side-Blotched Lizard	*Uta stansburiana*
Western Fence Lizard	*Sceloporus occidentlis*

APPENDIX I

SHRUBS OBSERVED ON PROJECT SITE

COMMON NAME	SCIENTIFIC NAME
Aloe	Aloe arborescens
American Holly	Ilex opaca
Bird-of-Paradise	Strelitzia reginae
Bougainvillea	Bougainvillea spp.
Chinese Photina	Photina serrulata
Cordyline	Cordyline austidis
Crape Myrtle	Lagerstroemia indica
Dudleya	Dadleya brittonii
Fiddle Leaf Fig	Ficus lyrata
Grape	Vitus spp.
Jade Plant	Crassula argentea
Juniper	Juniperus horizontalis
Mock Orange	Pittosporum tobira
Oleander	Nerium oleander
Periwinkle	Vinca major
Rose Mallow	Hisbiscus militaris
Shrimp Plant	Justica brandegeana
	Daphniphyllum macropodium
	Dalbergia sissoo

GRASSES	
Bermuda Grass	Cynodon dactylon
Crabgrass	Digitaria sanquinalis
Heanley Bamboo	Nandina domestica
Ryegrass	Lolium spp.
Wild Oat	Avena fatua

WEEDS	
Dandelion	Taraxacuma officinale
Field Mustard	Brassica rapa
Pigweed	Amaranthus album
Storksbill	Erodium cicutarium

APPENDIX II

TRAFFIC DATA

Intersection Lane Use Inventory and Peak Hour Volume

APPENDIX II-A

Main/Chapman

	Vol.	Lanes
NB LT	127	1
NB THU	766	2
NB RT	120	
SB LT	77	1
SB THU	640	2
SB RT	110	1
EB LT	92	1
EB THU	393	2
EB RT	187	
WB LT	134	
WB THU	581	
WB RT	61	

Main/Almond

	Vol.	Lanes
NB LT	52	1
NB THU	1013	2
NB RT	65	
EB LT	77	1
EB THU	647	2
EB RT	76	
WB LT	98	1
WB THU	43	1
WB RT	63	
SB LT	54	1
SB THU	47	1
SB RT	48	

Main/Culver & Stewart

	Vol.	Lanes
NB LT	50	1
NB THU	1167	2
NB RT	71	
SB LT	90	1
SB THU	986	2
SB RT	61	
EB LT	150	
EB THU	79	1
EB RT	41	1
WB LT	70	
WB THU	23	1
WB RT	64	1

Main/Santa Clara

	Vol.	Lanes
NB LT	75	1
NB THU	1474	3
NB RT		
SB LT		
SB THU	935	2
SB RT	250	
EB LT	229	2
EB THU		
EB RT	19	1
WB LT		
WB THU		
WB RT		

Main/Buffalo

	Vol.	Lanes
NB LT	70	1
NB THU	1210	2
NB RT	70	1
SB LT	120	1
SB THU	1[illegible]	2
SB RT	17	
EB LT	215	
EB THU	71	1
EB RT	22	
WB LT		
WB THU		
WB RT		

Main/17th

	Vol.	Lanes
NB LT	125	1
NB THU	287	2
NB RT	108	1
SB LT	110	1
SB THU	569	2
SB RT	123	1
EB LT	209	2
EB THU	1251	3
EB RT	68	
WB LT	87	2
WB THU	848	1
WB RT	85	

Main/LaVeta

	Vol.	Lanes
NB LT	241	1
NB THU	787	2
NB RT	521	1
SB LT	351	1
SB THU	604	2
SB RT	204	
EB LT	369	2
EB THU	506	2
EB RT	157	
WB LT	257	2
WB THU	677	2
WB RT	183	

Main/Town and Country

	Vol.	Lanes
NB LT	76	1
NB THU	874	3
NB RT	197	
SB LT	155	2
SB THU	529	2
SB RT	95	
EB LT	82	
EB THU	161	2
EB RT	14	
WB LT	127	
WB THU	79	2
WB RT	268	1

Main/Edgewood

	Vol.	Lanes
NB LT		1
NB THU	927	2
NB RT	84	
SB LT	50	1
SB THU	967	2
SB RT		
EB LT		
EB THU		
EB RT		
WB LT	102	1
WB THU		
WB RT	101	1

17th/Spurgeon

	Vol.	Lanes
NB LT	49	
NB THU	29	1
NB RT	149	
SB LT	63	
SB THU	17	1
SB RT	12	
EB LT	14	1
EB THU	298	3
EB RT	18	
WB LT	52	1
WB THU	845	1
WB RT	38	

17th/Penn Way

	Vol.	Lanes
NB LT	24	
NB THU		1
NB RT	151	
SB LT	146	1
SB THU	31	1
SB RT	9	1
EB LT		
EB THU	1101	2
EB RT	441	1
WB LT	75	1
WB THU	743	2
WB RT		

17th/Valencia

	Vol.	Lanes
NB LT	130	1
NB THU	5	1
NB RT	36	1
SB LT	20	1
SB THU		
SB RT	8	1
EB LT	558	1
EB THU	1025	2
EB RT		
WB LT		
WB THU	951	2
WB RT	409	1

APPENDIX II-A

17th/Santiago

	Vol.	Lanes
NB LT	51	
NB THU	19	1
NB RT	23	
EB LT	76	
EB THU	9	1
EB RT	31	1
WB LT	97	1
WB THU	1096	1
WB RT	20	
SB LT	7	1
SB THU	1310	1
SB RT	89	

17th/Lincoln

	Vol.	Lanes
NB LT	85	1
NB THU	620	1
NB RT	280	
EB LT	96	1
EB THU	89	1
EB RT	56	1
WB LT	76	1
WB THU	1061	1
WB RT	8	
SB LT	54	1
SB THU	1130	1
SB RT	106	

17th/Grand

	Vol.	Lanes
NB LT	228	1
NB THU	696	2
NB RT	152	1
SB LT	240	1
SB THU	661	2
SB RT	102	1
EB LT	159	1
EB THU	968	3
EB RT	156	
WB LT	105	1
WB THU	305	1
WB RT	401	

Glassell/LaVeta

	Vol.	Lanes
NB LT	214	1
NB THU	602	1
NB RT	211	1
SB LT	71	1
SB THU	521	1
SB RT	16	
EB LT	104	
EB THU	259	1
EB RT	261	1
WB LT	115	1
WB THU	122	1
WB RT	77	1

LaVeta/Pepper

	Vol.	Lanes
NB LT		
NB THU		
NB RT		
SB LT	244	1
SB THU		
SB RT	116	1
EB LT	64	1
EB THU	2040	2
EB RT		
WB LT		
WB THU	516	2
WB RT	72	

LaVeta/GG Frwy Ramps

	Vol.	Lanes
NB LT	264	2
NB THU		
NB RT	128	1
SB LT		
SB THU		
SB RT		
EB LT		
EB THU	944	2
EB RT	1248	1
WB LT	244	1
WB THU	484	2
WB RT		

Grand/Santa Clara

	Vol.	Lanes
NB LT	120	1
NB THU	1010	2
NB RT	245	
SB LT	153	1
SB THU	614	2
SB RT	94	
EB LT	40	1
EB THU	247	1
EB RT	58	
WB LT	137	1
WB THU	177	1
WB RT	202	1

Grand/Fairhaven

	Vol.	Lanes
NB LT	39	1
NB THU	1274	2
NB RT	204	1
SB LT	154	1
SB THU	872	2
SB RT	100	
EB LT	162	1
EB THU	208	1
EB RT	70	1
WB LT	177	1
WB THU	119	1
WB RT	138	1

Glassell/GG Frwy Ramps

	Vol.	Lanes
NB LT	564	1
NB THU	1257	2
NB RT		
SB LT		
SB THU	738	2
SB RT	222	1
EB LT		
EB THU		
EB RT		
WB LT	112	1
WB THU		
WB RT	118	1

Garden Grove Fwy/Town and Country

	Vol.	Lanes
NB LT	40	
NB THU	40	2
NB RT	8	
SB LT	104	1
SB THU	56	1
SB RT	440	1
EB LT	688	1
EB THU	112	2
EB RT	32	
WB LT	32	1
WB THU	64	2
WB RT	168	1

_____

	Vol.	Lanes
NB LT		
NB THU		
NB RT		
SB LT		
SB THU		
SB RT		
EB LT		
EB THU		
EB RT		
WB LT		
WB THU		
WB RT		

APPENDIX II-B

ARTERIAL STREET
TYPICAL TRAVEL TIME COMPARISONS
PEAK VS OFF-PEAK
(MINUTES)

STREET	LIMITS	DIRECTION	AM	PM	OFF
17th	Bristol-Tustin	W/B	8-9½	10-11	7-8½
		E/B	10	10-12 3/4	6-8
LaVeta/Bristol	Cambridge-Washington	W/B	9-10	10½	9-11
		E/B	10-11	11½-13	9-11
Main Street	Orangewood-Washington	N/B	6½-9	8½-10	7-8
		S/B	7-9	6½-9	7-8
Glassell/Grand	Chapman Ave.-SA Blvd.	S/B	6 3/4	7½	5-6
		N/B	6 3/4	7-11	5½
Parker/Santiago	Chapman to 17th	S/B	5½-6½	6-6½	5½-6½
		N/B	6	6-6½	5½-6
Chapman	Yorba-City Drive	W/B	11	11½-13½	9-10½
		E/B	9½-12	10-14 3/4	8½-10
Almond	Lincoln-Flower	W/B	6½-7	6	7
		E/B	7	7	7-7½
Santa Clara	Bush-Tustin	E/B	4-4½	4½-5½	4½-5½
		W/B	4 3/4	5	4½
Fairhaven	Tustin-Grand	W/B	1½-2½	2-3	2½-3½

APPENDIX II-C

SIGNAL CYCLE PERFORMANCE
(OFF-PEAK PERIOD)

INTERSECTION	PHASING	TIME OF DAY	% CYCLE W/PEDS MAJOR	% CYCLE W/PEDS SIDE	AVG. CYCLE LENGTH (SEC) MAJOR ST.	AVG. CYCLE LENGTH (SEC) SIDE ST.	AVG. CYCLE LENGTH (SEC) TOTAL
Main-Duffalo	S/B leading L.T.Ø	1200	60	50	26	23	49
Main-S/B Fwy off	2Ø	1130	0	(50) Recall	35	46	81
Main-17th St.	Lead L.T. Ø	1230	40	40	23	44	67
17th - Spurgeon	W/B lead L.T. Ø	1200	45	(50) Recall	45	28	73
17th-S/B off/Pennway	W/B leg L.T. Ø	1130	30	40	36	34	70
17th-N/B off/Valencia	E/B lead L.T. Ø	1100	30	(40) Recall	53	21	74
17th-Santiago	2Ø	1030	30	(40) Recall	62	18	80
17th-Lincoln	2Ø	1020	40	(40) Recall	29	21	50
17th-Grand	8Ø Lead L.T.	0920	50	50	36	50	86
Grand -21st	2Ø	0900	20	50	59	15	74
Grand -Santa Clara	2Ø	0845	20	(40) Recall	36	26	62
Grand -Fairhaven	2Ø	0820	60	(50) Recall	41	33	74
Glassell-E/B Fwy Rps	Lead S/B L.T.Ø	1520	50	(30) Recall	46	14	60
Glassell-W/B Fwy Rps	Lead N/B L.T.Ø	1500	(20) Recall	(Ø) Recall	50	10	60
Glassell-La Veta	2Ø	1430	80	70	36	36	72
Chapman-Lemon	2Ø	1415	40	60	28	21	49
Chapman-Batavia	2Ø	1350	20	(20) Recall	33	44	77
Chapman-Main	8Ø Lead L.T.	1330	40	30	42	48	90
Chapman-Feldner	2Ø	1250	20	Ø	41	17	58
Chapman-N/B Rte. 57	2Ø	1215	0	0	55	10	65
Chapman-S/B Rte. 57	2Ø	1135	0	0	43	17	60
Main-Almond	2Ø	0850	60	30	63	23	86
Main-Culver/Stewart	2Ø	0915	20	40	39	15	54
Main-La Veta	8Ø Lead L.T.	0930	60	60	36	49	85
Main-Town & Country	5Ø Lead L.T. N.S.	1000	40	50	43	27	70
Main-Edgewood	Lead S/B L.T.Ø	1045	40	50	52	19	71
Main-Santa Clara	2Ø	1110	(Ø) Recall	60	57	26	83
La Veta-Parker	2Ø	1445	30	20	25	16	41
La Veta-Pepper	E/B Lead L.T. Ø	1300	40	10	33	19	52
La Veta-Rte 22 Rps.	W/B Lead L.T. Ø	1315	30	30	42	28	70

APPENDIX II-D

Bus Route Ridership

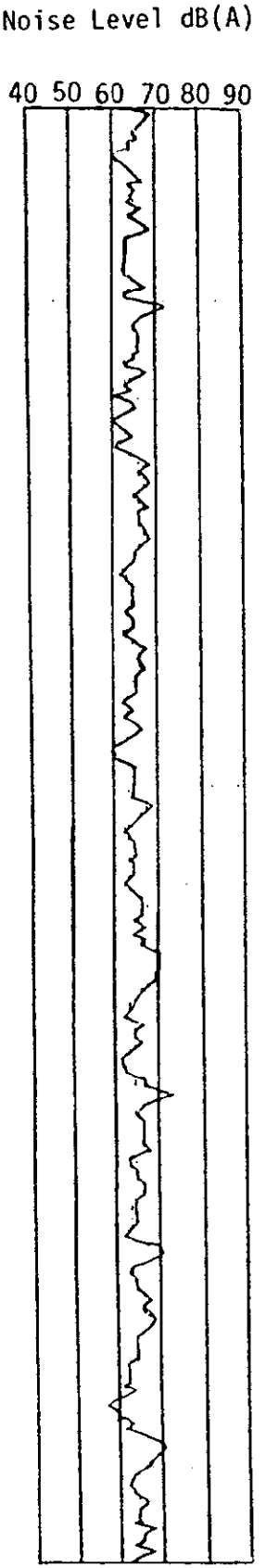
Route #	Direction	On Board Entering	On / Off	ON Board Exiting
53	South	223	304 / 133	388
53	North	412	152 / 242	325
54	East	351	127 / 134	335
54	West	263	123 / 108	282
56	East	44	5 / 19	32
56	West	27	24 / 6	45
69	South	417	203 / 207	421
69	North	464	180 / 227	429
143	East	303	147 / 144	249
143	West	301	129 / 103	309

APPENDIX III

NOISE DATA

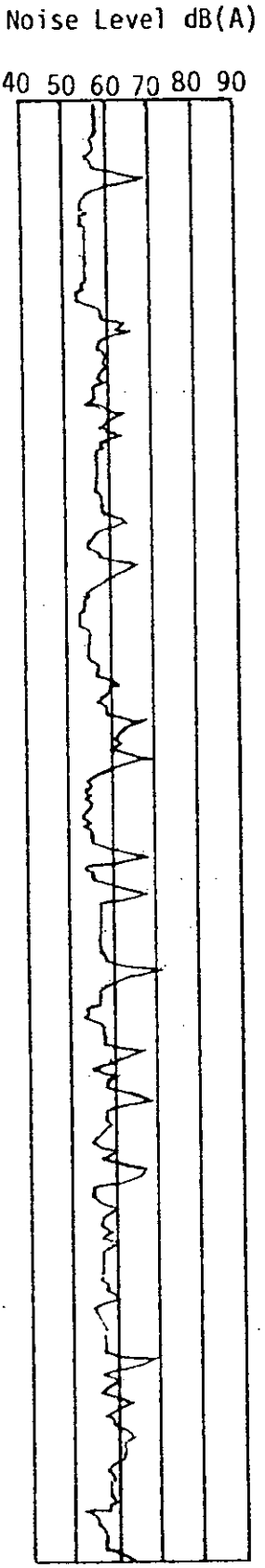
Location 1

approximately 130' east of Main Street on the north side of Owens Drive.



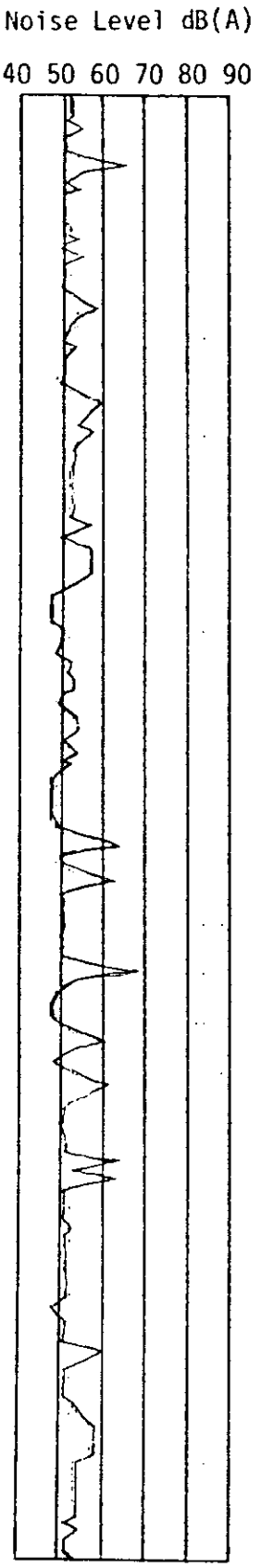
Location 2

approximately 250' east of Main Street on the north side of Owens Drive



Location 3

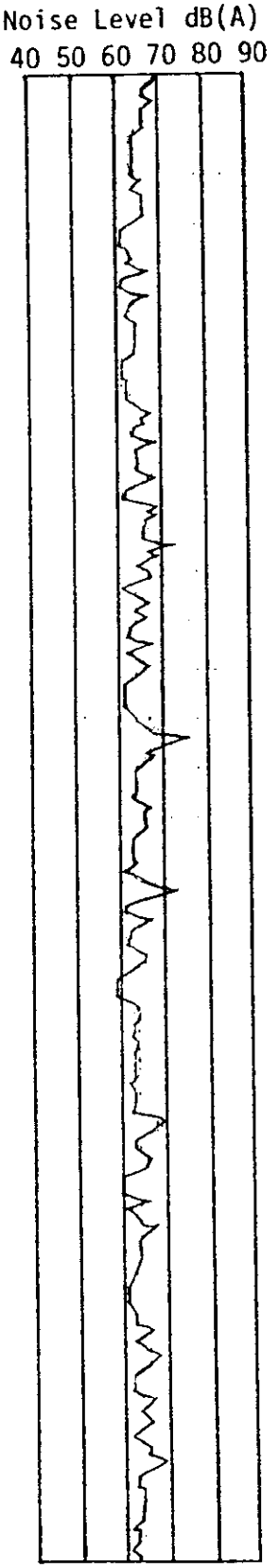
approximately 400' east of Main Street on the south side of Owens Drive



Location 5

approximately 100' west of Broadway on the south side of Charlotte Street

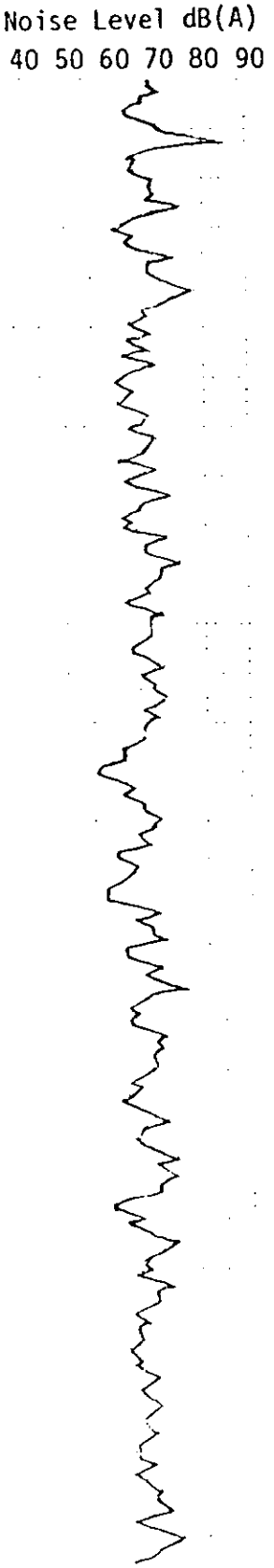
(refer to map)

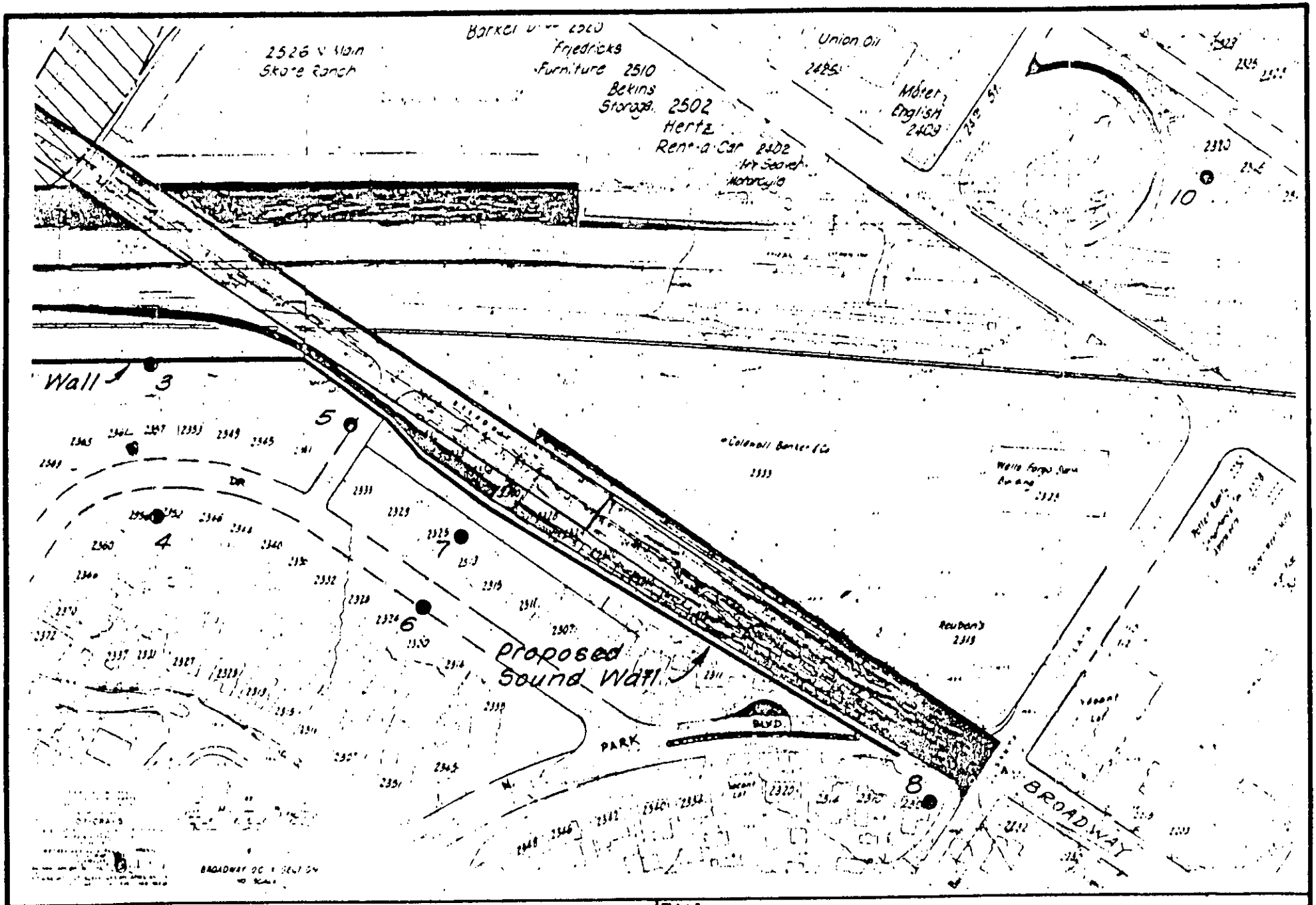


Location 8

approximately 100' west of the intersection at Broadway and Santa Clara

(refer to map)





Source:

Cal-Trans District 7
Broadway Overcrossing P.E.R

Title:

Cal-Trans Noise Measurement Locations

APPENDIX IV

CORRESPONDENCE

CITY OF SANTA ANA

20 CIVIC CENTER PLAZA • P.O. BOX 1988
SANTA ANA, CALIFORNIA 92702

May 4, 1981

Doris Starnes
Environmental Studies Department
Ultrasystems, Inc.
P.O. Box 19605
Irvine, CA 92715

SUBJECT: ENVIRONMENTAL IMPACT REPORT FOR THE PROPOSED FASHION SQUARE REDEVELOPMENT PROJECT

Dear Ms. Starnes:

The data you requested in your letter of April 24, 1981 is as follows:

Water

Fashion Square is served by a 12" main along the south boundary of Fashion Square and a 12" water main in the frontage road next to the Santa Ana Freeway; an 8" water main along the south property line of Metcalf Plaza serves the shopping center south of Fashion Square.

Fashion Square has a private fire line extending around the exterior of the structures that is served from a 10" fire line connected to the 12" water main south of it. The private line is a combination of 8" and 6" with 200,000 gallon underground reservoir and auxiliary pumps to provide additional protection.

The stores are served domestic water through a privately owned water line connected to the 12" water main at the south property line. The pipeline is 6" to the underground reservoir feedline then is 4" along the westerly and northerly periphery of the buildings.

The project can be served by the existing water mains, although it may require some reinforcement. A 16" water main exists in Main Street at Memory Lane. The City proposes to extend the 16" water main westerly to eventually connect to the 16" water main in the frontage road on the northeast side of the Santa Ana Freeway. The 16" water main will extend from Memory Lane to Metcalf Plaza.

The impact of the project will depend upon the increased water demand over the present demand. When the Howard Crooke Reservoir and Pumping Station was built in Santiago Day Camp about 1/2 mile east of Fashion Square the pressure and water capacity was increased at Fashion Square. Alternatives

Nos. 3 and 4 indicate a sizable increase in the square feet of floor space and it will be necessary to determine what the water demands for these facilities will be before giving an estimate of the impact.

SEWER

Fashion Square is presently sewered by a private sewer system of 8" sewer mains. They connect to an 8" sewer main running south about midway between Main Street and Arnett Drive, which is the frontage road for the Santa Ana Freeway.

Metcalf Plaza is connected to the same north-south 8" sewer main.

The 8" sewer main extends along Roe Drive to Arnett Drive then north along Arnett Drive to a Santa Ana Freeway crossing where it passes through an easement to Jonquil Road.

An additional 12" sewer main was installed in 1969 from Roe Drive south through an alley and easement to the north bank of Santiago Creek. The 12" sewer main passes through an easement to connect to a 12" sewer main in Park Lane

Your request to determine if the existing trunk lines have capacity to the project will be referred to our Design Section. The remaining data request will also be referred to the Design Section.

Sincerely,

Walter D. Schraub

Walter D. Schraub
Water Engineer

WDS/gg

Southern California Edison Company

P O BOX 2307
SANTA ANA CALIFORNIA 92707

May, 1981

DORIS STARNES
Ultra Systems, Inc.
2400 Michelson Dr.
Irvine, CA 92715

This is to advise that the subject property is located within the service territory of the Southern California Edison Company and that the electric loads of the project are within parameters of projected load growth which Edison is planning to meet in this area.

Unless the demand for electrical generating capacity exceeds our estimates, and provided that there are no unexpected outages to major sources of electrical supply, we expect to meet our electrical load requirements for the next several years.

Our total system demand is expected to continue to increase annually; and, if our plans to proceed with future construction of new generating facilities are delayed, our ability to serve all customer loads during peak demand periods could become marginal by 1984.

In addition, the major fuel used in Edison's generating facilities is low sulfur fuel oil. We now believe that our low sulfur fuel oil inventory, together with our contractual commitments for delivery and our customers' conservation efforts will permit us to meet the current forecasted demands for electricity through 1981.

It is our intention to continue to do everything that can reasonably be accomplished to provide our customers with a continuous and sufficient supply of electricity.

Enclosed is a single-line diagram of Southern California Edison Co. existing overhead facilities in the area of the proposed redevelopment project.

Both freeway crossings will remain overhead on existing structures as shown to maintain Edison system integrity.

Within the proposed project, Edison maintains 4-12000V circuits served from 4 adjacent substations. Three circuits enter the area on overhead structures, one circuit enters the project underground from the East. Edison maintains an extensive underground system within the northerly portion (Fashion Square Shopping Center) of the proposed site.

The development will be served by existing Edison facilities.

Please contact Edison Energy Services representative, Bob Miller, 714-835-3833 concerning conservation information for this project.

If I can be of any further assistance on this project, please contact me at 714-835-3833.

Sincerely,

Brian K. Smith

B. K. SMITH
Service Planner

BKS/lp

COUNTY OF ORANGE
GENERAL SERVICES AGENCY

T.R. EGAN
DIRECTOR

RONALD BATES
ASSISTANT DIRECTOR
SUPPORT SERVICES

SOLID WASTE MANAGEMENT DIVISION
DONALD G. POER, MANAGER
1300 SOUTH GRAND AVE.
SANTA ANA, CA 92705
714 834-3466

RECEIVED
MAY 04 1981
ENVIRONMENTAL
STUDIES DIV.

April 30, 1981

Doris Starnes, Project Manager
Ultrasystem, Inc.
P. O. Box 19605
Irvine, CA 92715

Dear Ms. Starnes:

The following information has been compiled by the Orange County General Services Agency/Solid Waste Management Division, to assist engineers and consultants in the preparation of the solid waste management aspects of Environmental Impact Statements/Reports:

1. Orange County currently operates four sanitary landfills. Two future sites, Olinda Alpha and Bee Canyon, are scheduled to open in the near future. These landfills will replace the existing Olinda and Coyote Canyon stations. (see attach)

2. All four existing sites are Class II-2. The two new sites will also be designated Class II-2.

3. Orange County will have adequate landfill capacity to last beyond the year 2000.

4. Private collectors make collections in all areas of the County with the exception of the City of Newport Beach, and the Sanitation District service in the Midway City, Westminster area.

5. The solid waste disposal systems are placed to accommodate continuing development within the County.

6. The impacts of increased population include expanded collection service by the collectors and an increase in the amount of refuse to be disposed. The estimated generation is approximately 7.5 lbs. per person per day.

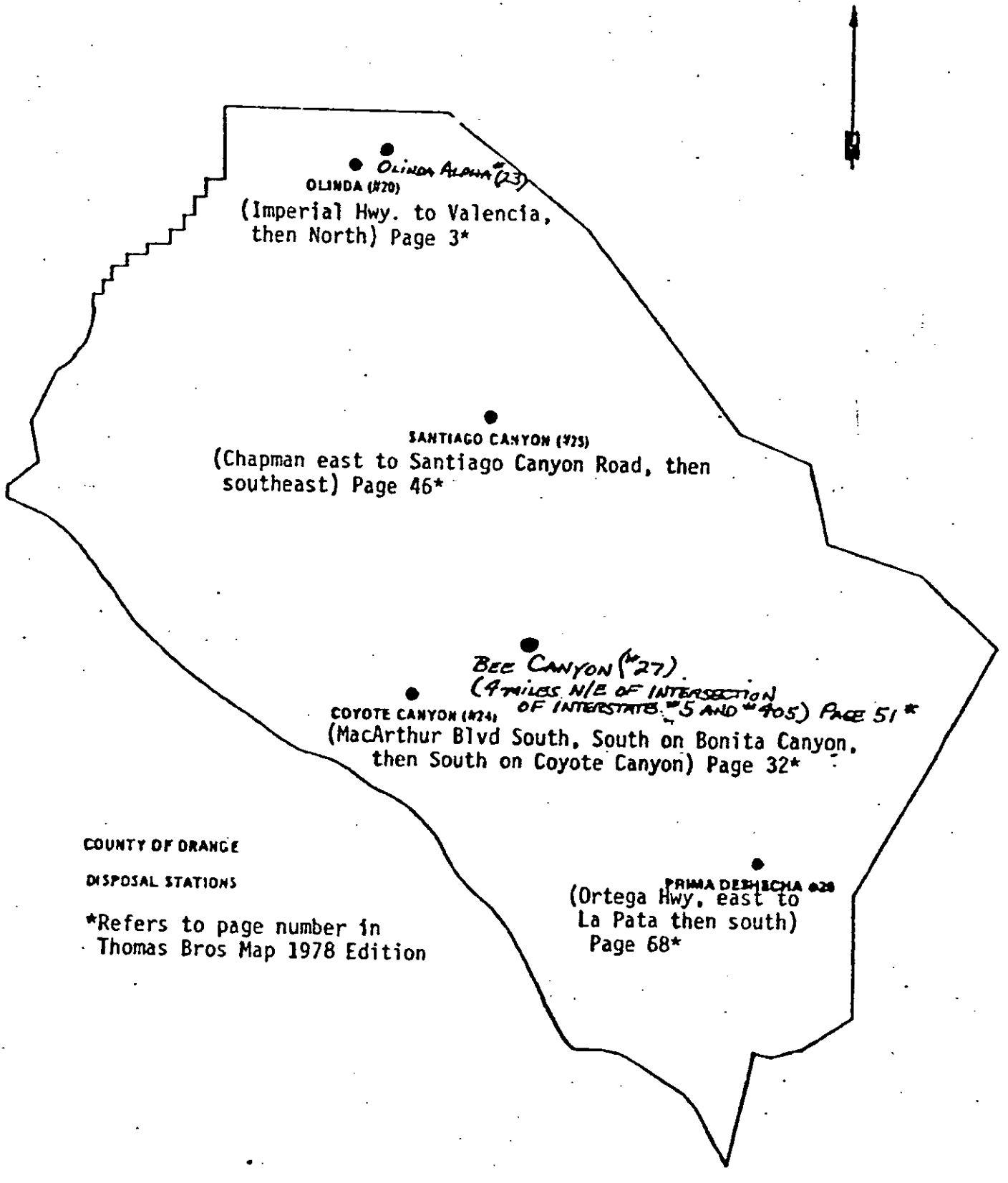
The above information is considered sufficient to answer most questions regarding solid waste management in Orange County. If more detail is required, do not hesitate to call us.

Very truly yours,

D. G. Poer, Manager

DP:kh

Att.



COUNTY OF ORANGE

DISPOSAL STATIONS

*Refers to page number in Thomas Bros Map 1978 Edition

CITY OF SANTA ANA

20 CIVIC CENTER PLAZA • P.O. BOX 1988
SANTA ANA, CALIFORNIA 92702

May 18, 1981

Doris Starnes
Ultrasystem, Inc.
2400 Michelson Drive
P.O. Box 19605
Irvine, CA 92715

SUBJECT: FASHION SQUARE REDEVELOPMENT PROJECT

Dear Ms. Starnes:

Your letter of April 24, 1981 to Walter Schraub indicated that you are in the process of preparing an enviromental impact report for the above project. You asked us to answer several questions pertaining to the existing sewer and storm drain facilities.

One of the questions pertains to the sewage treatment plant and whether it has capacity to serve the proposed project. As you may have concluded, our sewer systems are connected to Orange County Sanitation trunk lines, which in turn carry the sewage to their treatment plant in Fountain Valley. The administration office is located at 10844 Ellis Avenue. We do not envision any capacity problem, but it is advised that you contact an O.C.S.D. representative for your answer.

The Fashion Square area is served by an 8" sewer in Roe Drive and a 12" sewer in Roe Drive and Main Street. There is sufficient capacity for your proposed alternatives 1 or 2, but alternatives 3 or 4 would require the construction of additional sewer facilities.

Drainage should not be a problem, since the area is essentially all paved now. We have a 42" ø storm drain in Main Street and a 36" ø line in Arnett Drive, both of which discharge into Santiago Creek. The northwest portion of Fashion Square drains into an open channel which is part of the state freeway drainage system emptying into the Santa Ana River.

If you wish to discuss the above information in greater detail, please call Joseph Hopper at 834-4152.

Sincerely,

John Burk
Senior Civil Engineer-Design

Enclosure: Plan

JH/gg

Pacific Telephone
3939 E. Coronado Street
First Floor
Anaheim, California 92807

May 12, 1981

Ultrasystems, Inc.
P. O. Box 19605
2400 Michelson Drive
Irvine, Calif. 92715

Attention: Doris Starnes

Re: Fashion Square Redevelopment Project EIR

Dear Doris:

This is in reply to your letter of April 24, 1981, requesting Pacific Telephone's input for the above mentioned EIR.

Our existing underground facilities are represented on the enclosed record sheets (Route 1 Sheets 10, 11, 12).

The impact on the telephone network is similar for any of the four alternatives, in that a reinforcement of the network would be necessary. The degree of this reinforcement would vary from, new cables being pulled into existing conduit systems, to, new conduit and cable systems being built. In any case, the existing facilities are inadequate to serve the proposals set forth in your letter.

Lead time is of the utmost importance in projects of this type. We emphasize the fact that Pacific Telephone needs to be kept informed as to the direction and magnitude of this project to provide service in an adequate and timely manner.

Additional information should be forwarded to us as it becomes available. Should any questions arise, I may be reached at 999-5715.

Very truly yours,

Marshall B. Andrews

Marshall B. Andrews
Engineer, Liaison

MBA:kc
Enclosures

ORANGE COUNTY DIVISION • P. O. BOX 3334, ANAHEIM, CALIF. 92803

May 1, 1981

Ultrasystems, Inc.
P.O. Box 19605
2400 Michelson Drive
Irvine, CA. 92715

Attn: Doris Starnes; Project Manager

Subject: Fashion Square Redevelopment Project

This letter is not to be interpreted as a contractual commitment to serve the proposed project, but only as an information service. Its intent is to notify you that the Southern California Gas Company has facilities in the area where the above-named project is proposed. Gas service to the project could be provided from an existing main as shown on the attached atlas sheet without any significant impact on the environment. The service would be in accordance with the Company's policies and extension rules on file with the California Public Utilities Commission at the time contractual arrangements are made.

The availability of natural gas service, as set forth in this letter, is based upon present conditions of gas supply and regulatory policies. As a public utility, the Southern California Gas Company is under the jurisdiction of the California Public Utilities Commission. We can also be affected by actions of federal regulatory agencies. Should these agencies take any action which affects gas supply or the condition under which service is available, gas service will be provided in accordance with revised conditions.

Estimates of gas usage for non-residential projects are developed on an individual basis and are obtained from the Commercial-Industrial Market Services Staff by calling 213-689-2041 or 213-689-2062.

We have developed several programs which are available, upon request, to provide assistance in selecting the most effective applications of energy conservation techniques for a particular project. If you desire further information on any of our energy conservation programs, please contact this office for assistance.

Sincerely,

J. D. Allen
Technical Supervisor

G/es
attach.

CITY OF SANTA ANA

OFFICE OF THE CHIEF OF POLICE
24 CIVIC CENTER PLAZA • SANTA ANA • CALIFORNIA 92701

May 18, 1981

Ms. Doris Starnes, Project Manager
Environmental Studies
Ultra Systems Incorporated
2400 Michelson Drive
Irvine, Ca. 92715

Subject: E.I.R. For Proposed Fashion Square Redevelopment Project

Dear Ms. Starnes:

The following comments and recommendations are in response to your request:

1. Below is a breakdown of crime for this area which is identified as reporting district 161. The rating for this district is based on a total of 128 reporting district. This reporting district is one of nine that is policed by a total of twenty officers on a 24-hour seven day a week basis.

INCIDENTS	1979	1980
Calls	120	123
Arrests	116	126
Crimes	120	122
Accidents	118	122
Residential Burglary	98	104
Commercial Burglary	62	120
Auto Burglary	98	119
GTA	121	122
Robbery	100	105
Larceny	123	124

2. There is currently no singular major police problem associated with this reporting district. Crimes that can reasonably be expected to increase with this multi-faceted development would be larceny, crimes against persons, auto thefts, auto burglaries, and commercial burglaries. These increases will require additional police and equipment to properly patrol and respond to the needs of the citizens and business owners.

3. The City of Santa Ana has a Building Security Ordinance that effects all new construction, but consideration should be given to the development of an internal security force for the regional shopping center that you are proposing. Such a security force would be available to respond rapidly to individual business and customer needs and their mere presence would have a deterrent effect on crime.

The overall effects of this development on police services are difficult to measure and are dependent on the final plan that is selected. The police department is available and ready to assist in this project to insure that security needs are met.

Should you have any questions regarding this matter, please feel free to contact Officer R. Helton in our Crime Prevention Unit at 834-4169.

Sincerely,

RAYMOND C. DAVIS
Chief of Police

Robert H. Stebbins, Captain
Administration Division

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