ADDENDUM TO
FINAL ENVIRONMENTAL IMPACT REPORT (EIR) 88-1

SUNBOW II DRAFT
SECTIONAL PLANNING AREA (SPA) PLAN

Prepared for:

City of Chula Vista
Planning Department/Environmental Review Coordinator
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Project No. 38157.000

January 1990

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I. INTRODUCTION

A. PURPOSE, SCOPE AND ENVIRONMENTAL PROCEDURES

This Addendum to City of Chula Vista Final EIR 88-1 is prepared in accordance with the California Environmental Quality Act (CEQA) Guidelines 15164. The purpose of an addendum to an EIR is to comply with CEQA in instances in which an environmental analysis and CEQA documentation require "minor technical changes or additions that do not raise important new issues about the project's significant effects on the environment," and where no factors are present that would require the preparation of either a subsequent or supplemental EIR" (Section 15164,[a]). "An addendum need not be circulated for public review but can be included in or attached to the Final EIR" (Section 15164 [b]). "The decision-making body shall consider the addendum with the Final EIR prior to making a decision on the project" (Section 15164 [c]).

The City has determined that an Addendum is the appropriate CEQA document for this SPA Plan because conditions warranting a Subsequent EIR are not present. Section 15162 of the CEQA Guidelines describes the circumstances under which Subsequent EIRs are necessary. Section 15162 (Public Resources Code Section 21166) specifically states:

> When an Environmental Impact Report has been prepared for a project pursuant to this division, no subsequent or supplemental Environmental Impact Report shall be required by the Lead Agency, unless one or more of the following events occurs:
>
> (a) Substantial changes are proposed in the project which will require major revisions of the Environmental Impact Report.
>
> (b) Substantial changes occur with respect to the circumstances under which the project is being undertaken which will require major revisions in the Environmental Impact Report.
>
> (c) New information, which was not known and could not have been known at the time the Environmental Impact Report was certified as complete, becomes available.

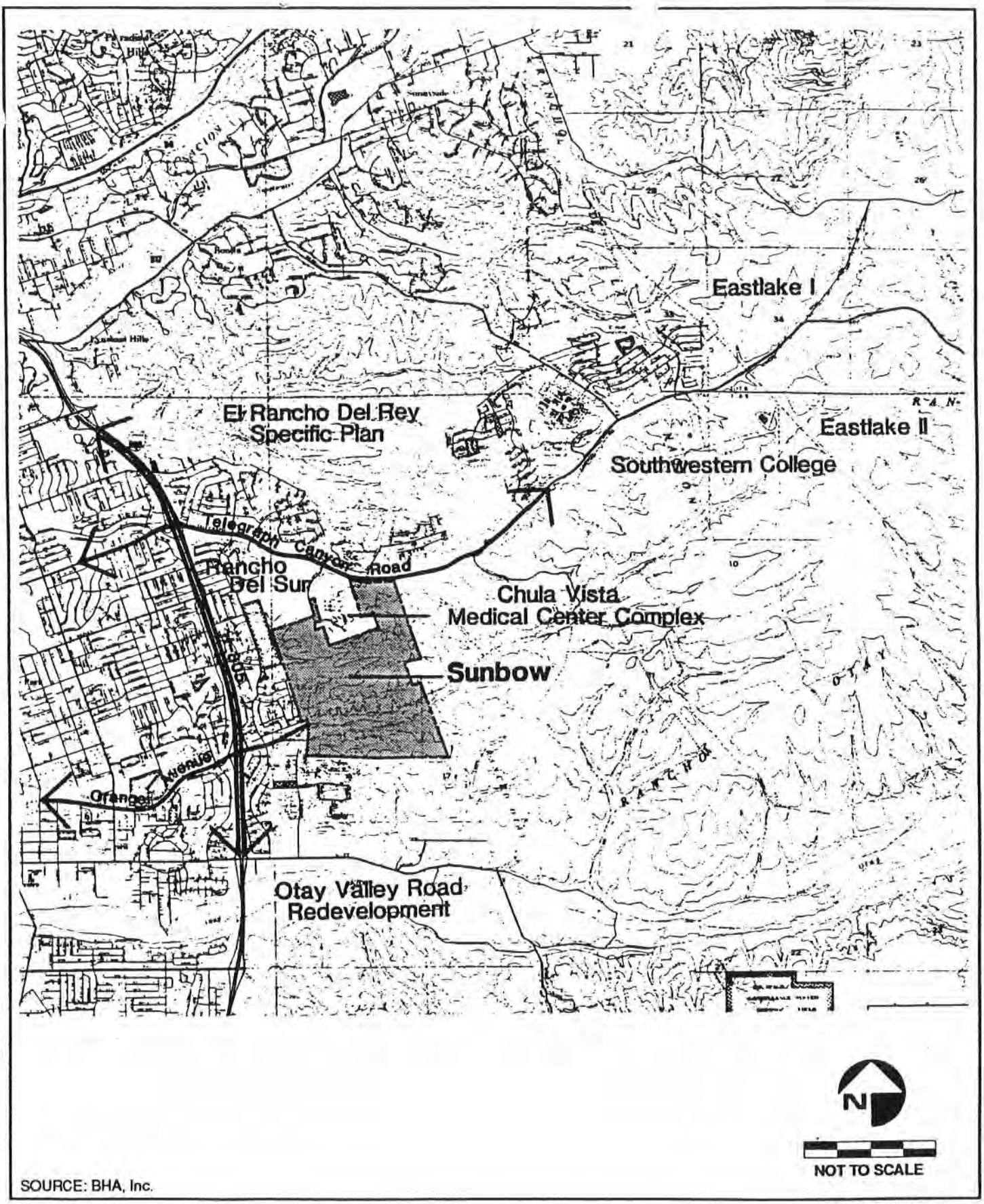
The section also adds additional criteria, namely, that the new information must show any of the following: (1) the project will have one or more significant effects not discussed in the original EIR; (2) significant effects previously examined will be substantially more severe than shown in the first EIR; (3) mitigation measures or alternatives previously found not to be feasible would in fact be feasible and would substantially reduce one or more of the project's significant effects; or (4) mitigation measures or alternatives that were not previously considered would substantially lessen one or more significant effects on the environment. (Guidelines, section 15162, subd. (a)(3)(B).)

The above conditions are not met in this case, as there have been no substantial changes in the Sunbow project or conditions since Final EIR 88-1, therefore no subsequent EIR is needed.

This Addendum to Final EIR 88-1 (State Clearinghouse No. 88121423; certified December 5, 1989) evaluates the Sunbow SPA Plan, which is the planning document supplemental to the approved Sunbow General Development Plan (GDP). The Sunbow project was evaluated in Final EIR 88-1. The Sunbow project location is shown is Figure 1. A full description of the submitted SPA Plan and explanation of the project history are provided below, followed by a topic-by-topic environmental evaluation of impacts. The City of Chula Vista will consider this Addendum to EIR 88-1 when making decisions on the Sunbow II SPA Plan.

By definition, in the City of Chula Vista the SPA Plan process serves to implement the General Development Plan (GDP), providing more detail and specifications in a project's development program. SPA Plan approval requires conformance with the regulating/approved GDP. Future subsequent plans must similarly conform to an approved SPA Plan. The Sunbow II SPA Plan has been prepared in accordance with these procedures and requirements, and is currently under City review and consideration. This CEQA document has been prepared to analyze potential environmental impacts of the project and specifically to confirm and document the adequacy of the Final EIR 88-1 analysis of the project's SPA Plan.

This Addendum to EIR 88-1 does not serve to analyze the SPA Plan's consistency with all City codes, ordinances and other permit/procedures required for SPA Plan approval; that review is conducted by City staff within specific departments (i.e.,



SOURCE: BHA, Inc.

ERC Environmental and Energy Services Co.

Project Location

FIGURE 1

detailed drainage and grading plans are reviewed by the City Public Works Department for conformance with applicable codes). Rather, this Addendum evaluates CEQA environmental topics in conjunction with the Final EIR 88-1 analyses, and documents SPA Plan conformance with Final EIR 88-1. Serving in this fashion in conjunction with Final EIR 88-1, the City has determined that the following topics are included in this Addendum to EIR 88-1:

- Land Use
- Aesthetics
- Public Services and Utilities: Water; Sewer; Parks/Recreation
- Traffic and Circulation
- Geology and Grading
- Hydrology
- Biological Resources

The topical issues and CEQA sections listed below are not specifically addressed in this Addendum; the sections are incorporated by reference from Final EIR 88-1. Issues are not analyzed herein either because the SPA Plan would result in no change from the Final EIR analysis of the issue, and/or because the potential effect has been found not to be significant.

- Noise: No substantial change.

- Air Quality: No substantial change.

- Public Services and Utilities (Fire and Police Services; Schools/Student generation; Library; Gas/Electricity/ Energy; and Solid Waste Disposal): No substantial change.

- Cultural Resources: No impact is associated with the project due to a lack of resources onsite.

- Fiscal Considerations: Effects are substantially unchanged.

- Alternatives: Section incorporated from EIR 88-1.

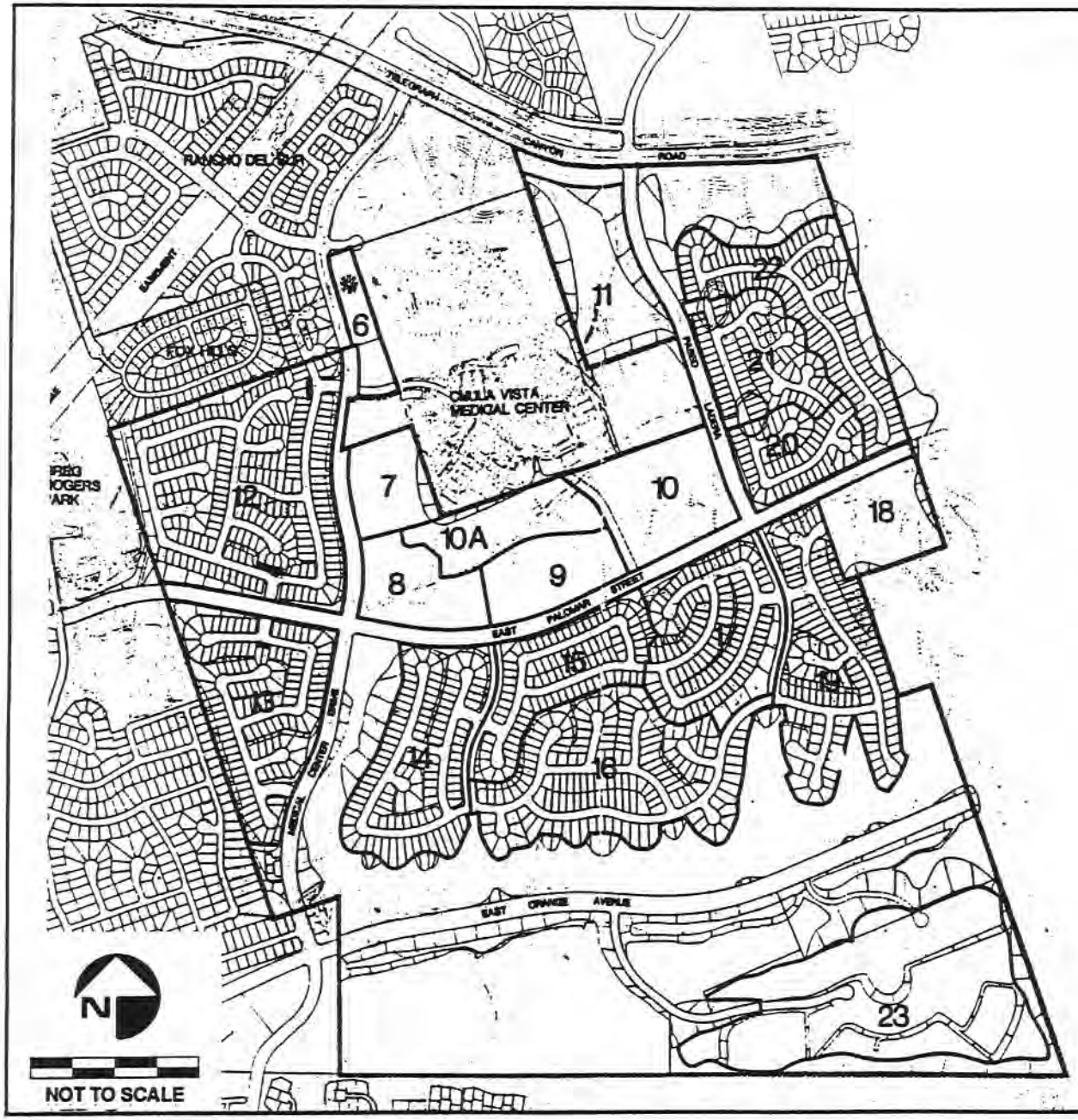
- Other required CEQA Sections (refer to Section 5 of Final EIR 88-1): Sections incorporated from EIR 88-1.

B. BACKGROUND

Final EIR 88-1, certified in December 1989, evaluates the Sunbow project. The December 1989 approved GDP is illustrated in Figure 2 of this Addendum. The GDP approval established zoning and the General Development Plan allowed land uses onsite as illustrated in Figure 2. The subject SPA Plan represents the next step in the planning and approval process for the project as required by the City.

C. PROJECT DESCRIPTION

The proposed SPA Plan Site Utilization Plan is shown in Figure 3. As shown in Figure 3 and its land use tabulation, the SPA Plan proposes a total of 1946 residential units on 329.7 acres; 11.0 acres of "Village Center" commercial use; 46.0 acres of industrial park; an 11.0 acre elementary school site; 10.0 acres of community recreation; and 194.3 acres of open space and roads. Total project acreage is 602.0 acres. The SPA Plan also establishes Planning Areas as required by the City SPA Plan process, shown on Figure 3 as Planning Areas numbered 1 through 23. Other illustrations of the SPA Plan characteristics, specifically Site Construction Phasing, Grading Plan and the Landscape Concept Plan are shown in Figures 4, 5 and 6, respectively.



STATISTICAL SUMMARY

PLANNING AREA	LAND USE DISTRICTS	GROSS ACRES	TOTAL UNITS
6	RM	5.7	78
7	RM	10.8	160
10	RC	17.0	206
10A	RC	10.9	214
11	RC	19.3	160
12	RS	50.9	215
13	RS	30.2	112
14	RS	24.8	110
15	RP	19.0	93
16	RS	34.8	145
17	RS	24.9	102
19	RS	28.8	112
20	RS	13.0	57
21	RS	16.0	81
22	RS	24.0	101
SUBTOTAL		329.7	1946
8	VC	11.0	
23	IP	46.0	
18	RS–ELEM. SCHOOL	11.0	
9	OS/COMM. REC.	10.0	
	OPEN SPACE & ROADS	194.3	
GRAND TOTAL		602.0	1946

❋ CANDIDATE CHURCH SITE

RS – RESIDENTIAL SINGLE FAMILY
RP – RESIDENTIAL PLANNED DEVELOPMENT
RM – RESIDENTIAL MULTI-FAMILY
RC – RESIDENTIAL CONDOMINIUM
VC – VILLAGE CENTER
IP – INDUSTRIAL PARK
OS – OPEN SPACE

NOTE:
ALL GROSS ACREAGE NUMBERS FOR EACH PLANNING AREA ARE CALCULATIONS BASED ON THE PLANNING AREA BOUNDARY EXTENDING TO THE CENTERLINE OF THE ADJACENT ROAD

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SPA Plan Site Utilization Plan

FIGURE 3

SOURCE: BHA, Inc.

FIGURE 4

Site Construction Phasing

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SOURCE: BHA, Inc.

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Grading Plan

FIGURE 5

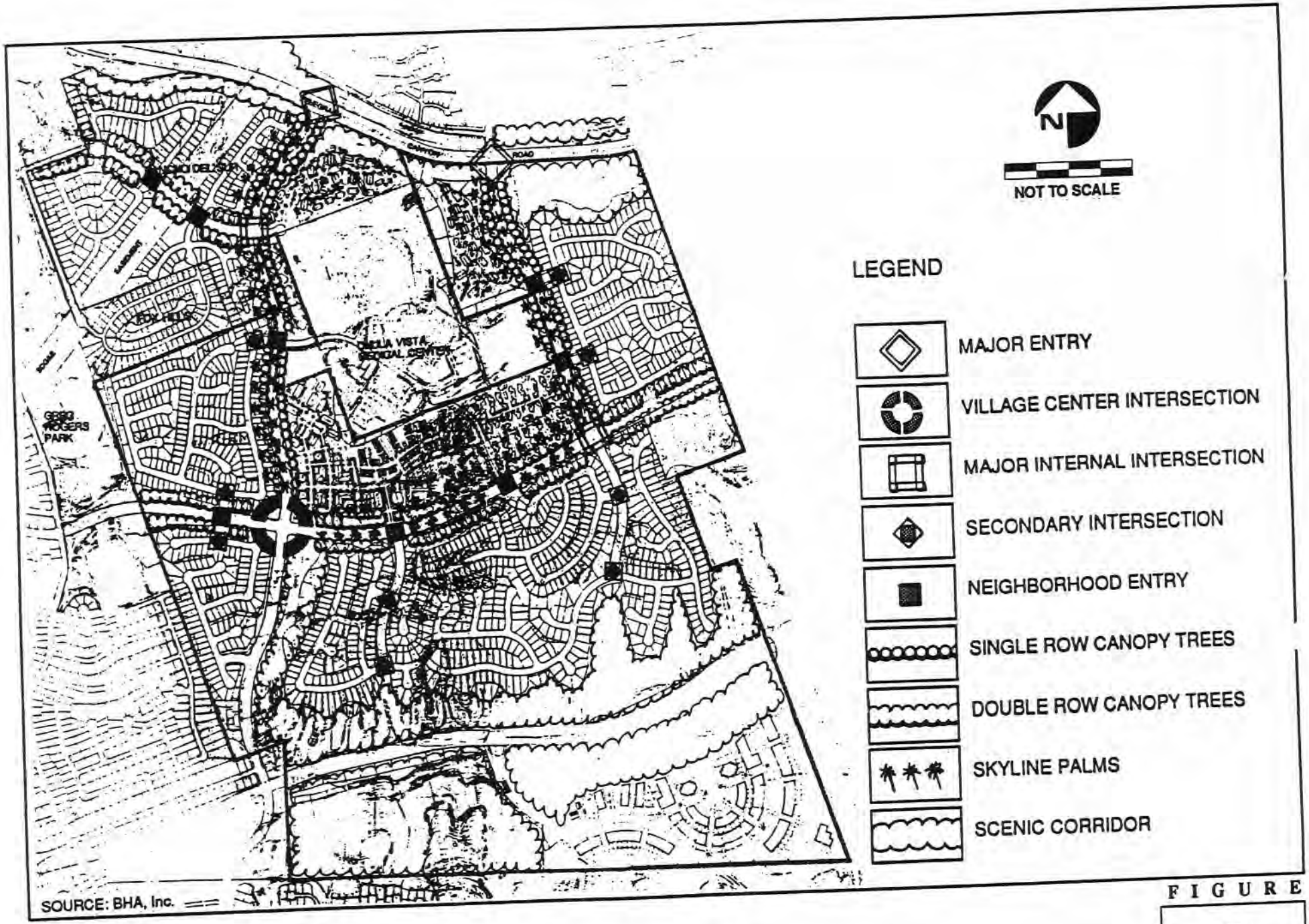

FIGURE 6

Landscape Concept Plan

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II. ENVIRONMENTAL ANALYSIS

The following discussions are supplemental to sections in Final EIR 88-1. Descriptions of existing conditions are incorporated by reference from EIR 88-1 and should be referenced as needed. The evaluations contained herein review the SPA Plan's consistency with the approved GDP, note any differences between the plans, and identify impacts associated with the SPA Plan, if any exist beyond those effects analyzed in EIR 88-1. All mitigation from Final EIR 88-1 is incorporated by reference in this Addendum. All mitigation and monitoring requirements from the previous GDP approval are also required for SPA Plan project implementation and are incorporated into the SPA Plan and its conditions of approval.

A. LAND USE

The proposed SPA Plan Site Utilization Plan is illustrated in Figure 3. Planning Areas are delineated, and land use acreages and units are quantified. Table 1 provides a land use quantified comparison between the proposed SPA Plan and approved GDP. As shown, the total number of units proposed is consistent with the GDP approved 1946 units. A variation in density mix exists between the SPA Plan and GDP. The SPA Plan proposes 67 more low-medium density units than the GDP and 67 fewer medium density units

Table 1 reflects a recent change in City methodology used to calculate development and roadway acreages. Specifically, 4-lane streets and smaller roads are now incorporated into City calculations for development area gross acreages; these roads are now not included in roadway acreage calculations, as shown on Table 1. All onsite roads with the exception of Orange Avenue are included in the SPA Plan development area's gross acreages, measured from the roadway centerline. Actual development acreages have not increased. This difference in Table 1 therefore does not reflect a land use impact. Land development configurations are generally similar between plans (Figures 2 and 3); the SPA Plan further refines development enclave site design and lot layout, as shown on Figure 3.

Regarding other non-residential land uses, Table 1 also shows a variation in open space and road acreages. The SPA Plan shows 3.7 more open space acres and 28 fewer roadway acres as compared to the GDP. This is due to a change in City/SPA

Table 1

SUNBOW SPA PLAN
LAND USE COMPARISON

	Proposed SPA Plan		Approved GDP	
	Units	Acres*	Units	Acres
Residential				
Low/Med.	1128	266.2*	1061	234.0
Med.	818	63.5*	885	73.4
Residential Total	1946	329.7*	1946	307.4
VC		11.0*		10.0
IP		46.0		46.0
Com. Rec.		10.0		10.0
El. School		11.0*		10.0
OS		180.3		176.6
Roads		14.0*		42.0
TOTALS	1946	602.0	1946	602.0

Source: Final EIR 88-1; Sunbow Draft SPA Plan.

* Note: A change in City methodology used to calculate acreages has occurred since the Sunbow General Development Plan. Pursuant to new City acreage measurement requirements, the SPA Plan incorporates roadways which are 4-lane streets or smaller into development area acreages. Development acreages adjacent to these roads are measured from the roadway centerline as reflected above. The 14 acres of roads shown above refers to Orange Avenue, a 6-Lane Prime Arterial.

Plan land use and roadway acreage calculations as described above, and a pull-back in development edges responsive to grading concerns.

In summary, no substantial changes in acreages are reflected in the SPA Plan with the exception of the increase in open space, resulting in a slight reduction in impacts.

B. AESTHETICS

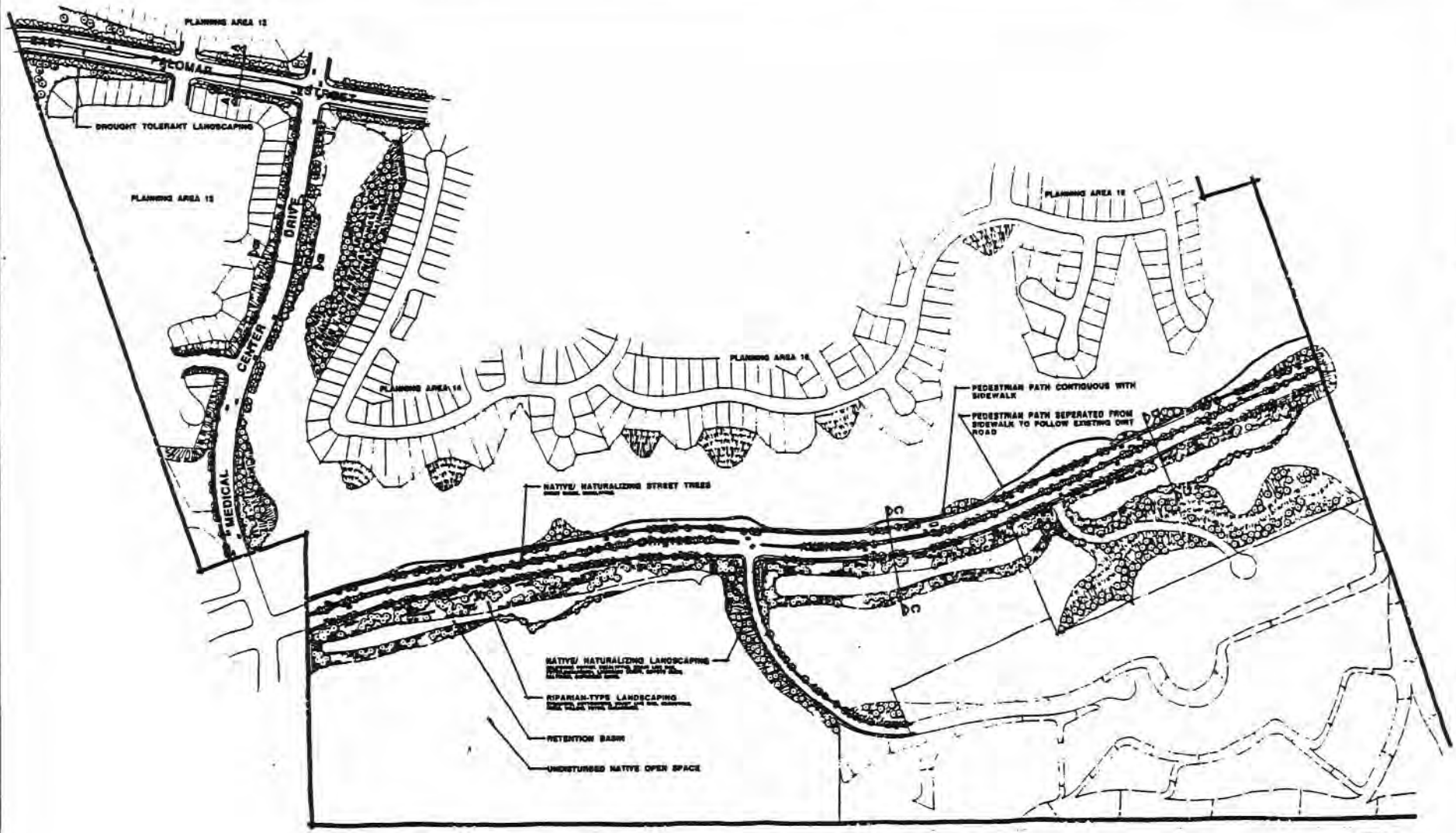
The SPA Plan presents site design and other criteria which must be consistent with guidelines established in the GDP, required by the City. The SPA Plan further identifies architectural guidelines, a landscape master plan, conceptual lighting and fencing, a signage program, grading criteria and other provisions to ensure acceptable aesthetic characteristics. These plans and guidelines are reviewed in detail by the City Planning Department and other appropriate committees and departments, to ensure conformity with City requirements.

Of specific aesthetic concern is the Poggi Canyon Open Space Corridor along the general alignment of Orange Avenue. The SPA Plan proposes treatment along this Orange Avenue Scenic Corridor as illustrated in Figure 7. Grading (Figure 5) along the corridor is actually more sensitive in the SPA Plan than in the GDP, resulting in a slight reduction in impact significance. (Refer also to discussion under Section 2.G, Biological Resources.)

Final EIR 88-1 identifies an unavoidable cumulative adverse impact in regard to the project's effects on the existing natural aesthetic character of the area. This impact is viewed as unavoidable as with any urbanization of the site. The proposed SPA Plan would implement the approved GDP, and does not present additional aesthetic impacts beyond those identified in EIR 88-1. Mechanisms presented in the SPA Plan identified above are created in part to minimize potential aesthetic impacts, but cannot mitigate the cumulative aesthetic impact to below a level of significance.

C. PUBLIC SERVICES AND UTILITIES

Issues of CEQA interest in this SPA Plan analysis regarding services and utilities include water, sewer, and parks/recreation. Water supply, storage and distribution,



SOURCE: BHA, Inc.

FIGURE 7

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Orange Avenue Scenic Corridor Master Plan

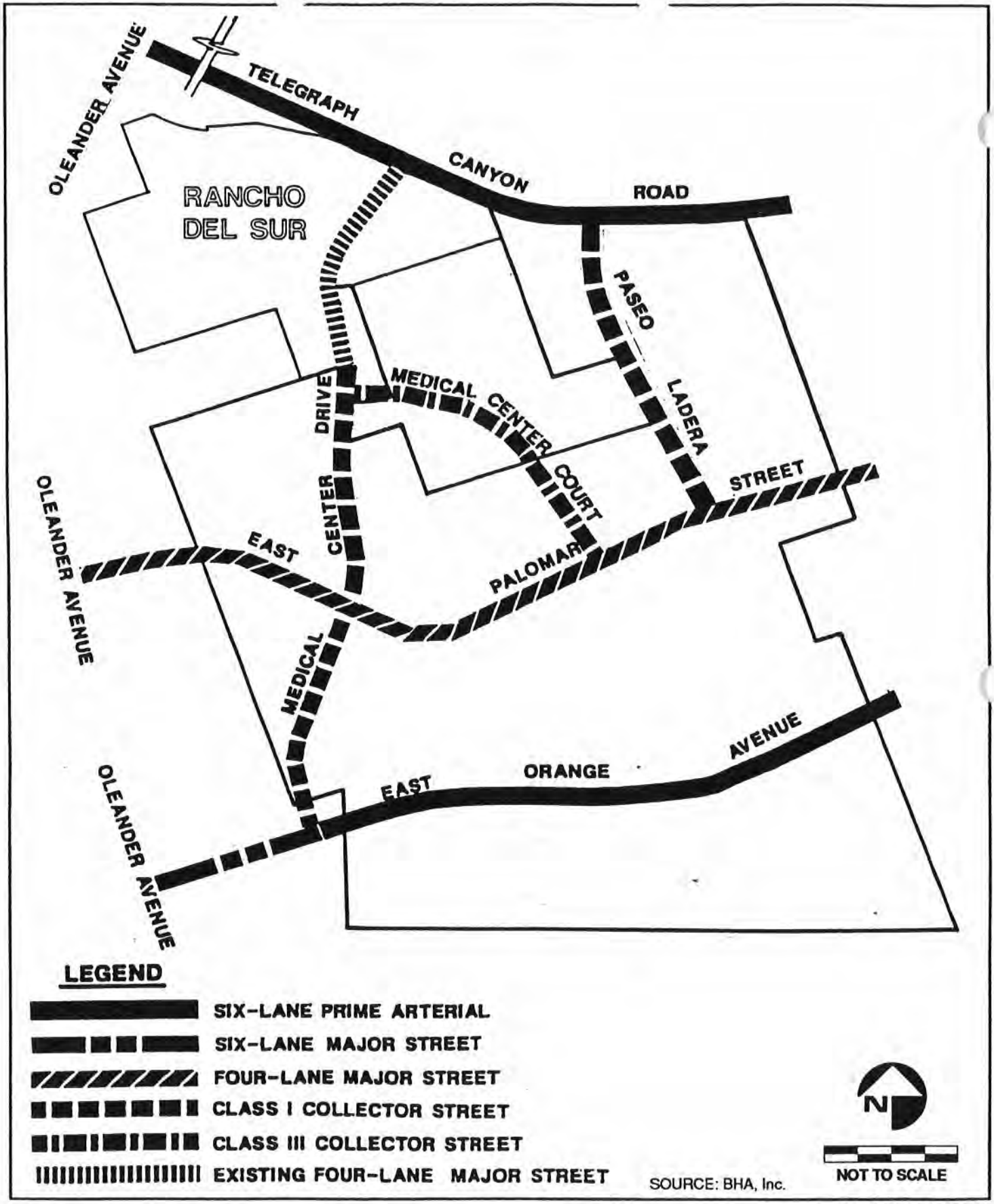
and sewer generation and treatment issues are discussed in detail in Final EIR 88-1; those sections are incorporated herein by reference. The proposed SPA Plan presents no significant deviations from those issues reviewed in EIR 88-1, thus no additional impacts are identified. Detailed water and sewer plans are under review by the City Engineering/Public Works Department to verify consistency with City utility requirements.

The proposed SPA Plan Recreation and Open Space Master Plan reviews City park and recreation requirements, and discusses in detail the area's recreation demands. The SPA Plan and GDP will satisfy parks/recreation requirements by implementation of the Sunbow Village Recreation Center and provision of open space, as described in the SPA Plan. This issue has been reviewed by the City Parks/Recreation and Planning Departments in detail through the project's history. Park/recreation requirements will be more than satisfied by the proposed plan; no impacts are identified.

D. TRAFFIC AND CIRCULATION

The Sunbow GDP traffic analysis, included in Final EIR 88-1, set forth traffic mitigation/circulation phasing requirements which have been coordinated with SPA Plan project development phasing. This phasing plan was a result of a concentrated team effort during the GDP process and has been carried through to the SPA Plan level. The circulation system at buildout of the project is illustrated on Figure 8. Shown in Figure 4 is the phasing of both development and roadway improvements. The SPA Plan also delineates the phased roadway improvements in detail. These plans are consistent with and pursuant to the mitigation measures cited in EIR 88-1, which are conditions of GDP approval to be carried through SPA Plan and subsequent project implementation stages. Consequently, no circulation impacts are identified.

Regarding traffic generation associated with the Sunbow SPA Plan, a traffic generation comparison between EIR 88-1 and the SPA Plan was performed. The trips generated by the SPA Plan would be 29,104 average daily trips (ADT); the trip generation presented in EIR 88-1 is 28,708. This does not represent a significant difference in trips. Consequently, no significant change in traffic impacts would be



SOURCE: BHA, Inc.

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Circulation

FIGURE 8

realized, and no further traffic mitigation beyond that identified in EIR 88-1 and the circulation phasing plan is necessary.

E. GEOLOGY AND GRADING

The SPA Plan proposed grading is illustrated in Figure 5. Grading is further discussed and sections are illustrated in the SPA Plan text. Grading shall comply with the City Grading Ordinance as required of the approved GDP and EIR 88-1. Plans are reviewed in detail by the City Engineering Department, Planning Department and Environmental Review Coordinator to ensure conformance with City criteria. No additional impacts beyond those identified in EIR 88-1 are associated with the SPA Plan; impacts can be mitigated by adherence to City requirements.

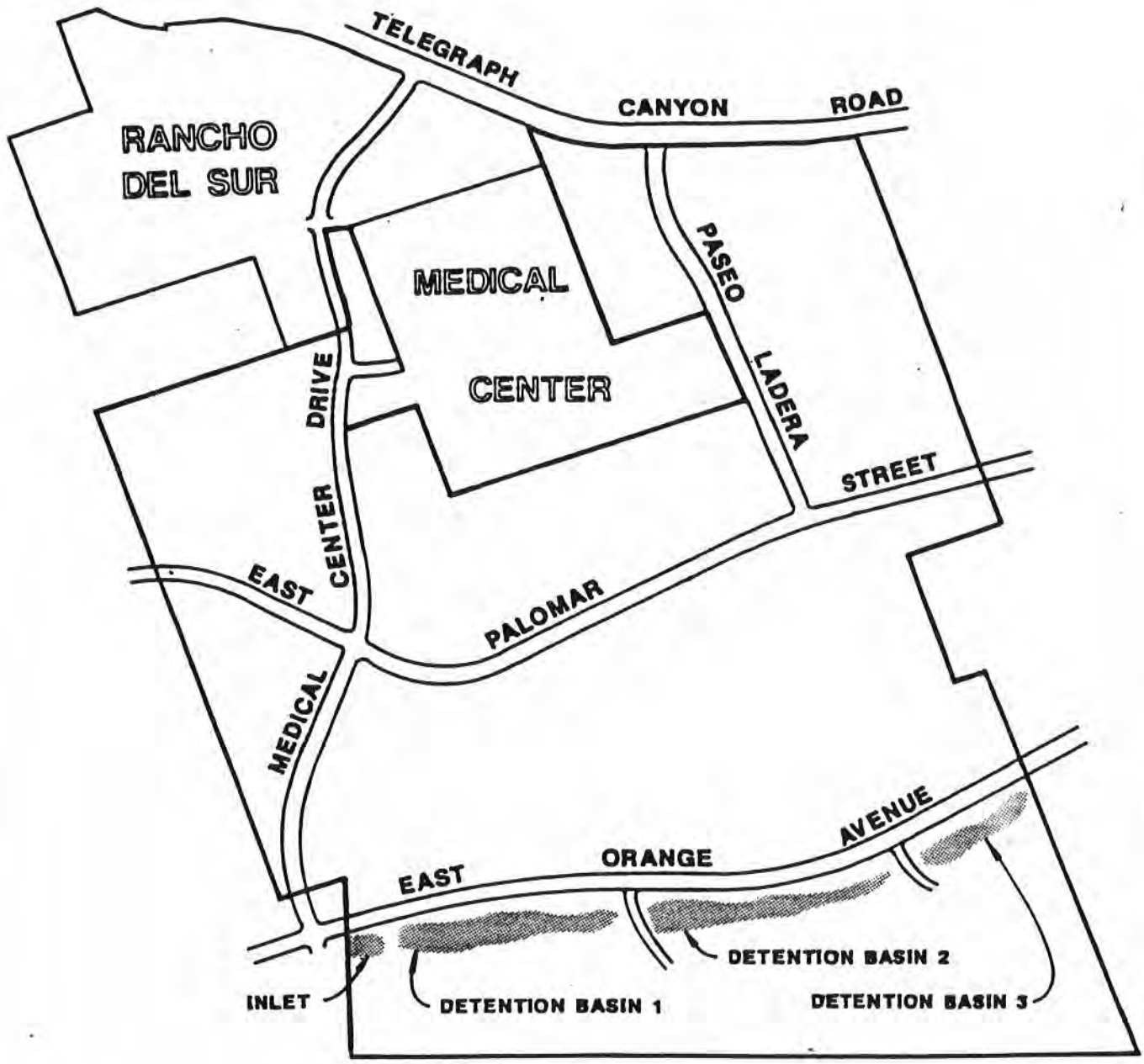
F. HYDROLOGY

Drainage of the proposed development is discussed in the SPA Plan's Grading and Infrastructure Plan Section. Drainage plans are reviewed by the City Engineering Department to ensure conformity with City regulations and requirements of the approved GDP. Mitigation of potential drainage impacts shall be verified through the City review of these detailed plans.

The project's proposed detention basins are illustrated in Figure 9. Implementation of these drainage facilities will occur in conjunction with construction of Orange Avenue. Sensitivity to aesthetic and natural open space considerations is proposed in the SPA Plan. Grading and construction of drainage improvements in this area should be coordinated with implementation of the open space and recreation facilities for the Poggi Canyon/Orange Avenue Scenic Corridor area (see also Section 2.G, Biological Resources). Provided City regulations are adhered to, no further hydrological impacts beyond those identified in EIR 88-1 are expected; impacts can be mitigated to below a level of significance.

G. BIOLOGICAL RESOURCES

The Biological Resources Section of Final EIR 88-1 required biological mitigation. During the Draft EIR public review period and prior to GDP approval, several



SOURCE: BHA, Inc.

ERC Environmental and Energy Services Co.

Detention Basin Locations

FIGURE 9

concerns over project impacts were raised by resource agencies. Pursuant to mitigation and/or reduction of the identified biological impacts, a detailed mitigation plan was formulated via a team effort between the City, applicant, consultants and resource agency staff. The resulting mitigation included in Final EIR 88-1 and its Mitigation Monitoring Program is incorporated herein by reference. The mitigation plan will serve as the framework from which to verify and implement biological resource mitigation. (Note that the EIR 88-1 mitigation plan is unusually specific for the GDP level process.) Unavoidable adverse impacts were nevertheless identified after mitigation; CEQA findings are included in Final EIR 88-1, incorporated by reference herein.

The open space corridor along Poggi Canyon/Orange Avenue (Figure 7) appears consistent with FEIR 88-1 mitigation. Verification will occur prior to issuance of grading permits in the Orange Avenue area. Items for specific review at design stages in the Orange Avenue/Poggi Canyon area (prior to issuance of grading permits in the area) include retention basin locations and configurations south of Orange Avenue; landscaping and species mix; edge treatments adjacent to native/natural open space; recreational trails; and transplantings/enhancement programs. These items shall be reviewed by the City Landscape Architect and shall be addressed in implementation of the Mitigation Monitoring Program. No further impacts are identified.

Final Environmental Impact Report 88-1

Sunbow General Development Plan Pre-Zone

State Clearing House No. 88121423

Prepared for:

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458-9044

September 1989

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SECTION 1
INTRODUCTION AND SUMMARY

1.1 PURPOSE

This document is an Environmental Impact Report (EIR) prepared for the City of Chula Vista on the proposed Sunbow project. The current Sunbow project is the second phase of a comprehensive planning program. The first phase consisted of 485 residential units on a 108 acre site and is located north of the current project. Sunbow Phase I (Rancho del Sur) was approved by the City of Chula Vista on July 8, 1987. The second phase, which is the project addressed by this EIR, includes a mix of residential, commercial, business park, recreational and open space land uses.

The purpose of an EIR is to inform the public and the decision makers about the nature of a proposed project and the extent and kinds of environmental impacts which would be expected to result if the project or project alternatives were implemented. Environmental impact reports must contain discussions of specific topics as outlined in the guidelines for implementation of the California Environmental Quality Act (CEQA) by the State Secretary of Resources. These guidelines are periodically updated to comply with changes in CEQA and court interpretations. This report complies with the most recent guidelines and amendments to CEQA.

1.2 SCOPE

The Sunbow project is a proposed mixed use development for a 604 acre site. A total of 1946 residential units is proposed along with parks, open space, community recreation, commercial and research industrial uses. The site is not within the City of Chula Vista's boundaries or Sphere of Influence and would require a sphere determination and annexation approval by the Local Agency Formation Commission (LAFCO). The initial discretionary actions requiring approval by the City of Chula Vista for the Sunbow project include a General Development Plan (GDP) approval, prezoning and may include an annexation/development agreement. Subsequent discretionary actions include Sectional Area Plans (SPAs) and tentative maps. In effect, this EIR serves as a tiered EIR by CEQA definition, utilizing the General Plan Update EIR 88-1 (incorporated by reference in this EIR), and future actions will be subject to environmental evaluation and CEQA documentation.

This EIR contains sections required by CEQA including a summary, project description, environmental setting and project alternatives as well as a detailed resource-by-resource impact analysis. The impact analysis, contained in Section 4, discusses the following subjects: land use, transportation, fiscal analysis/community and social factors, biology, geology/soils, water quality/drainage, landform/visual, noise, air quality, and public services and utilities.

The final four chapters of this EIR include discussions of the issues of growth inducement, the relationship between local short-term uses of man's environment and maintenance and enhancement of long-term productivity, significant irreversible environmental changes, and project alternatives.

1.3 ENVIRONMENTAL PROCEDURES

A Notice of Preparation (NOP) of the EIR was circulated for public review and agency comment. Agency comments on the NOP are contained in Appendix A of this document. This EIR will be available for review by the public and public agencies for a period of 30

days. Comments on the environmental analysis contained in this report are invited and may be submitted to the City of Chula Vista Department of Planning 276 Fourth Avenue, Chula Vista, California 92010. The EIR will be available at the City of Chula Vista Department of Planning and City libraries. The Department of Planning will consider all written comments on the EIR before making recommendations to the Planning Commission regarding the extent and nature of the environmental impacts of the proposed project.

The City of Chula Vista Planning Commission will hear further public input and will consider the final EIR when making recommendations on the project to the City Council. (Contact Doug Reid at the City of Chula Vista's Department of Planning at [619] 691-5101 for the exact time and dates of hearings). The City is the lead agency as defined by CEQA and the City Council will certify the final EIR as complete and in compliance with CEQA and will consider it in approving or disapproving the project. Public input is encouraged at all hearings. In the final review of the Sunbow project plan, environmental considerations as well as economic and social factors will be weighed to determine the most appropriate form of development for the project site.

1.4 SUMMARY OF IMPACTS

The following provides a brief summary, by environmental topic, of project impacts, mitigation to offset impacts, and a conclusion concerning whether the identified impacts are mitigable to an insignificant level. The reader is referred to each topical discussion in Section 4 for detailed information.

Land Use

Potential land use impacts involve consistency with regulating documents and compatibility with surrounding existing and future land uses. The project is found to be consistent with the City General Plan Update and other relevant documents and policies. Potential conflicts between the project and existing helicopter activities at the adjacent Community Hospital have been identified and attributed not to the project but to the hospital (helicopter operations are allowed under a conditional use permit which can be revoked if conflicts arise). Mitigation measures provide for elimination of this potential impact, and will reduce potential land use interface impacts to an insignificant level, by design review, edge treatment and buffers (i.e. landscaping, setbacks) at future planning/implementation stages. No further project or cumulative land use impacts have been identified.

Landform Alteration/Visual Quality

Project development, street grading and associated infrastructure will result in substantial landform modification. 175 acres will be dedicated for open space preservation; the remaining 427 acres will be included in development areas or associated infrastructure, resulting in significant landform alteration and visual impacts in those areas. Mitigation will lessen impacts by design, landscaping, sensitive grading, but not to a level of insignificance. Consequently, unavoidable adverse project and cumulative visual impacts will result from project implementation.

Public Services and Utilities

Project and cumulative impacts to fire/emergency medical, police, sewer, water delivery facilities, parks/recreation/open space, schools and library services will be mitigated to a level of insignificance. The project will contribute to a cumulative and unavoidable/unmitigable impact on the region's limited water supply and non-renewable energy resources.

Traffic and Transportation

The project will generate 28,708 average daily vehicle trips onto local roadways at buildout. Potential project traffic impacts can be mitigated by implementation of needed roadway improvements and mitigation measures proposed herein. Also, cumulative traffic associated with projects included in the Eastern Chula Vista Transportation Phasing Program (ECVTPP) Phase 6 (which incorporates the Sunbow project) will be mitigated to an insignificant level by transportation improvements proposed (included as mitigation in this EIR).

Geology and Soils

Potential geologic constraints identified include landslides, colluvial and alluvial deposits in canyon bottoms, groundwater and the onsite La Nacion fault. Measures contained in the project geotechnical report (incorporated by reference in this EIR and on file at the City Planning Department) will ensure potential project and cumulative impacts are mitigated to a level of insignificance.

Noise

Onsite future noise levels attributed to cumulative traffic volumes will be unacceptable (will exceed standards) and will require noise attenuation mitigation (specific measures to be identified in future implementation stages). Further detailed acoustical analysis and mitigation provided by the applicant, and an analysis of helipad operations provided by Community Hospital will mitigate potential project and cumulative noise impacts and adjacent helipad impacts to an insignificant level.

Air Quality

The project represents development which was not incorporated into growth projections utilized in formulating the San Diego region air quality attainment plans. Consequently, a finding of inconsistency with regional air quality attainment plans must be made. The proposed project's mixed use land use plan will actually result in fewer vehicular trips and less air quality impacts than the previous assumed residential uses, therefore the project will not contribute to a cumulatively significant air quality impact.

Water Quality/Drainage

The project's increase in impervious surfaces from development and roadway construction will result in increased runoff from the project site. Flow contributions may impact facilities associated with the Telegraph and Poggi Canyon basins, requiring upgrading as mitigation. Water quality impacts are also identified with the proposed project urban development and associated urban pollutants. Implementation of measures contained in this EIR, and standard City grading and construction procedures/requirements would mitigate project and cumulative drainage and water quality impacts to an insignificant level.

Biological Resources

Significant impacts are identified regarding riparian scrub habitat, vernal pools, five plant species, the cactus wren and the Diegan sage scrub. Impacts can be mitigated by measures herein with the exception of those associated with the cactus wren, Otay tarplant, and

Diegan sage scrub resources. Unless project redesign occurs to avoid these three resources, unavoidable significant project and cumulative impacts will result.

Fiscal Analysis

The development of the Sunbow project is estimated to have an overall positive fiscal impact on the City of Chula Vista. In other words, operating revenues are projected to exceed operating costs over the ten year period of time analyzed in this study. However, the annual costs associated with the Sunbow project would begin to exceed annual revenues in the fifth fiscal year after the start of development due to the significant added cost of maintenance for the community park included in the development.

Any future negative net costs beginning five years after development and beyond would be offset by positive fiscal impacts generated by development of other land uses designated in the City's General Plan. In addition, the Sunbow development is expected to have a neutral effect on the City's capital expenditures and revenues. Therefore, development of the Sunbow project would not result in an adverse fiscal impact to the City of Chula Vista.

SECTION 2
PROJECT DESCRIPTION

2.1 LOCATION

The Sunbow Planned Community (Sunbow) site is located approximately 0.75 of a mile east of I-805, 0.5 of a mile south of Telegraph Canyon Road and 5.5 miles north of the United States/Mexico International border (Figures 2-1 and 2-2). It is southeast of and adjacent to Sunbow Phase I. The 604 acre site is within the County of San Diego but is adjacent to the boundaries of the City of Chula Vista. It is bounded on the north by Telegraph Canyon Road and the Chula Vista Medical Center complex and extends approximately 1600 feet south of the proposed extension of Orange Avenue.

2.2 DISCRETIONARY ACTIONS

Construction of the Sunbow project will require discretionary approvals by the City of Chula Vista. These discretionary actions are subject to the requirements of the California Environmental Quality Act (CEQA) and this Environmental Impact Report has been prepared to satisfy those requirements.

Discretionary actions associated with the proposed Sunbow project involve the approval by the City of Chula Vista of a General Development Plan (GDP)/prezoning application and an annexation/development agreement. The initial, and primary, discretionary action is approval of the project's General Development (GDP). The GDP for the site is a supplement to the General Plan and existing City ordinances and plans. The GDP establishes site zoning, the types and level of allowable development, and development standards for the proposal, including those that relate to open space requirements and major improvements. The GDP is hereby incorporated into this EIR by reference. If approved, the GDP would be implemented through the adoption of subsequent, detailed Sectional Planning Area (SPA) Plans and tentative maps. Subsequent discretionary actions will be subject to CEQA and would require additional environmental analysis if one of the following circumstances occurs:

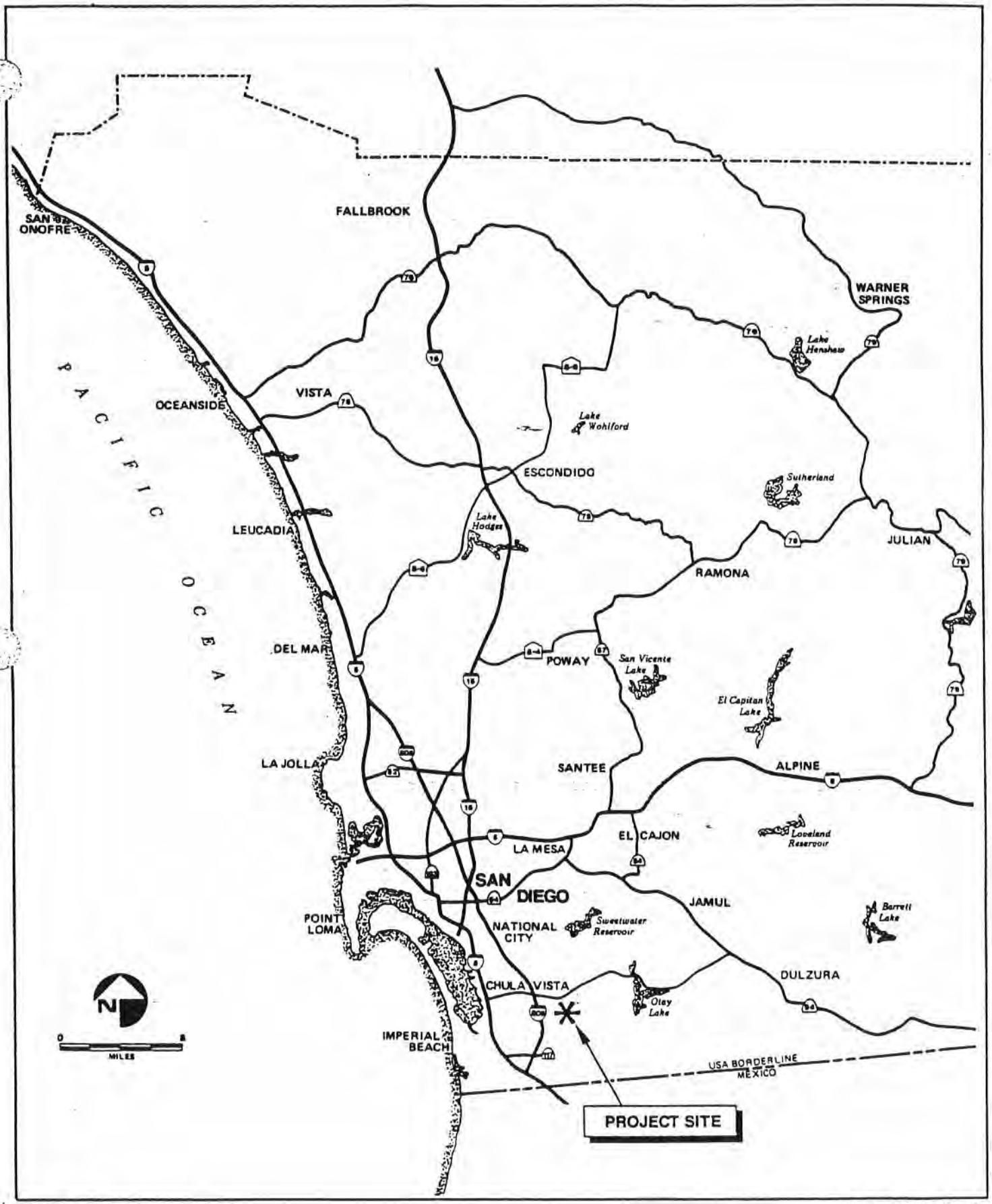
1. Subsequent changes are proposed in the project;
2. Subsequent changes occur in circumstances under which the project is undertaken;
3. New information of substantial importance to the project becomes available.

Additional discretionary actions by other agencies include approval by LAFCO of a request for a reorganization of the site including a sphere of influence determination and annexation of the site by the City of Chula Vista.

2.3 PROJECT CHARACTERISTICS

The current Sunbow project is the second phase of a comprehensive planning program. The first phase consisted of 485 residential units on a 108 acre site and is located north of the current project. Sunbow Phase I (Rancho del Sur) was approved by the City of Chula Vista on July 8, 1987. The second phase, which is the project addressed by this EIR, includes a mix of residential, commercial, business park, recreational and open space land uses.

The General Development Plan (GDP) prepared by the applicant proposes regulations and standards governing permitted uses, setbacks, parking, circulation, development and landscaping standards. A GDP supplements and refines the General Plan designations for



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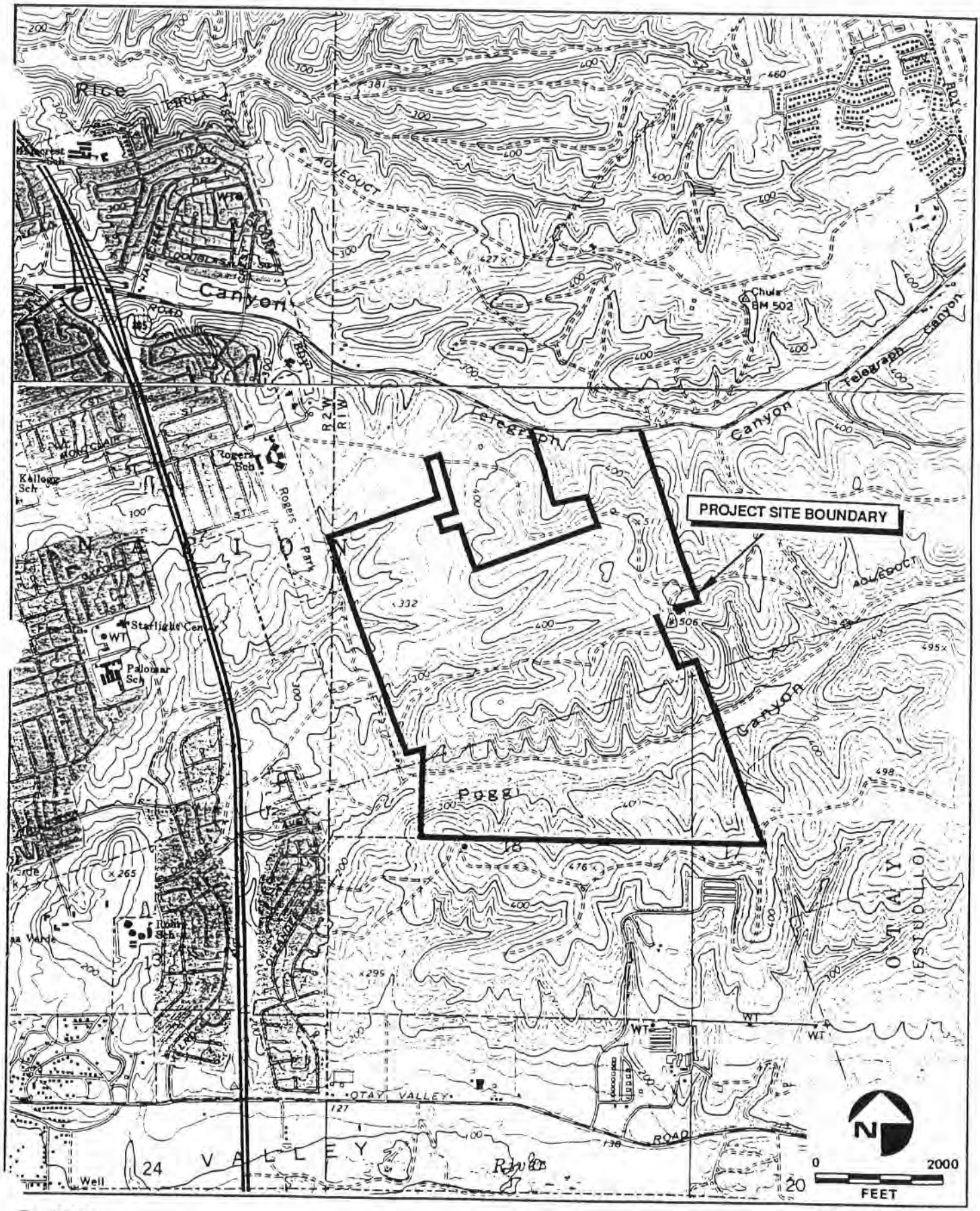
Regional Location of Project Site

FIGURE 2-1



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Project Site Location

FIGURE 2-2

the site and existing City regulations. It supersedes those regulations if there is a conflict, and if certain topics are not covered by the GDP, City regulations apply.

A total of 1946 dwellings, including single and multi-family units, are proposed in 23 planning areas. Other uses included with the project are commercial, parks, open space, business park and community recreation. Note that a 10-acre parcel owned by the Chula Vista Community Hospital is included in the proposed annexation to the City and is therefore incorporated into this Project Description (see below paragraph for description). Table 1 lists the planning areas, land use categories, acreage and proposed number of units; Figure 2-3 depicts the proposed land uses within the GDP.

Residential uses include a wide variety of housing types. The low-medium category is intended for single family homes, patio homes, duplexes, townhouses, residential cluster developments and other residential forms where the resident's parking is near the dwelling. There are 234 acres of low-medium residential uses proposed. At 3-6 dwelling units per acre (du/acre) the unit range would be from approximately 702 to 1,404 units. The target range recommended by the City is 1240 units. The project proposes 1061 units in the low-medium category, or 179 less than the City's target number of units.

The medium residential category allows a density of 6-11 du/acre and is intended for apartments and cluster developments with parking in group arrangements. Within the proposed Sunbow project there are 73.4 acres of medium residential development planned. The City's General Plan recommends a unit range of approximately 440 to 807 dwelling units. There are 885 medium residential units planned, which is 261 more than the City's target range. The total for both residential categories combined meets the City's target range of units.

The commercial area includes a Village Center commercial area encompassing 10.0 acres and located in the central portion of the Sunbow project at the intersection of the extensions of East Palomar Street and Medical Center Drive. There will be approximately 108,900 square feet of retail/commercial space which is expected to generate 272 jobs.

A 10-acre parcel, located along the west side of Paseo Ladera adjacent to the hospital (Figure 2-3), is included in the project's annexation request and is therefore incorporated into the Project Description in this EIR. The parcel is owned by the Chula Vista Community Hospital and is not a component of the Sunbow development. At this time a pre-zoning application for commercial office is proposed, consistent with the City's existing General Plan designation of Public/Quasic Public use (City of Chula Vista, August 1989). Future uses are expected to be hospital-related. This EIR addresses the site for annexation purposes and does not evaluate environmental impacts of a specific land use of the 10-acre parcel.

A 46-acre business park is proposed for the extreme southeast corner of the site. The business park will have 700,000 square feet of research/development and light industrial uses and is expected to generate approximately 2,800 jobs.

A 10-acre community recreational area will be located adjacent to the Village Center commercial area and will provide active recreational uses. In addition, there will be 176 acres of open space within the project. The majority of the open space will be located south of the extension of East Orange Avenue.

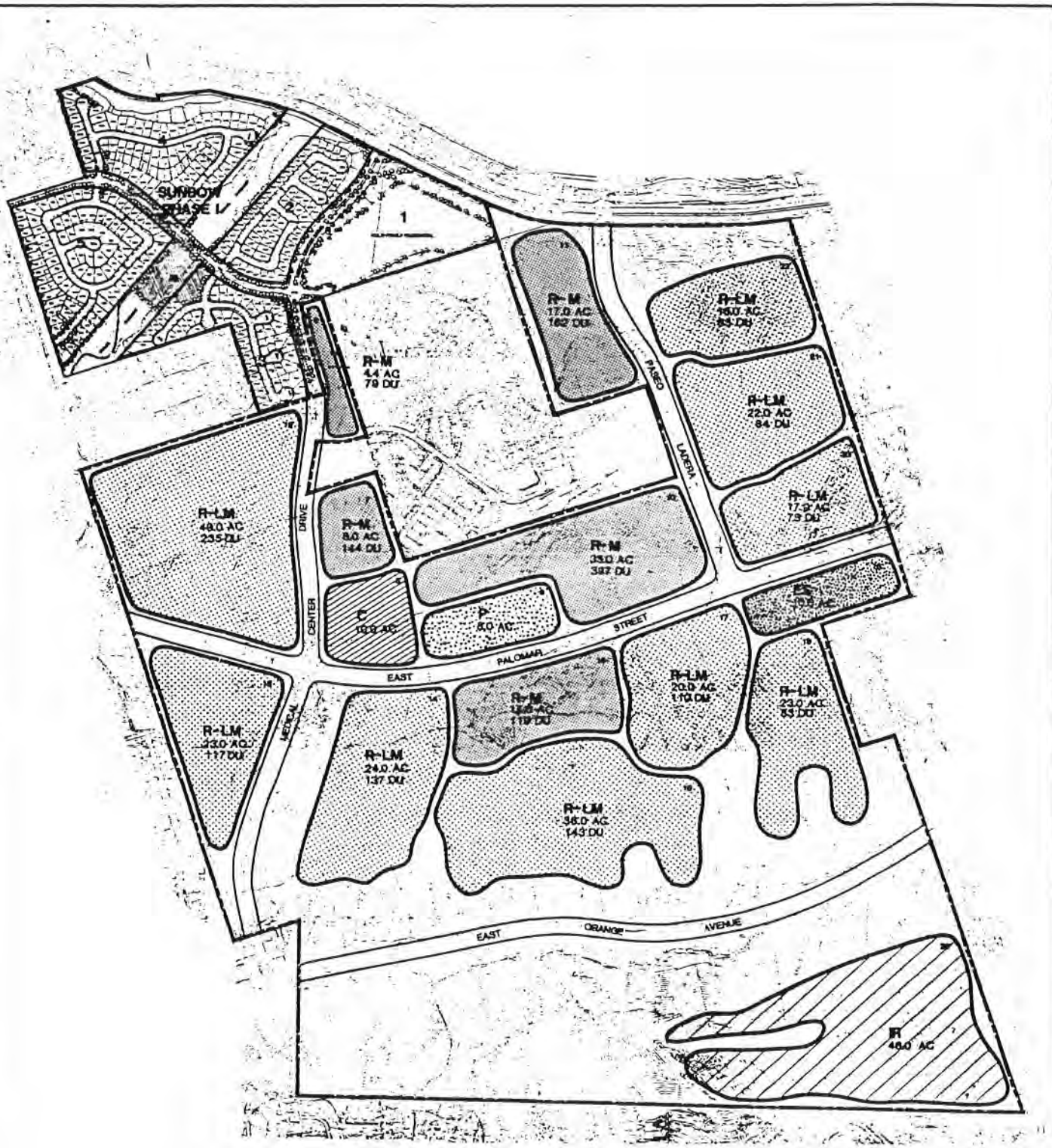
Construction of the East Orange Avenue extension, East Palomar Street, Medical Center Drive, Paseo Ladera, and other streets would be constructed to serve residential and

Table 1

DEVELOPMENT PLAN SUMMARY FOR SUNBOW

Land Use Category	Planning Area	Acres	Units
Residential			
Low Medium			
3-6 du/acre			
	12	50.0	240
	13	23.0	117
	14	24.0	137
	16	36.0	143
	17	23.0	126
	19	28.0	100
	20	12.0	51
	21	22.0	84
	22	16.0	63
Subtotal		234	1,061
Residential			
Medium			
6-11 du/acre			
	6	4.4	79
	7	8.0	144
	10	27.0	381
	11	17.0	162
	15	17.0	119
Subtotal		73.4	885
TOTAL		307.4	1,946
Other			
Village Center	8	10.0	
Business/Industrial Park	23	46.0	
Community Recreation	9	10.0	
Elementary School	18	10.0	
Open Space		176.6	
Roads		42.0	
TOTAL		602.0	1,946
Public/Quasi-Public[1] (commercial office hospital property)	N/A	10.0	N/A

1) 10-acre parcel is owned by Chula Vista Community Hospital and is included in the proposed annexation to Chula Vista. An application has been submitted for C.O.P. zoning; future actions will require subsequent environmental documentation.



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Proposed General Development Plan

FIGURE 2-3

business park development. These streets will be constructed to City standards as discussed in the GDP.

Development of the site will require provision of a variety of services. The City of Chula Vista will provide flood control, public parks, fire protection, police protection, and sewer service. Otay Water District will provide water service while San Diego Gas and Electric Company will provide electricity and natural gas. Telephone service will be provided by Pacific Telephone Service. Finally, school facilities are under the jurisdiction of the Chula Vista City School and the Sweetwater Union High School districts.

The site will be extensively landscaped, as discussed in the General Landscape Master Plan in the GDP. The planned landscape concept is intended to define major landscape districts and neighborhoods and link them together with a "landscape passage system." This system will border all major roadways and is intended to result in visible, highly landscaped parkways which crisscross the planned development.

The landscape plan is divided into specifications for seven zones, coinciding with major intersections, project entry, major streets, local streets, and neighborhoods. Each zone is intended to establish landscaping criteria for these features. Major intersections and the project entry are intended to set the tone of the development and will utilize colorful and unusual plant material. Major streets (East Palomar Street, Medical Center Drive, Paseo Ladera, Telegraph Canyon Road, and East Orange Avenue) will be lined with formal planting, palm trees and/or canopy trees. Indigenous and native-like species will line open space areas. Local streets will utilize a formal planting of a dominant theme tree selected for each residential district within the development.

2.4 PROJECT PHASING

Three phases are proposed for the Sunbow project. Phase 1 assumes the development of planning areas 6, 7, 8, 9, 10 and 12-17 which would result in 861 single family dwellings (SFD), 620 multi-family dwellings (MFD), 10 acres of commercial and 10 acres of community recreation. Phase 2 includes planning areas 11, and 18-22 resulting in 303 SFD, 162 MFD and a 10 acre school site. Phase 3 would involve the development of the 46 acre industrial park. Project implementation will be coordinated with the City Growth Management Threshold Policy procedures (see Land Use Section 4.1 for description), which establishes requirements for adequate infrastructure utilities and services prior to or concurrent with development and construction.

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SECTION 3
ENVIRONMENTAL SETTING

The Sunbow project site encompasses 602 acres and is currently vacant. It is crisscrossed by a series of dirt roads with several areas where trash has been illegally dumped. Topographically, the site is characterized by gently to steeply sloping hillsides. Onsite elevations range from a low of approximately 200 feet (MSL) at the property's southwestern corner in Poggi Canyon to 500 feet MSL in the eastern portion of the property.

Vegetation consists primarily of mixed grasses with chaparral on the steeper portions of the site. Four geologic formations occur onsite. They are the Sweetwater, Otay, San Diego and Linda Vista formations. In addition, the La Nacion fault traverses the western portion of the site.

Natural drainage occurs primarily through two east-west trending canyons. One crosses the middle of the Sunbow property just south of the existing medical offices. This canyon is the location of the proposed eastward extension of Palomar Street. The second canyon, Poggi Canyon, is near the southern boundary of the site and is the location of the proposed eastward extension of Orange Avenue. The majority of the site drains through these two canyons to the west and south.

Surrounding land uses include vacant land to the east, which is Baldwin Company property. To the north are medical offices and the Vista Hill and Community Hospitals; to the northwest is the site of the approved Phase I of the Sunbow project development, which is currently under construction. To the north across Telegraph Canyon Road are existing residential uses. Immediately adjacent to the site to the west are single family residences, the Greg Rogers School Park and two schools. Vacant land, the Otay landfill and more residential development lie to the south.

Paved offsite access includes Telegraph Canyon Road to the north and Medical Center Drive to the northwest. I-805 is located approximately 0.5 miles to the west of the project site.

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SECTION 4
IMPACT ANALYSIS

4.1 LAND USE

Existing Conditions

The Sunbow project site consists of 602 acres located in the County of San Diego east of I-805 and adjacent to the eastern boundaries of the City of Chula Vista. Currently the site is vacant except for a series of dirt roads and areas where trash has been illegally dumped. Land to the north is developed with a hospital and medical center complex. The Community Hospital operates a helipad near the northern boundary of the Sunbow site. The helipad averages approximately 3 landings a month with approach zones to the hospital from the south and east. Under the conditions of the Conditional Use Permit (CUP) which allows operations of the helipad, the Hospital must prepare an acoustical analysis of the helipad operation when adjacent property develops.

Phase 1 of the Sunbow project (Rancho del Sur) and the Foxhill Run development are located to the northwest. Land to the east and south is currently vacant. Planning for future development of the area to the east is occurring now although no development plans have been submitted to the County of San Diego or the City of Chula Vista. Land to the west is developed with schools, a park and single family residences.

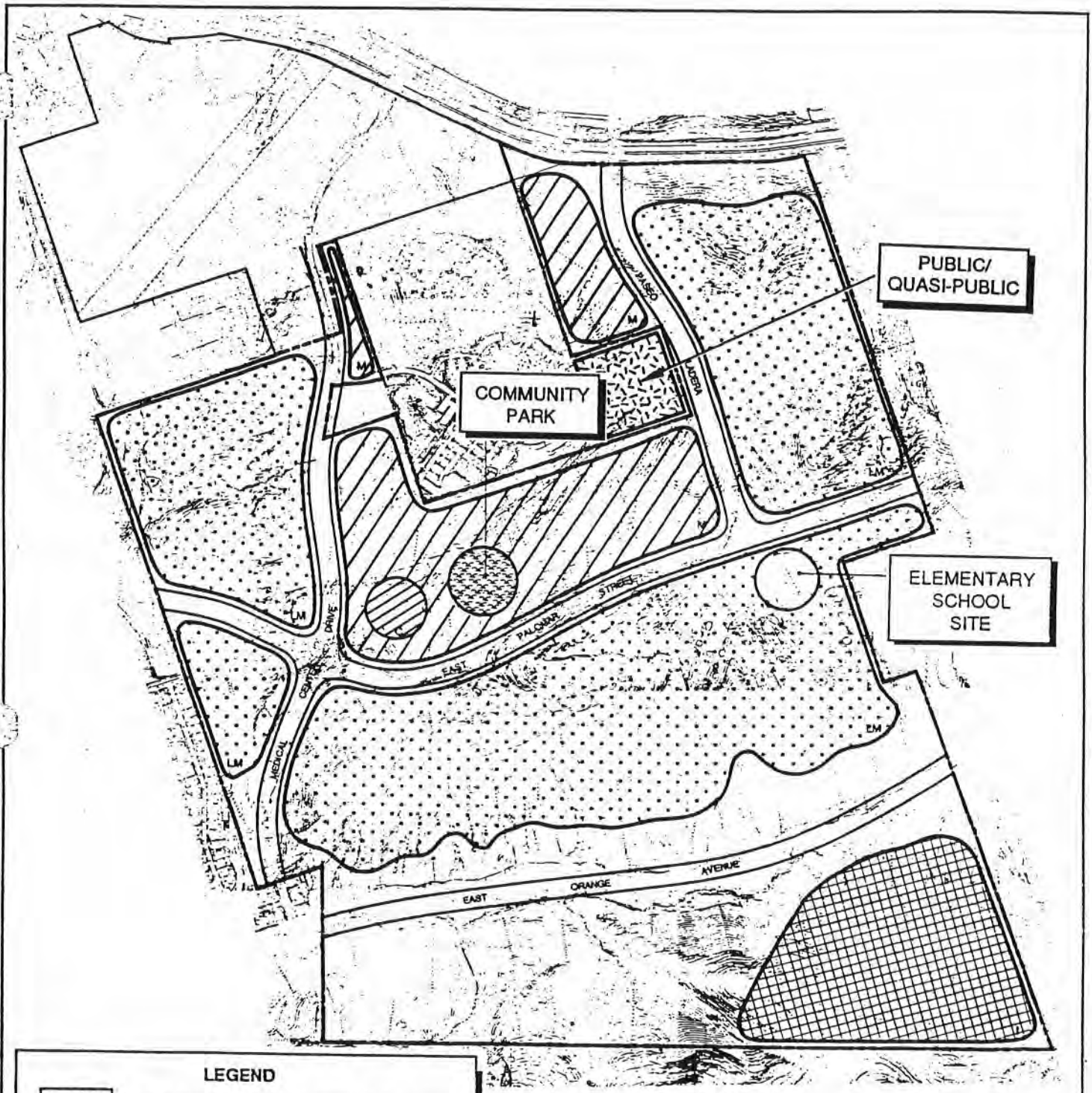
Applicable Plans and Policies

County of San Diego. The Sunbow site is unincorporated territory and is contained within the County's Otay Mesa Subregional Planning area. The land use designation assigned to the site by the County of San Diego is Residential 7 (7.3 du/acre). Existing County zoning is RS-4 (4.3 du/acre) and A70 (2 or 4 du/acre).

City of Chula Vista. The Sunbow site is included within Chula Vista's current General Plan which designates it as Medium Residential (4-12 du/acre) and calls for a park and a school in the general area. The City is currently updating its General Plan with final adoption expected in the summer of 1989. The draft General Plan proposed several scenarios for establishing new land use designations for the City. Scenario IV of the draft General Plan is recommended for approval and has been used in this analysis. The proposed land uses for the Sunbow project in the draft General Plan are RLM (Low medium, 3-6 du/acre), RM (medium,6-11 du/acre), open space and research/limited manufacturing. Commercial uses are designated for the intersection of Medical Center Drive and Palomar Street. Public/Quasi-Public use is designated on the 10-acre hospital property along the west side of Paseo Ladera adjacent to the hospital (hospital proposed commercial office site). See Figure 4-1 for the location of the land use designations as proposed in the draft General Plan.

Since the Sunbow site is not within the City's jurisdiction, no City zoning has been established. The applicant is proposing a Planned Community (PC) development. Specific land uses roughly correspond with the City's R-1 (low medium, 3-6 du/acre) and R-2 (medium, 6-11 du/acre) residential zones, CN (neighborhood commercial) and IL (limited industrial) zones.

City Threshold Standards. Until the General Plan is approved, threshold standards have been adopted to preserve the current quality of life of the City while the long-range documents are being reviewed. It is anticipated that the threshold standards will be included within the new General Plan as part of the Growth Management Element. Eleven



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General Plan Scenario IV Land Use Designations

FIGURE 4-1

issues were addressed in the policy document which established the thresholds. Each of the eleven issues (traffic, air quality, water, libraries, parks, sewer, police, fire/emergency services, schools, economics and drainage) was addressed in terms of a goal, an objective, a threshold or standard and implementation measures. Two types of implementation measures were adopted - those applied city-wide by a growth management committee on a periodic basis and those applied by staff on a project basis. Each of the threshold standards are addressed in the corresponding section of this EIR.

Impacts

This section evaluates the potential land use impacts which may result from implementation of the proposed Sunbow project. Impacts to specific issues such as traffic, air quality, and visual quality are addressed in the remainder of the Impact Analysis section under separate headings.

Implementation of the project would change the existing character of the property. It would convert vacant land into predominantly residential development. However, the proposed onsite uses are generally compatible with the existing and planned land uses in the vicinity of the Sunbow site. Possible impacts may result if adequate buffers are not provided between some of the existing uses and proposed residential development. Proposed residential development adjacent to the existing schools and Greg Rogers Park might result also in land use conflicts if setbacks and buffers are not adequate. The developments to the north, northwest, west and south are residential uses built at the same or higher densities and the onsite uses have been planned so that corresponding land use designations are roughly adjacent. The proposed low medium density, single family residential uses are placed along the western boundary and along portions of the northern and southern boundaries near existing residential areas.

The multi-family or higher density uses are placed east of Medical Center Drive, north of Palomar Street and adjacent to the hospitals and medical offices. The potential for land use conflicts between the proposed multi-family uses and the hospitals and surrounding single family residential areas would be minimized by roads, buffers and open space easements and does not represent a significant impact. Portions of the medical center complex have parking lots adjacent to the Sunbow boundaries and these areas are not expected to experience adverse land use impacts due to the spatial separation. However, those portions of the medical center with few existing buffers might experience conflicts.

There is a potential for onsite safety and noise impacts to future residents of the multi-family areas in the Sunbow project from the adjacent existing helipad operated by the Community Hospital. Under conditions of approval for operation of the helipad, when adjacent properties develop, the hospital must prepare an acoustical analysis of the helipad. If significant impacts of the helipad on adjacent uses occur and cannot be mitigated, the helipad will be abandoned (refer to Noise Section 4.6 for further discussion). No other impacts resulting from the incompatibility of land uses are anticipated.

City General Plan Consistency

Portions of the proposed project are incompatible with the land use designations contained in the current General Plan. As was stated previously, however, the City is currently preparing a new General Plan. The Sunbow development proposes uses identical to those recommended in Scenario IV of the draft General Plan. The hospital property (10-acre site) proposed pre-zoning to commercial office zoning (C.O.P.) is consistent with that parcel's Public/Quasi-Public land use designation under the General Plan Update (City of Chula Vista, August 1989). The analysis of impacts in this section is based upon adoption of the

land uses recommended by the draft General Plan and as proposed by the project. If the land uses contained in Scenario IV of the draft General Plan are adopted, no significant impacts would result. If there are major changes in the land uses designations for the property proposed in the draft General Plan, then additional environmental review would be required. Therefore, given the assumptions upon which this analysis is based, no significant impacts to planned land use designations would result from implementation of the project. Table 2 depicts the mixture of land uses for the Sunbow site as shown in the draft General Plan, including the unit range and target number of units, as well as the land uses and proposed number of units as proposed by the Sunbow development. The Sunbow development is 195 units below the target number of units in the low medium category while the number of units proposed for the medium density category is 195 over the target recommended by the City. This is not considered a significant impact since the overall number of units is consistent with the target number of units recommended by the City. Approximately 20 acres of potential residential development are dedicated to an elementary school site and recreational uses and may be available for a future transfer of density.

The following paragraphs list appropriate goals of the draft General Plan and discusses the project's consistency with those goals. Goal 1 states that it is a goal of the City to have a large and diversified economic base with the provision of employment opportunities in large scale planned communities like Sunbow. The Sunbow planned development provides several employment-generating uses including retail commercial and light industrial. It is anticipated that over 3,000 permanent jobs will be created by these uses. Goal 2 of the draft General Plan states that the retail base of the City should be improved and increased with community and neighborhood commercial centers in developing areas. The Village Center commercial uses within the project are located at the center of the development.

Goal 3 of the draft General Plan states that "It is the goal of the City to maintain a full diversity of housing types while maintaining an orientation to detached single family living." In support of this goal, objectives call for the diversity of housing types and prices, high standards of planning and design, development of multi-family housing in areas convenient to public services, facilities and circulation and the coordinated mixture of urban uses in planned developments.

Specifically for developments in the eastern territory, the draft General Plan encourages low medium density, single family residences. The Sunbow planned community includes a variety of housing types ranging from 4,000 to 7,000 square feet and larger single family lots, and multi-family uses clustered around the community recreational uses and commercial center. The General Development Plan contains design criteria which will guide the planning and design of these uses. The higher density housing and commercial/recreational uses are clustered near the existing medical center and hospital. The lower density residential uses are located to the west and south. Trails, greenbelts and open space are interspersed throughout the development.

The Sunbow project is also consistent with Goal 5, which calls for the preservation of open space areas and corridors. Poggi Canyon has been preserved to the extent possible while also allowing for the extension of the East Orange transportation corridor.

Governmental Structure/LAFCO

Since Goal 8 of the draft General Plan for the City of Chula Vista states that it is an objective of the City to to include all the area contained in the General Plan within the City's sphere of influence, this section assesses the jurisdictional issues related to the proposed

Table 2

GENERAL PLAN LAND USE DESIGNATIONS

	Acres	Draft General Plan Unit Range	Draft General Plan Target Units	Proposed Sunbow Unit 5
Low Medium (3.0-6.0 du/ac)	275.5	827-1653	1240	1045
Medium (6.0-11.0 du/ac)	83.0	498-913	706	901
Subtotal [1]	358.5	1325-2566	1946	
Neighborhood Commercial	10.0			
Industrial/ R & D	46.0			
Open Space and Trans. Corridors [1]	187.5			
Total	602.0	1325-2566 du	1946 du	1946 du

[1] Note that park, school, roadway and open space acreages are not specified separately under the General Plan categories.

Sphere of Influence determination and annexation request to the Local Agency Formation Commission (LAFCO) which has the discretionary power to approve or deny changes in governmental organization. LAFCO will be a responsible agency as defined by CEQA for the purposes of reviewing this EIR. Although the primary objective of this section is to evaluate the proposed changes in relation to the criteria used by LAFCO, the LAFCO staff and Commission will determine the merits of the proposed reorganization and will hold public hearings subsequent to discretionary approval by the Chula Vista City Council.

Because the project is located within the County, included within the discretionary actions required for the Sunbow project is annexation to the City of Chula Vista. LAFCO previously placed the project site and territory to the east within a special study area. A special study area indicates that a sphere of influence determination must be made prior to annexation. A sphere of influence is defined as "a plan for the probable ultimate physical boundaries and service area of a local government." Refer to Figure 4-2 for boundaries of the City of Chula Vista and its adopted sphere of influence.

In considering the City of Chula Vista's request for a Sphere of Influence determination, LAFCO will consider a number of criteria pursuant to the Corteses/Knox Local Government Reorganization Act. The factors which LAFCO uses and a discussion of their applicability to the Sunbow project follows:

1. The present and planned land uses in the area including agriculture and open space

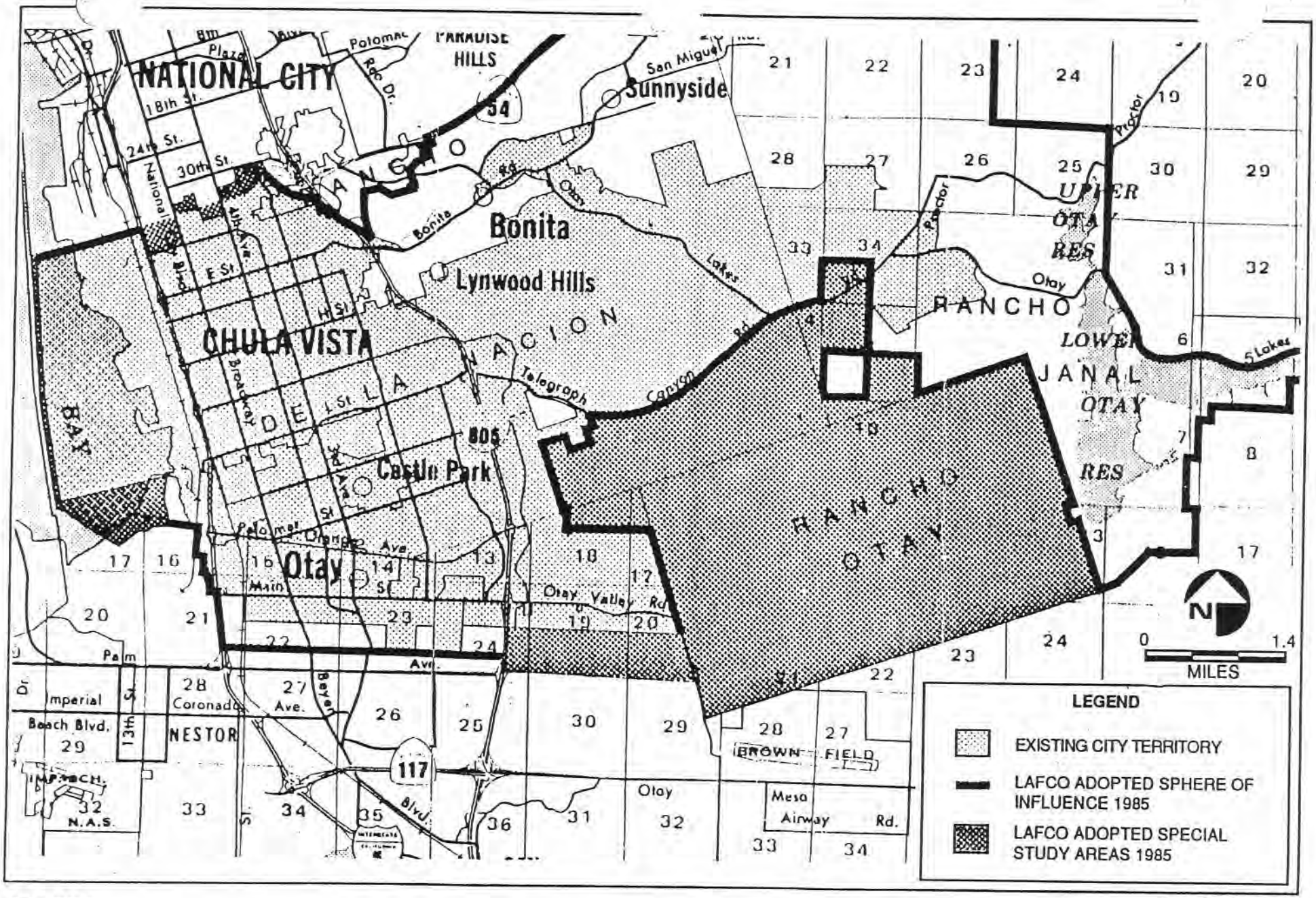
   Present land uses in the area include residential development in the City of Chula Vista to the north, west and portions of the south. There are medical offices and hospitals to the north. The remaining land uses are undeveloped. To the east is the United Enterprise property whose owners are discussing development with various agencies. For a discussion of onsite proposed uses refer to the preceding discussion.

   Because it is a requirement of LAFCO that a potential annexation site be prezoned, included within the discretionary actions for the project is a prezoning application. The applicant is proposing a Planned Community (PC) development. Specific categories within the prezoning application are anticipated to correspond with the City's R-1 (low medium,3-6 du/acre) and R-2 (medium, 6-11 du/acre) residential zones, CN (neighborhood commercial) and IL (limited industrial) zones. The 10-acre hospital property pre-zoning request is for a commercial office (C.O.P.) zone.

   There are no agricultural uses onsite and none in the immediate vicinity. There have been agricultural uses to the east in the past but most have been discontinued. The Sunbow project has proposed approximately 29% of the site as open space.

2. The present and probable need for public services in the area

   The future service needs created by development of the Sunbow project are evaluated in detail in the Services and Facilities section of this EIR. The majority of the territory to the east of the project site is undeveloped and is an area of rapid growth. Some of the services in the area are at capacity and must be expanded to accommodate additional development.



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Adopted Sphere of Influence

FIGURE 4-2

3. The present capacity of public services and facilities and adequacy of public services which the agency provides or is authorized to provide

   The capacity of the various agencies to provide service to the proposed development is discussed in the Services and Utilities section. Included are recommended mitigation measures to alleviate shortfalls. Water and schools have established shortfalls and will require mitigation measures. Fire, police and sewer will be provided by the City, which has threshold standards below which service levels cannot drop.

4. The existence of any social or economic communities of interest in the area if the Commission determines that they are relevant to the agency

   The project site is currently vacant so there are no social or economic communities of interest. Phase 1 of the project, which is owned by the same company, is already developed and within the corporate boundaries of the City of Chula Vista.

In addition to making a sphere of influence determination, LAFCO will also evaluate the annexation request. In evaluating potential annexations, LAFCO considers if the proposed annexation "encourages planned, well-ordered, efficient urban development patterns with appropriate consideration of preserving open space lands within those patterns." LAFCO also discourages annexations which lead to urban sprawl and encourages the orderly formation and development of local agencies. The Sunbow development is adjacent to existing City territory and developments. The City will provide all services and facilities except water and schools, and extensions of lines for services are immediately adjacent to the site.

Mitigation Measures

Development plans for the site are consistent with the land uses proposed in Scenario IV of the draft General Plan. Therefore, implementation of the proposed Sunbow project would not result in significant adverse land uses impacts. Specific impacts which would result from actual construction of the proposed land use designations are discussed in the appropriate sections of this EIR. The perception of the increase and change in land use from vacant land to mixed uses could cause visual impacts to surrounding residents and could be mitigated by buffers, landscaping and adequate mitigation of other impacts. Refer to the Landform Alteration/Visual section of this EIR for a discussion of visual impacts. The following are mitigation measures recommended for identified land use conflicts.

- Adequate buffers between varying land uses (i.e., landscaping, setbacks, slopes) shall be provided to the satisfaction of the City Planning Director, especially between existing medical uses and residential developments, and schools or parks and residential tracts. Precise plan review and approval of each tract shall occur to verify approval by the City.

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Proposed Grading Plan

FIGURE

4-4

Analysis of Significance

Development of the project site would entail extensive grading and the creation of large terraced areas. The landform alteration and visual impacts associated with development of the Sunbow site would be adverse and significant, with the exception of the 176-acre Poggi Canyon open space corridor which will be retained as natural open space. The incorporation of appropriate landscaping and design guidelines would partially mitigate the visual impacts but landform alteration impacts would remain significant. Only the "no project" alternative would completely avoid impacts.

4.3 PUBLIC SERVICES AND UTILITIES

This section of the EIR discusses the potential impacts to public services and utilities from development of the Sunbow site. Relevant correspondence is included in Appendix B of this EIR. The City Of Chula Vista has established threshold standards for public services or utilities and these standards have been used in the following analysis. As a result of rapid growth within eastern Chula Vista, many public services will be subjected to cumulative impacts.

4.3.1 Fire and Emergency Medical Services

Existing Conditions

The project site is not currently within the boundaries of a fire protection district. Wildland fire protection is provided by the California Department of Forestry. Upon annexation the City would serve the Sunbow site through the Chula Vista Fire Department which maintains five stations. The main station (Station #1) is located in the Civic Center Complex at 447 F Street and is the largest in terms of apparatus available and personnel. Station #2 is located at 80 East J Street just west of I-805. Station #3 is located in the Castle Park area at 226 East Oneida Street and Station #4 is in the Sweetwater and EastLake areas at 861 Otay Lakes Road. Station #5 serves the Castle Park/Montgomery area from its location at 391 Oxford Street. Ambulance service is provided by Hartson's, a private ambulance company.

The adopted threshold standard for Chula Vista's fire and emergency medical service states that properly equipped and staffed fire and medical units shall respond to calls throughout the City within 7 minutes in 85% of the calls. The Growth Management Oversight Committee has adopted a new threshold level which requires that 84% of Priority 1 calls would be answered in 7 minutes and that the average response time for Priority 1 calls would be 4.5 minutes or less; 62% of the Priority 2 calls would be answered with 7 minutes. These threshold standards have not been adopted by the City Council.

In anticipation of the eventual annexation of the Eastern territories, including the Sunbow site, the City has prepared a Draft Fire Station Location Study which reviews the long-term fire protection needs for all the area contained within the draft General Plan. The location study recommended a fire station network to serve the projected population of the entire city at buildout and was designed so that future fire response times would be in conformance with threshold standards.

The Draft Fire Station Location Study recommended a network of 8 stations throughout the City. Of the six existing stations, three would be relocated. Station #4 would be closed at some point in the future and two new stations would be opened. One station would be located in the Rancho del Rey development and one on the proposed Salt Creek I site. The study recommends moving Station #3 to a location within the Sunbow site near Orange

Avenue and Brandywine. Station #3 would be moved there when one of the three following threshold is reached:

- 50% of buildout for Sunbow Phase I and Phase II
- construction of the Otay Rio Business Park
- relocation of the City of San Diego's Station #6

Impacts

The development and annexation of the Sunbow project would incrementally increase the impacts to the City of Chula Vista's fire protection and emergency medical service resources. Development would require the expansion of the fire department's facilities to serve the additional population from the Sunbow development of approximately 5,388 people.

If the proposed Draft Fire Station Location Study network is implemented, 98.8% of the City planning area's dwelling units would be within a 7 minute response time the facilities are not constructed as recommended, then a significant and adverse impact would result. The Sunbow project would contribute to the incremental increase in demand for services and must contribute funding for the new fire protection facilities through development fees assessed by the City at the time of construction.

Mitigation Measures

- To maintain adequate fire protection and emergency medical services to the Sunbow site, expansion of the existing City Fire Department facilities will be required. The project shall adhere to the recommendations contained in the Draft Fire Station Location Study, if adapted, by funding its appropriate share of facilities to offset the incremental increase in demand. The City of Chula Vista will determine the amount of impact fees and/or share of equipment and personnel costs needed to serve the additional territory and population.

- The Fire Department's requirements for roadway standards, hydrant spacing, fire flows pressure, fire sprinkler and alarm systems shall be adhered to during the project planning and construction.

Analysis of Significance

The demand on fire and emergency medical resources would increase as a result of implementation and annexation of the Sunbow project and represents a significant impact if appropriate facilities are not constructed. The contribution of the project applicant of fees/equipment and adherence to the requirements of the Fire Department would reduce the impacts to a level of insignificance.

4.3.2 Police

Existing Conditions

The project site is currently served by the County of San Diego's Sheriff Department out of the Imperial Beach substation. At present, response times from the Sheriff's substation are approximately 3-5 minutes for priority calls.

Upon annexation the site would be served by the Chula Vista Police Department. Under the Department's current beat structure, the Sunbow project is bordered by two beats, 29

and 32, and would probably be divided between those two beats. Both beats are manned by one patrol car 24 hours a day. Police response usually comes from mobile units in the field and average response times for priority calls is approximately 4 minutes and 5 seconds. The current officers per 1,000 population ratio is approximately 1.13.

The City General Plan Threshold Standards state that it is the standard of the City for police service to provide properly equipped and staffed police units responding to emergency calls throughout the City as follows:

- Respond to 84% of Priority I calls within 7 minutes and maintain an average response time of 4.5 minutes or less.
- Respond to 62% of Priority II calls within 7 minutes and maintain an average response time of 7 minutes or less.

Impacts

The annexation development of the Sunbow project will result in increased demands for police protection services. An increase of traffic on the roadways serving the vicinity of the project site would also increase the demands for services. The Police Department is currently meeting threshold standards for service. However, the ultimate population of 5,388 generated by the project would require the addition of approximately 6.6 officers to maintain current threshold levels. Plans are in process to increase police service levels to the residents in this portion of the City as it develops. If the City's Growth Management Oversight Committee (GMOC) determines that threshold standards are not maintained for police service levels, a moratorium within the project area could occur if the City Council determined it necessary. Impacts associated with development of the Sunbow site are not considered significant by themselves; the impacts are, however, part of a cumulative increased demand on police services.

When the entire Eastern Territories is annexed and fully developed, the single police facility now serving the City would not be sufficient to handle the increased manpower necessary to provide response times as established by the Threshold Standards. Current standards (stated above) would ensure adequate response time for emergency calls and some latitude for non-emergency calls. In addition, the Department is addressing the need for a second facility to be located within the Eastern Territories.

Mitigation Measures

- Additional personnel are planned for the police department which would mitigate impacts to service levels since the Chula Vista Police Department receives funding from the City's general fund. Police funding requirements for this project shall be met by its contribution to the General fund. These project-generated revenues to the City could be used to upgrade the staffing and facilities of the police department.

Analysis of Significance

Since the Chula Vista Police Department is currently operating within the threshold standards for service levels and since the City is planning to add additional officers, project-related impacts are not anticipated to be significant or adverse. The contribution by the applicant of fees and project-generated revenues would serve to reduce potential impacts to a level of insignificance.

4.3.3 Sewer

Existing Conditions

The project site is within three drainage basins: Telegraph Canyon, Palm Canyon and Poggi Canyon (see Water Quality/Drainage section). At present there are no sewer facilities on the Sunbow project site. The City of Chula Vista is the public agency which currently provides sewer service in the project vicinity. The City transports its sewage to the San Diego Metropolitan Sewer Service (METRO) plant on Point Loma which is currently operating at 180 million gallons a day (mgd) with a peak flow of 240 mgd. The City of San Diego which operates the the plant has been mandated by the Environmental Protection Agency to convert their existing advanced primary treatment to secondary. The effect of this conversion is a reduction in the Point Loma plant's treatment capacity. However, the City of Chula Vista has 19.1 mgd of purchased capacity in the METRO system and currently is using approximately 12.5 mgd, leaving 6.6 mgd available for growth in the near future. The ultimate buildout flow for the City is estimated to be 29.6 mgd.

The project area is associated with the following sewer systems: the Telegraph Canyon system; the Poggi Canyon trunk sewer (capacity problems currently exist); and the Palm Canyon trunk sewer (capacity problems also currently exist). Portions of Poggi and Palm Canyon sewers are operating at or beyond design capacity.

The City's adopted threshold for sewer service states that individual projects, in order to implement development, will provide necessary improvements consistent with the City's plans. It also states that sewage flows and volumes shall not exceed City engineering standards. If a project will cause thresholds to be exceeded, the City may choose to prohibit that development until adequate sewage capacity is provided.

Impacts

Estimated sewage flows for the Sunbow project would be approximately 0.545 million gallons per day (mgd) based on 80 gallons of sewage per capita per day (gpd). This represents 2% of the City's current total capacity and 1% of the ultimate buildout capacity. Although the demand for sewage capacity from the Sunbow project is not considered significant by itself, it represents a contribution to cumulative impacts.

The northeastern portion of the project site will be sewered to the existing line in Telegraph Canyon Road from a proposed 8-inch sewer line in Paseo Ladera. Currently the Telegraph Canyon line is at 40% capacity. The effluent from the Sunbow project and demands from numerous other developing projects to the east of Sunbow (such as EastLake Greens, Salt Creek I, Salt Creek Ranch, Sunbow I) will further reduce the capacity resulting in cumulatively significant impacts.

The remainder of the site will be graded to allow a gravity sewer system to flow into the existing 18-inch line in East Orange Avenue. This sewage will flow into the existing Date-Faivre Trunk sewer. Capacity in these lines and in associated pump stations is considered adequate to handle the anticipated sewage flows. The majority of the existing trunk sewer between Orange Avenue and the connection to Date-Faivre line and the metering station is surcharging during peak flow. Consequently some upsizing of the existing sewer system between East Orange Avenue and the Date-Faivre Trunk sewer will be required.

The impact to existing facilities associated with the Sunbow project would be considered significant if no new sewer lines are constructed within the Telegraph Canyon basin. If

planning, funding and phasing of new facilities coincide with project development, the adverse impacts to the delivery system could be mitigated.

Mitigation Measures

- Additional needed sewer facilities identified in the Impacts Section and/or in future subsequent analysis shall be funded in part by the project applicant, as deemed necessary and appropriate by the City.

- Prior to approval any SPA Plan in the Sunbow project, a detailed analysis (sewer Master Plan) of project sewage generation, existing facilities' capacity, cumulative sewage generation in the area and proposed facilities' transport and treatment shall be prepared by the applicant and approved by the City Public Works/Engineering Department. The Master Plan shall ensure that all facilities will operate below design capacity with project and cumulative flows and shall address funding of required facilities.

- The developer shall enter into an agreement with the City, prior to issuance of grading permits, to participate in funding of a parallel sewer to the Date-Faivre trunk sewer.

In addition, to mitigate the expected shortfall in sewage treatment capacity required by the City at buildout, the City should actively participate in the METRO expansion planning process and evaluate alternatives, if necessary, to dependence on the METRO system. All policies regarding wastewater which are contained in the Public Facilities Element of the draft General Plan should be implemented.

Analysis of Significance

The Sunbow project and other development projects in the vicinity create a cumulative impact since many sewer facilities are at or near capacity. In order to accommodate planned development, the City of Chula Vista has adopted requirements of developers to provide the necessary sewer facilities concurrent with need and development. The City has also adopted threshold standards which could require a moratorium if sewer capacity does not match the need for sewer. The impact in providing sewer service would be reduced to a level of insignificance if the policies and standards are met and required facilities are implemented in a timely manner.

4.3.4 Water

Existing Conditions

San Diego is a semi-arid region with very limited surface and groundwater supplies. Imported water makes up approximately 85 to 90% of San Diego County's annual water demand of over 550,000 acre feet per year. In 1985, the Central Arizona Water Project was scheduled to begin diverting Arizona's share of Colorado River water. Although total diversion will significantly reduce supplies to southern California, construction of Arizona's facilities are currently behind schedule and there is temporarily a surplus of water. Thus water availability to the San Diego County Water Authority (CWA) member agencies is currently adequate but regional shortfalls in the supply of water are expected for the future. Existing and proposed CWA infrastructure facilities are designed to meet the projected needs of the various water service providers in the region through the year 2,000.

The Sunbow project site is located within the boundaries of the Otay Water District's (OWD) central area. The entire district encompasses 128 square miles located between the United States-Mexico border and the City of San Diego. The central area is roughly bounded by I-805 on the west, the Otay River on the south, the Lower Otay Reservoir on the east and Bonita on the north. In 1987 approximately 30% of the district's service area was developed and 9% of its supply was used for irrigation in the 624 pressure zone. The OWD is one of the 24 agencies of the CWA which receives water from the Colorado River and the State water project through a contract with the Metropolitan Water District of Southern California. Water is provided to the district by the Second San Diego Aqueduct.

During peak demand periods the district is sometimes unable to meet all demands for water service. This is due primarily to the lack of adequate water supplies and storage facilities to meet short-term peak demands. The two aqueducts operated by the CWA to import water into the San Diego region and ancillary infrastructure are not always adequate to meet peak demands. Agreements between the water agencies and developers have been negotiated which will assure adequate storage facility financing.

The OWD is also forming Improvement District No. 27 to provide additional storage capacity and distribution lines for the area including the Sunbow site. There are no existing water lines onsite. A 16-inch water main will be extended from Telegraph Canyon Road south along Paseo Ladera to East Orange Avenue and along Medical Center Drive to East Orange Avenue. A 12-inch line will be extended along East Palomar Street to the eastern project boundary and a 16-inch line will be extended along East Orange Avenue. Eight-inch water lines will be provided within the local residential streets.

The threshold standard for water quality and availability as adopted by the City of Chula Vista states that adequate storage and facilities must be constructed concurrent with need. To ensure that this threshold is met, the City requires a service availability letter from the corresponding water district for each project. An annual development forecast from the City to the CWA and OWD is also required which would provide a 12-15 development forecast and would request an evaluation of their ability to accommodate the projected growth. The Growth Management Oversight Committee (GMOC) will review impacts to water availability and quality annually after reviewing the districts' responses. The GMOC will then present their report to the City Council.

Impacts

Based on the OWD's Central Area Water Master Plan the ultimate average daily water demand for the district's water service area will be 45.5 mgd. The Sunbow development is expected to require approximately 2 mgd upon ultimate buildout or 4% of the district's ultimate demand. The Otay Water District was postponing water service commitments for any new developments until agreements with each developer are signed. Agreements have now been negotiated to provide the financing and constructing of terminal reservoir storage. In addition, district staff is proposing a water allocation plan limiting the number of connections and connection fees. If existing and planned requirements and proposals to construct new and expanded facilities within the boundaries of OWD are approved and implemented, infrastructure to provide water would be ensured and no significant impacts to water delivery would result.

Water supply via the CWA aqueduct is not adequate during peak demand periods and any additional demand on the already overburdened regional supply must be considered significant. Mitigation below a level of significance is possible by increasing the water supply available to OWD from CWA which would require a new aqueduct, additional storage facilities and assured increases of water supply. But the amount of water received

by CWA and the entire southern California region is expected to be reduced greatly and an alternative water supply is not assured. This is a regional and statewide problem. To minimize the situation, serious water conservation efforts should be implemented on a project specific and regional basis.

Any development adds an incremental increase in the area-wide demand for more imported water. Since the availability of water in the region is uncertain, meeting additional water demands adversely affects the existing supply and facilities and represents a significant increase in the region's water demands. Although it is beyond the scope of individual projects to address the regional shortage of water, each project can implement onsite water conservation measures to partially mitigate the impacts.

Mitigation Measures

- Water conservation measures shall be included within the SPA plan. These should include, but not be limited to, mandating the use of reclaimed water, maintenance of minimum water pressure levels within residential units, the incorporation of drought-tolerant and naturalized landscaping and the use of soil moisture override systems to avoid watering when the ground is saturated. Water conservation measures as required by state law (i.e., low flow and water efficient plumbing) will also be incorporated into the project design. With the adoption of these conservation measures, the project's water requirements could be reduced and the impact to the regional water shortage would be lessened but would not be avoided.

- Finalization of the onsite water system shall be subject to a detailed hydraulic analysis prepared by the applicant and approved by City staff prior to any final map approval, to ensure adequate pressure and service.

Analysis of Significance

No significant impacts to existing OWD infrastructure are anticipated if the modifications to existing facilities and additional facilities as required by the District are constructed. A proportionate share of the funding for the construction of these facilities would be the responsibility of the Sunbow applicant. Adherence to the mitigation measures and others as required would reduce the project impacts to the water delivery system below a level of significance.

Regarding water supply sources, the proposed project would incrementally increase regional water consumption which would be only partially mitigated by additional storage capacity and incorporation of the water conservation measures listed above. As with any development, the project will contribute to the cumulatively significant regional impact to the area's water supply.

4.3.5 Parks and Recreation/Open Space

Existing Conditions

The project site is located near two existing major regional park facilities, the Sweetwater Regional Park and the Otay Lake County Park, and near a major park planned for the Otay River Valley. Because regional park needs are being or will be met by these facilities, the City is primarily concerned with the development of neighborhood and community parks. The 47-acre Greg Rogers community park, also used as a neighborhood park and known as the Sunbow Phase I Neighborhood Park, is located near the northwestern boundary of

the Sunbow project site. It contains turfed play areas, picnic facilities, a tot lot and ballfields. A community park site is also designated in the proposed General Plan for the Sunbow property.

The policies established in the proposed General Plan state that community park should be designed to serve more than one neighborhood and vary in size but should generally contain more than 15 acres. These parks are planned to provide a variety of land uses including swimming pools, playing fields, recreational and cultural centers and picnic areas. Parks are to be located adjacent to elementary schools wherever possible to promote multiple use of facilities and near those areas they are designed to serve. The standards established in the threshold standards as adopted by the City for neighborhood and community parks are listed below:

NEIGHBORHOOD PARKS

Area: 3 acres for every 1000 persons served
Minimum Desirable Size: 5 acres when adjacent to an elementary school, 10 acres when not adjacent to an elementary school
Population Served: 2,500-5,000 persons
Services Radius: 1/2 mile
Purpose: To provide near-at-hand recreational facilities and to serve as a neighborhood focal point

COMMUNITY PARKS

Area: 3 acres for every 1000 persons served
Minimum Desirable Area: 15 acres
Population Served: 7,500 persons or more depending on the acreage of the park
Service Radius: 1.5 miles
Purpose: To provide recreational facilities which require more space than a neighborhood park site can accommodate, such as tennis courts, swimming pools, multi-purpose courts, community centers or recreational centers

Currently the City has 291 acres of existing parkland and a population of 125,712 for a parkland/1000 person ratio of 2.31 acres compared to the 3 acre threshold standard. The shortfall in parkland is in the area west of I-805 and not in the developing areas east of I-805. When a comparison is made of the parkland available and the population for the area west of I-805 and for the area east of I-805, the existing ratios are 1.26 acres per 1000 persons and 5.85 acres per 1000 persons respectively. The City Council is planning to pursue a separate Master Plan and implementation program to upgrade the facilities for the areas west of I-805.

Impacts

Based on the City of Chula Vista's threshold standards for parklands and the project's projected population of 5,388, 15 acres of parkland would be required. The applicant for the Sunbow project is proposing a 10-acre community recreational center with extensive facilities including an Olympic size swimming pool. The 10-acre park proposal is based on a study conducted by the applicant which indicated that the City had adequate parkland within the vicinity but lacked active recreational facilities.

City ordinances permit the City Council to accept facilities as proposed by the Sunbow development in lieu of the standard parkland acreage dedication; the City Parks and

Recreation Department is in support of the proposed alternative parks plan. The proposal provides recreation facilities equating in excess beyond City Park ordinance requirements. The applicant's proposal also includes additional improvements to Greg Rogers Park as requested by the City's Parks and Recreation Department. The department has further indicated a recommendation to locate the elementary school adjacent to the neighborhood park, and to coordinate planning of the village center and the adjacent park. No significant impacts are expected from the project since the applicant is required to comply with the City's requirements and the threshold standards.

The General Development Plan illustrates that 176.6 acres, or 29% of the project site, is open space. The majority of the open space area will be slopes in excess of 25%. The 176.6 acres of open space would be located primarily in Poggi Canyon south of the extension of Orange Avenue in the southwestern portion of the project site. Poggi Canyon is considered a significant visual and biological resource. No significant open space impacts are anticipated to result from project implementation.

Mitigation Measures

- The project shall comply with City parkland requirements by provision of acreage and facilities deemed appropriate by the City, to be determined at time of SPA Plan submittal.

Analysis of Significance

The Sunbow project proposed parkland and open space dedication will comply with City threshold standards and no significant adverse impacts are anticipated.

4.3.6 Schools

Existing Conditions

The project site is located within the jurisdiction of two school districts - the Chula Vista City School District (CVCSD), which serves grades kindergarten through six, and the Sweetwater Union High School District (SUHSD), which serves junior and high school students.

The Chula Vista City School District is comprised of 29 elementary schools. Enrollment has grown from 14,000 students in 1983-84 to 15,500 students in 1987-88, an increase of 10%. The District is planning new facilities including a school in the EastLake development on Hillside Drive and another one in the Rancho Del Rey development at the intersection of Paseo Ranchero and East J Street. Chula Vista Elementary school, located on Buena Vista Road south of East H Street, opened in early 1989 and currently has 320 students.

During the 1988-89 school year, the entire district enrollment of 16,434 students. The closest elementary schools to the Sunbow project site are Rogers (510 East Naples), Parkview (575 Juniper) and Kellogg (229 East Naples). The capacities of the permanent facilities and the current enrollments at these schools are listed below:

School	Capacity	Current Enrollment
Parkview	600	577
Rogers	440	432
Kellogg	440	436

The Sweetwater Union High School District, with an enrollment of 26,845 students, operated beyond capacity during the 1988-89 school year. The closest secondary schools are Bonita Vista and Hilltop Junior and Senior High schools. The capacity and current enrollments for these schools are listed below:

School	Capacity	Current Enrollment*
Bonita Vista JH	1524	1525
Bonita Vista HS	1932	1740
Hilltop JH	1506	1378
Hilltop HS	1508	1478

*Does not include unhoused students

A new high school in the EastLake Greens neighborhood is scheduled for completion and opening in fall, 1991. Construction of another junior high school within the Rancho del Rey development is expected to begin before 1992. The need for another high school site has been discussed with the Baldwin Company, which owns territory east of the Sunbow site. Each developer is required to contribute financially to the acquisition of land and construction of new school facilities in accordance with state law. The amount of the contribution is dependent upon the district's requirements and can be up to $1.53 per square foot of site coverage for residential developments.

Other methods of creating additional student capacity are available to school districts, some of which are being pursued by SUHSD. For example, the District is planning to convert senior high schools to 4-year institutions, effectively increasing capacity at certain junior highs. Additionally, SUHSD utilizes portable classrooms on existing campuses to temporarily handle over-crowding. Finally, many districts are exploring the possibility of the year-round school program and/or change in attendance boundaries to alleviate the enrollment/capacity problem (no final actions to-date by SUHSD have yet occurred pursuant to implementation of year round school programs).

The City of Chula Vista's threshold requirements state that both districts shall be provided with development forecasts so that school construction can be completed concurrent with need.

Impacts

On a short-term basis, the development of the project would potentially create an adverse and significant impact on both elementary and secondary schools in the area. However, if school construction is phased concurrent with residential development, the impacts would be mitigated to a level below significance. In addition the use of temporary or portable facilities to expand capacity would initially alleviate the impact of the additional students until permanent facilities can be built.

The Chula Vista City School District assumes an average of 0.3 students per dwelling unit. Full buildout of the Sunbow project would result in 1946 dwelling units and an estimated 534 elementary students. The district estimates approximately 600 students for each elementary school, so the Sunbow development would generate enough students for a new school. The developer has entered into an agreement with the district to form a Mello-Roos district and to provide, among other things, an elementary school site on the Sunbow site. Timing for construction of the school will be determined by the school district and will be keyed to the number of dwelling units built.

The Sweetwater District has calculated an average student generation factor of 0.19 junior high and 0.29 senior high students per household. Based on these rates, the Sunbow development will generate approximately 900 secondary students at buildout. These secondary students will attend the Hilltop schools which are currently operating near or at capacity. This represents a significant impact.

Additionally, because educational facilities must be provided concurrent with need, if a school planned within the vicinity is not phased with housing, significant impacts would occur. This, however, would represent only a short-term impact. If facilities are built concurrently with housing, the impact would be reduced below a level of significance.

The project applicant has entered into an agreement to establish Mello-Roos Community Facilities District with both districts to assist in financing the expected school needs. The Mello-Roos Community Facilities Act of 1982 authorized the establishment of community facilities districts for the purpose of acquiring or constructing public facilities. The districts may issue bonds and levy special taxes to finance the construction or acquisition of any public facility that has otherwise been authorized for construction or acquisition. Utilization of the Mello-Roos district to finance school construction, in lieu of the fee payment, would also help mitigate the impact of the Sunbow project on schools.

Mitigation Measures

- The developer shall cooperate with both school districts in implementing the Mello-Roos CFD created to provide adequate funding (per state law) for student housing facilities. Interim fees may be required by the Districts (payable prior to issuance of building permits) until the Mello-Roos districts are implemented, if determined necessary by each school district.

Analysis of Significance

If the required educational facilities are not provided concurrent with need, impacts resulting from implementation of this project would be significant. If the required facilities

are constructed as planned, no significant project or cumulative impacts on schools is expected to result from implementation of the Sunbow project.

4.3.7 Libraries

Existing Conditions

The City of Chula Vista currently operates one central library located at 365 F Street in the Chula Vista Civic Center. The library contains approximately 190,000 volumes and circulates over one million books per year. During the 1988-89 fiscal year the library averaged 2,032 patrons per day. In terms of books and patrons served, the library is currently operating at capacity (Howard 1989).

In addition to the central library, the City of Chula Vista pays the county of San Diego to operate two libraries in the area. The libraries are branches located south of Chula Vista in the Montgomery area. The first, Castle Park Library, is located at 1592 Third Avenue and the second, Woodlawn Park Library, is located at 115 Spruce Road. The two branches contain a total of approximately 14,000 volumes with 36,604 volumes circulated from Castle Park and 4050 volumes circulated from Woodlawn per year. Both branches are operating below capacity since the County has a circulation system which includes other County branches. The City is scheduled to assume responsibility for these libraries in 1989.

The City of Chula Vista's library threshold objective is to provide supplemental branch library facilities in the Montgomery/Otay area and in the area east of I-805. A draft Library Master Plan has been prepared for the Chula Vista library system identifying the future facilities required as a result of growth in Chula Vista. Chula Vista will need approximately 123,700 square feet of new public library space by the year 2010, based on projected population. The recommendations contained within the Master Plan state that three full-service facilities would be required to serve the central Chula Vista/Bayfront area, the Montgomery/Otay area and the Sweetwater/Bonita area and that the three facilities should be operational by 1995 at the latest. A leased storefront or portable facility will be needed in the eastern Chula Vista area by the year 2000.

Impacts

The 5,388 residents expected to be generated by the Sunbow development would increase the demand on library facilities within the project vicinity; this would represent a potentially cumulative significant impact. The growth anticipated in eastern Chula Vista as a result of the Sunbow development and other developments in the area will require an expansion of existing facilities. Smaller branch libraries or a large facility within Chula Vista's eastern territory would increase the system's capacity.

The City of Chula Vista's threshold standard for libraries is 500 square feet of fully staffed and equipped library space per 1000 residents. A one-acre library site has been included within the planned community regulations for the EastLake project located east of Sunbow. According to the director of the Chula Vista public library system, the branch will be necessary once 30,000 people are present in the area (Lane 1986). Since it takes approximately three years to plan and construct that type of library facility, plans for the branch library should be developed concurrent with residential development.

Financing for the library will likely be achieved by requirement of developer fees or through a Mello-Roos Community Facilities District or special grants. If library facilities are not provided concurrent with residential development, adverse, short-term impacts

would result. Since the draft Library Master Plan has pinpointed the needs within the public library system, new facilities are in the planning phase. Therefore, if land and funding for constructing new facilities are available and construction schedules coincide with new development, the impacts to the Chula Vista library system associated with the Sunbow project would be reduced to a level of insignificance.

Mitigation Measures

- The potentially adverse impact associated with development of the Sunbow project and other nearby developments would be mitigated through the development and construction of the facilities proposed in the draft Library Master Plan provided that construction is within the recommended time frames. The applicant for the Sunbow project shall participate in the funding of the anticipated library facility to serve the vicinity.

Analysis of Significance

The potentially adverse impact on library facilities would be mitigated through the development and construction of the facilities listed in the draft Master Plan.

4.3.8 Gas/Electric/Energy Conservation

Existing Conditions

The San Diego Gas & Electric Company (SDG&E) provides electricity and natural gas to the area.

Impacts

SDG&E will provide gas and electricity to the project. Existing distribution facilities nearby would be extended to serve the development. The proposed project is not expected to create a significant increase in energy demand, although it must be noted that as with any development, the project will contribute to a cumulative increase in demand for non-renewable energy resources.

Mitigation Measures

- The project shall, to the extent feasible and to the satisfaction of the City, provide the following:

  - Encourage the use of public transit by providing bus loading zones at key locations onsite.
  - Implement efficient circulation systems including phased traffic control devices.
  - Adhere to updated Title 24 building construction and design standards.
  - Install landscaping that provides afternoon shade, reduces glare, encourages summer breezes, discourages winter breezes.
  - Minimize reflective and heat absorbing landscapes.
  - Reserve solar access and implement passive solar systems.
  - Develop dwellings on small lots to decrease indoor and outdoor heating and lighting requirements.
  - Install energy efficient appliances in residential developments.
  - Limit street lighting and install energy efficient lights.
  - Demonstrate energy conservation practices.

Analysis of Significance

Potential project-specific impacts to energy resources will be, with implementation of the above measures, mitigated to a level of insignificance. The project, as with any development, will contribute to an unavoidable cumulative demand and impact on non-renewable energy resources in the region.

4.3.9 Solid Waste Disposal

Existing Conditions

Chula Vista Sanitary Service provides solid waste disposal service for the City. Refuse is transported to the Otay Landfill, located north of Otay Valley Road 1 mile east of Highway I-805. The landfill has a projected lifespan through year 2006.

Impacts

The project will be serviced by Chula Vista Sanitary Services. Waste will be disposed at the Otay Landfill. The project will create a small additional demand for space at the landfill but no significant project or cumulative impacts will result from the project. Long-term plans for solid waste disposal are considered by agencies on a regional scale.

Mitigation

None necessary.

Analysis of Significance

No significant impacts to waste disposal services or capacity will result from project implementation.

4.4 Traffic and Transportation

A traffic impact analysis, conducted by Willdan Associates in March of 1989 and updated in May 1989, assessed the potential transportation impacts associated with development of the proposed Sunbow project (Appendix C). The traffic analysis identifies impacts which may result from the proposed project as well as impacts from other projects already approved by the City of Chula Vista. The following projects were included within the traffic impact analysis: Rancho del Sur (Sunbow Phase I); Vista Hill Hospital expansion; EastLake I and Business/Industrial Park (the latter is now the Salt Creek I project); EastLake Greens and, Bonita Vista Townhomes.

These projects and SR-125 were assumed in the Eastern Chula Vista Transportation Phasing Plan (ECVTPP), which is the basis for the cumulative traffic analysis herein. The Rancho del Sur (Sunbow Phase I) and Vista Hill Hospital expansion are adjacent to the project site and have been included as part of the project area forecast. The other projects are more remote from the Sunbow project site but will share part of the external street system. Locations of these projects are illustrated in Appendix C, Figure 4. The EIR and traffic study for the Sunbow Phase I project are incorporated by reference into this document.

Existing Conditions

Existing regional access is provided by Interstate 805 (a major north-south, eight-lane divided freeway) via the Telegraph Canyon Road interchange. Current access is limited to a series of dirt roads which traverse the site. After implementation, access will be provided through a number of streets. The existing and future planned street system in the project area is described in detail in the traffic report (Appendix C). Telegraph Canyon Road, located to the north of the site, is designed to ultimately be a six-lane prime arterial between I-805 and Hunte Parkway located east of the Sunbow project site. Medical Center Drive is presently a two-lane road south from Telegraph Canyon Road to the Chula Vista Hospital and Medical Center complex and serves as the hospital's primary access. East Palomar Street ends at Oleander Avenue just to the west of the project site and is designated as a four-lane major street east of I-805.

Orange Avenue also ends at Oleander Avenue just to the west of the Sunbow site. The Circulation Element Update calls for Orange to be constructed as a six-lane prime arterial from I-805 to Paseo Ranchero and then as an expressway east to proposed State Route 125. Brandywine Avenue is a north/south local street presently extending north from Otay Valley Road to approximately 600 feet south of Orange Avenue. The Brandywine development is constructing this street south of Orange to the Chula Vista City limits as a four lane collector. The section of Brandywine north of Orange Avenue is proposed to be incorporated into the southerly extension of Medical Center Drive.

Impacts

Three phases are proposed for the Sunbow project. Phase 1 assumes the development of 861 single family dwellings (SFD), 620 multi-family dwellings (MFD), 10 acres of commercial and 10 acres of community recreation. Phase 2 includes 303 SFD, 162 MFD and a 10 acre school site. Phase 3 would involve the development of the 46 acre industrial park. (The Project Description and Land Use sections in this EIR provide more detail on project components). Development phasing and required transportation improvements will be coordinated as outlined in the Mitigation measure section following this impact analysis. Note that the 10-acre hospital property is not included in project traffic generation because no specific uses are currently proposed for the 10 acres. Subsequent site-specific applications for the 10-acre parcel will require evaluation of traffic.

The proposed project's impacts were evaluated at two levels, including existing plus project conditions, and a cumulative development scenario created by the City. The cumulative analysis was assessed at the direction of the City, utilizing the Eastern Chula Vista Transportation Phasing Plan (ECVTPP) Phase 6 assumptions. The ECVTPP (see Appendix C Table 2) assumes buildout of the Sunbow project, other approved projects (listed earlier) and construction of SR-125. The following impact section summarizes the project-specific and cumulative analysis of the traffic report in Appendix C.

Project Trip Generation. According to generation rates developed by SANDAG and adopted by the City of Chula Vista, the neighborhood commercial site would generate an average of 1,200 vehicle daily trips (ADT) per acre. Since some of these trips are already on the street system and are either linked with other trips or are stopover trips, they have not been double counted and a trip rate of 600 trips per acre of commercial use was used in the traffic analyses (H. Rosenberg, Traffic Engineer, City of Chula Vista, personal communication 1989).

Table 3 summarizes the generation of trips from the proposed project. The proposed project is estimated to generate 28,708 average daily trips with 2,260 and 2,934 trips

Table 3

TRIP GENERATION - SUNBOW PROJECT

Land Use	Intensity	Trip Rate	ADT	%	AM Peak Hour In	AM Peak Hour Out	%	PM Peak Hour In	PM Peak Hour Out
SFD	1,050 DU	10/DU	10,500	8%	168	672	10%	735	315
MFD	846 DU	8/DU	6,768	8%	108	433	10%	474	203
Neighborhood Park	31.0 ac	50/ac	1,550	4%	31	31	8%	62	62
Light Ind.	46.0 ac	90/ac	4,140	11%	410	45	12%	99	398
Neighborhood Commercial	8.0 ac	600/ac*	4,800	4%	115	77	11%	264	264
Commercial/ Rec.	7.0 ac	54/ac	350	4%	7	7	8%	14	14
Elem. School	10.0 ac ac	60/ac	600	26%	94	62	5%	9	21
			28,708		933	1,327		1,657	1,277

* Based on "passerby" reduction as approved by the City of San Diego and Chula Vista City Traffic Engineer, 1989.

occurring during the AM and PM peak hours respectively. Table 3 indicates the project would have a greater impact on the street network during the PM peak hour than the AM peak.

Project Trip Distribution and Assignment. In order to estimate trip distribution, PM peak hour turning movement counts in the vicinity and information in the traffic analysis for Sunbow Phase I were utilized. Figure 4.5 shows the assumed trip distribution for the proposed project and Figure 4.6 shows the proposed project's daily trip assignment to the surrounding street system. This analysis is a worst case situation and did not include construction of the Palomar Street ramps which is expected to reduce the amount of traffic on Telegraph Canyon Road.

Street Segment Impact for Existing + Project. Figure 4.7 shows the existing plus project daily traffic volumes in the project vicinity. Table 4 lists City-approved standards for level of service (LOS) capacities and correlates ADT to levels of service for different road classifications. Table 5 defines levels of service. Table 6 shows the corresponding daily street segment volumes, volume to capacity (V/C) ratios, and associated LOS under existing plus project development scenarios.

As shown, under existing conditions most street segments operate at acceptable levels of service, with the exception of Telegraph Canyon Road/'L' Street which operates at LOS D east and west of I-805, and Orange Avenue west of I-805 which currently operates at LOS E. When the proposed project's daily trips are added to existing traffic, along with programmed street segment and interchange improvements, all street segments are projected to operate at LOS C or better. Consequently, provided that improvements are implemented as planned, no unmitigable project impacts are expected to result.

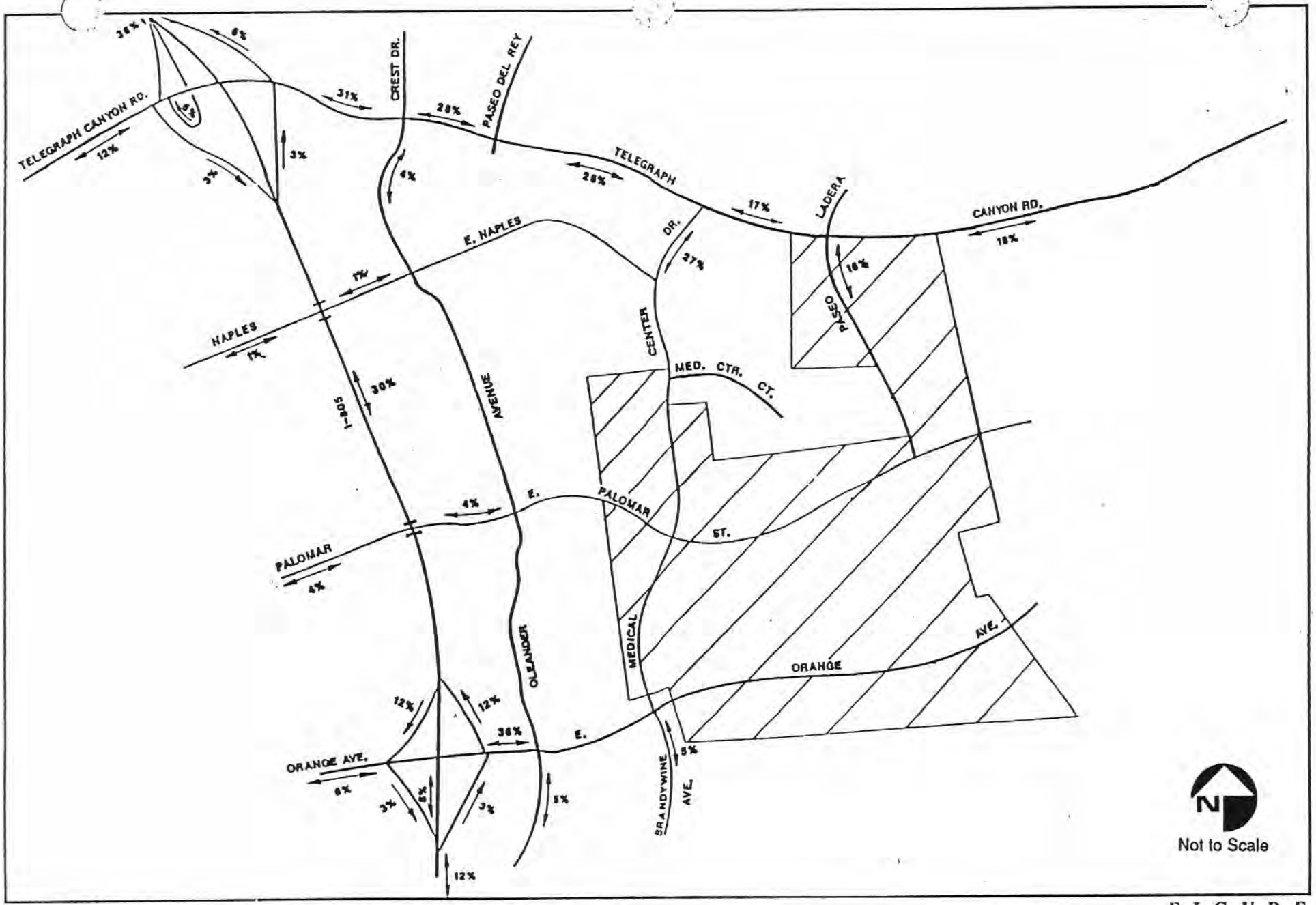
Street Segment Impacts for Cumulative Conditions. This short term cumulative scenario assumes the project and approved projects build out (realistically projected to be 10 years in the future). In this time frame, it is reasonable to assume SR-125 will be constructed north of Telegraph Canyon Road to SR-54. The construction of SR-125 will change travel patterns in eastern Chula Vista significantly.

Figure 4.8 shows the estimated daily traffic assignment. These volumes were taken from Phase 6 of the ECVTPP, which assumes the Sunbow project. Table 7 indicates the daily volumes, V/C ratios, and levels of service on the surrounding street system. As shown, volumes on Telegraph Canyon Road decrease significantly between Paseo Ladera and I-805 from those projected under existing plus project development conditions, due to SR-125 construction. It should be noted that the proposed project's trip assignment will not be significantly altered by the addition of SR-125 in the street network. All street segments in the project vicinity will operate at acceptable levels of service in this scenario.

Intersections. Table 8 summarizes the projected LOS (PM peak hour) for intersections under existing conditions, existing plus project, and existing plus project plus cumulative development. As shown, provided mitigation is implemented, all intersections will operate at LOS C or better with project and cumulative development, and thus no unmitigable impacts will result.

Mitigation Measures

Project-related mitigation for each of the three phases is summarized below. Appendix C provides a more detailed description of requirements and is hereby incorporated by reference. If project phasing changes, the mitigation measures must be reviewed for possible changes.



FIGURE

4-5

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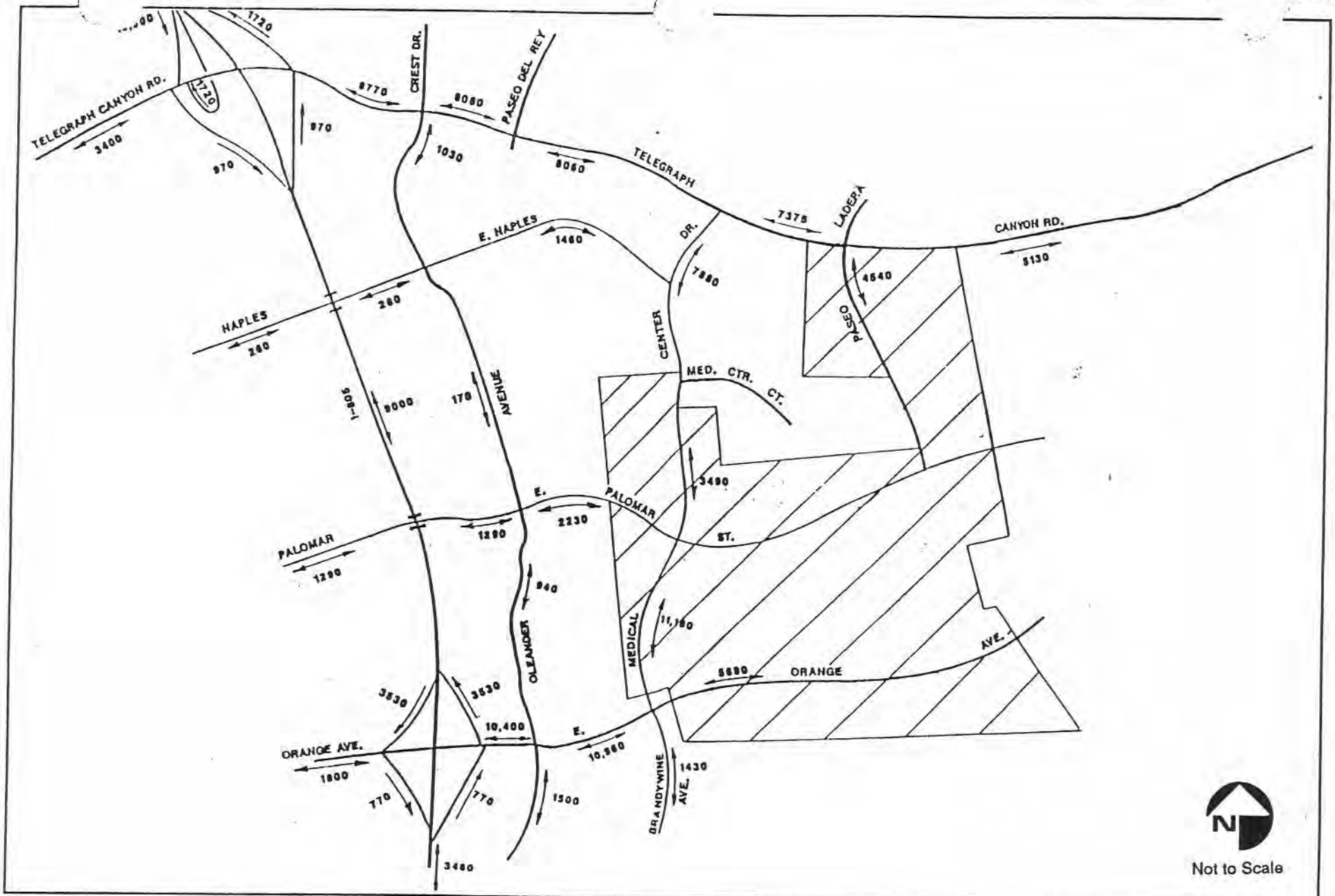
Project Only Trip Distribution



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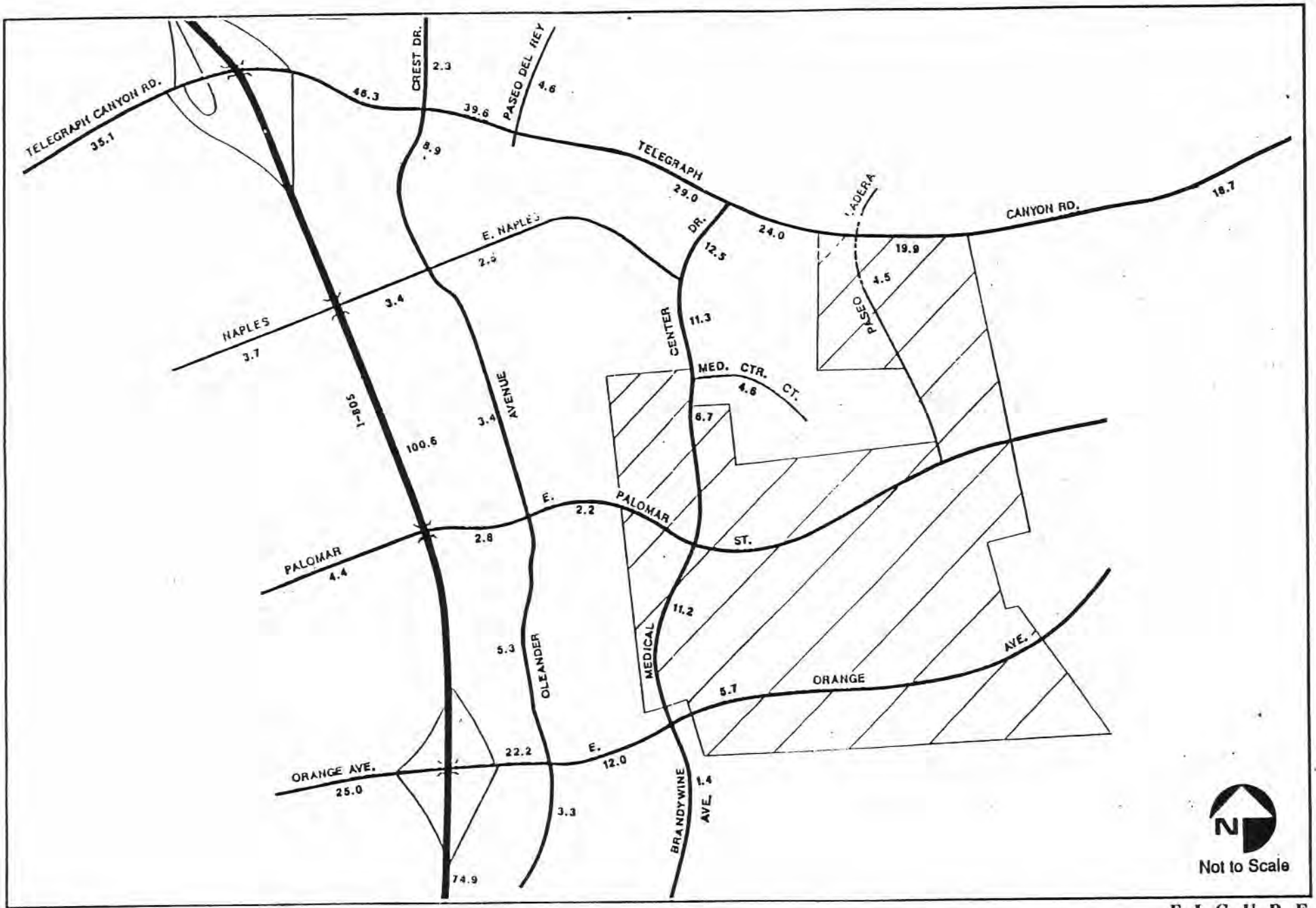
Project Only Daily Trip Assignment

FIGURE
4-6



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Existing Plus Project Daily Traffic Volumes (In thousands)

FIGURE
4-7

Table 4

CITY OF CHULA VISTA ROADWAY CAPACITY STANDARDS*
AVERAGE DAILY VEHICLE TRIPS

ROAD CLASS	X-SECTION V/C Ratio	LEVEL OF SERVICE A (.6)	B (.7)	C (.8)	D (.9)	E (1.0)
Expressway	104/128	52,500	61,300	70,000	78,800	87,500
Prime Arterial	104/128	37,500	43,800	50,000	56,300	62,500
Major Street (6 lanes)	104/128	30,000	35,000	40,000	45,000	50,000
Major Street (4 lanes)	80/104	22,500	26,300	30,000	33,800	37,500
Class I Collector	74/94	16,500	19,300	22,000	24,800	27,500
Class II Collector	52/72	9,000	10,500	12,000	13,500	15,000
Class III Collector	40/60	5,600	6,600	7,500	8,400	9,400

* LOS 'C' Capacities are from the City of Chula Vista Circulation Element of the General Plan. Other levels of service are derived by volume to capacity (V/C) ratios.

Table 5

LEVEL OF SERVICE (LOS) DEFINITIONS

Level of Service	Operating conditions
A	Free flow; speed controlled by driver's desires, speed limits, or physical roadway conditions.
B	Stable flows; operating speeds beginning to be restricted; little or no restrictions on maneuverability from other vehicles.
C	Stable flow; speeds and maneuverability more closely restricted.
D	Approaches unstable flow; tolerable speeds can be maintained, but temporary restrictions to flow cause substantial drops in speed. Little freedom to maneuver, comfort and convenience low.
E	Volumes near capacity; flow unstable; stoppages of momentary duration. Ability to maneuver severely limited.
F	Forced flow; low operating speeds; volumes blow capacity, queues form.

Table 6

STREET SEGMENT VOLUMES, V/C RATIOS, AND LEVELS OF SERVICE UNDER EXISTING PLUS PROJECT CONDITIONS

Street Segment	Functional Capacity		Existing			Existing + Project		
	Existing	Programmed	ADT	V/C	LOS	ADT	V/C	LOS
"L" Street								
w/of I-805	37,500	45,000*	31,700	.85	D	35,100	.78	C
Telegraph Cyn. Rd.								
e/of I-805[1]	62,500*	62,500	37,500	.60	B	46,300	.74	C
e/of Crest/Oleander	45,000*	50,000	31,500	.70	B	39,600	.80	C
w/of Medical Center Dr.	37,500	50,000	20,900	.56	A	29,000	.58	A
w/of Paseo Ladera	37,500	62,500	16,600	.44	A	24,000	.39	A
e/of Paseo Ladera	37,500	62,500	14,800	.39	A	9,900	.32	A
Medical Center Drive								
s/of Telegraph Canyon Road	12,500	27,500	4,600	.37	A	12,500	.45	A
n/of Medical Center Court	12,500	27,500	4,600	.37	A	11,300	.41	A
Naples Avenue								
e/of Oleander	12,500	15,000	1,000	.08	A	2,500	.17	A
w/of Oleander	12,500	15,000	3,100	.25	A	3,400	.23	A
e/of Melrose	12,500	15,000	3,400	.27	A	3,700	.25	A

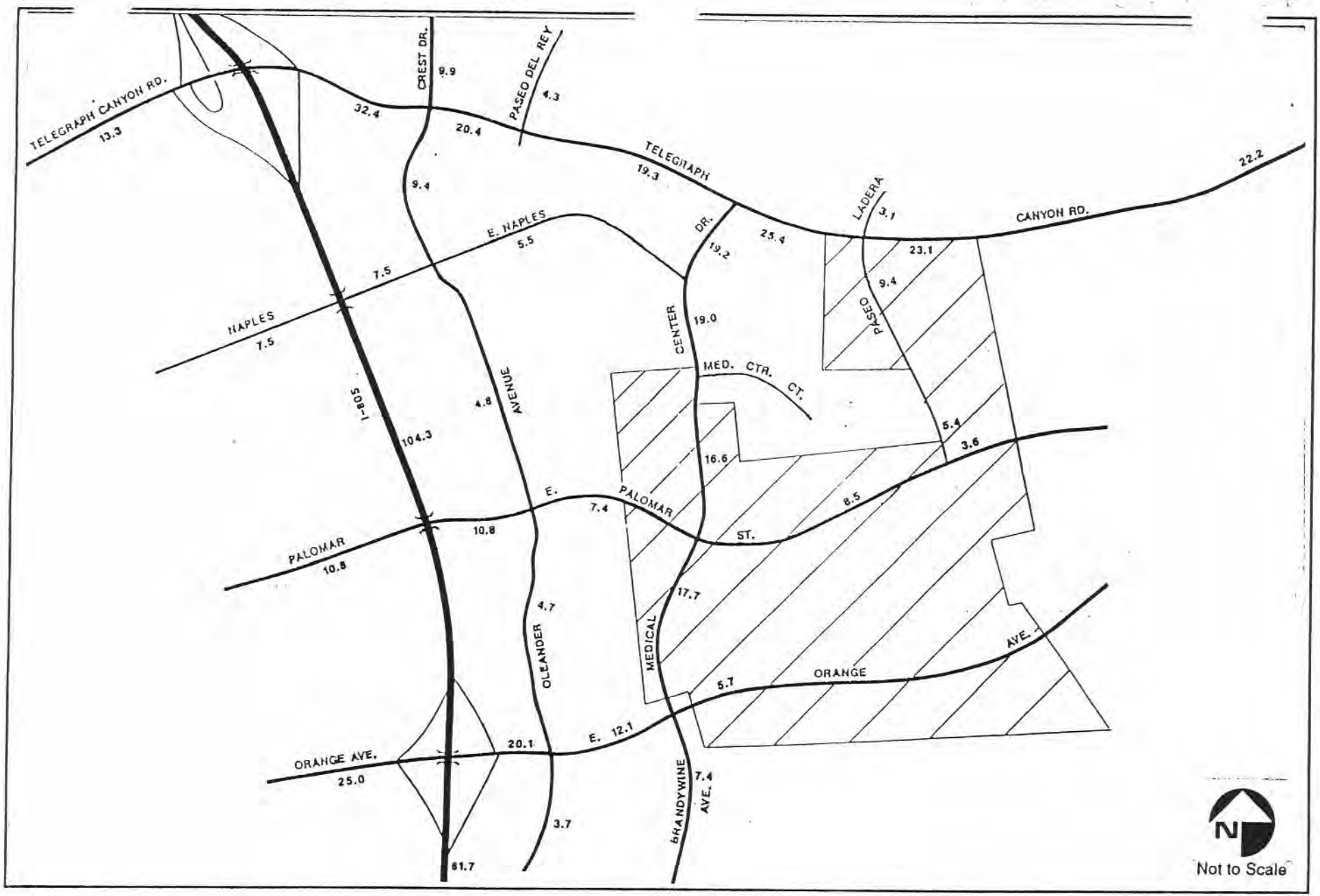
*Street segment with modifications at approach to freeway ramps.

1. This segment of Telegraph Canyon Road has been reclassified from a 6-lane major roadway to a 6-lane prime arterial (City of Chula Vista, 1989).

Table 6 (Continued)

STREET SEGMENT VOLUMES, V/C RATIOS, AND LEVELS OF SERVICE UNDER EXISTING PLUS PROJECT CONDITIONS

Street Segment	Functional Capacity		Existing			Existing + Project		
	Existing	Programmed	ADT	V/C	LOS	ADT	V/C	LOS
Palomar Street								
w/of Oleander	25,000	37,500	1,500	.06	A	2,800	.07	A
e/of Melrose	25,000	27,500	3,100	.12	A	4,400	.16	A
Oleander Avenue								
s/of Telegraph Canyon Road	12,500	15,000	7,900	.63	B	8,900	.59	C
s/of Naples Ave.	9,400	9,400	3,200	.34	A	3,400	.36	A
s/of Palomar Ave.	9,400	9,400	4,400	.47	A	5,300	.56	A
s/of Orange Ave.	9,400	9,400	1,800	.19	A	3,300	.35	A
Orange Avenue								
w/of I-805	25,000	37,500	23,200	.93	E	25,000	.67	B
e/of I-805	25,000	37,500	11,800	.47	A	12,200	.59	A
e/of Oleander	25,000	37,500	1,000	.04	A	12,000	.32	A
Brandywine Avenue								
s/o Orange Ave.	12,500	27,500	1,900	.15	A	3,300	.12	A



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ECVTPP Phase 6 Cumulative Daily Traffic Volume (In thousands)
(assumes SR-125 between Telegraph Canyon Rd. and SR-54)

FIGURE
4-8

Table 7

ECVTPP PHASE 6 CUMULATIVE STREET SEGMENT VOLUMES, V/C RATIOS AND LEVELS OF SERVICE

Street Segment	Functional LOS C Capacity*[1]	Volume	V/C	LOS
"L" Street				
w/of I-805	45,000	13,300	.30	A
Telegraph Cyn. Rd				
e/of I-805	50,000	32,400	.65	B
e/of Oleander	37,500	20,400	.54	A
w/of Medical Center Dr.	37,500	19,300	.51	A
w/of Paseo Ladera	37,500	25,400	.68	B
e/of Paseo Ladera	37,500	23,100	.62	B
Medical Center Drive				
s/of Telegraph Cyn. Rd.	27,500	19,200	.70	B
s/of E. Naples Ave.	27,500	19,000	.69	B
s/of Medical Center Ct.	27,500	16,600	.60	A
s/of E. Palomar St.	27,500	17,700	.64	B
East Orange Avenue				
w/of I-805	37,500	25,000	.67	B
e/of I-805	37,500	20,100	.54	A
e/of Oleander Ave.	37,500	12,100	.33	A
e/of Medical Center Dr.	37,500	5,700	.15	A
Oleander Avenue				
s/of Telegraph Cyn. Rd.	15,000	9,400	.63	B
s/of Naples Ave.	9,400	4,800	.51	A
s/of Palomar Ave.	9,400	4,700	.50	A
s/of Orange Ave.	9,400	3,700	.39	A
East Palomar Street				
w/of I-805	27,500	10,800	.39	A
e/of I-805	37,500	10,800	.29	A
w/of Oleander	37,500	7,400	.20	A
East Naples Street				
w/of I-805	15,000	7,500	.50	A
e/of I-805	15,000	7,500	.50	A
w/of Oleander	15,000	5,500	.37	A
Paseo Ladera				
s/o Telegraph Cyn. Rd.	27,500	9,400	.63	B

*Represents Coded Network in ECVTPP Phase 6.

1. Los C Capacity is a planning capacity definition identified in the city's threshold standards, as opposed to Los E which defines the functional traffic engineering maximum Los E.

Table 8

PROJECT VICINITY INTERSECTION LEVELS OF SERVICE

Intersection	Control	Existing LOS	Existing + Proj. LOS	Cumulative w/SR 125 LOS
Telegraph Cyn. Rd/ [illegible] Ladera	Signal	A	..	B
Telegraph Cyn. Rd/ Medical Center Dr.	Signal	A	B	C
Telegraph Cyn. Rd/ Paseo del Rey	Signal	A	C	B
Telegraph Cyn. Rd/ Crest/Oleander	Signal	A	C	C[1]
Telegraph Cyn. Rd/ Halecrest	Signal	A	B	C
Telegraph Cyn. Rd/[1.] I-805 N/B ramps	Signal	C	C[1]	C[1]
Telegraph Cyn. Rd/[1.] I-805 S/B ramps	Stop on ramp	C	B[1,2]	A[1,2]
East Orange/ I-805 S/B ramps		D	C[1,2]	C[1,2]
East Orange/ I-805 N/B ramps		D	B[1,2]	C[1,2]
Oleander/ East Naples	4-way stop	B	A[2]	A[2]
Oleander/ East Palomar	Stop on Palomar	A	A[2]	A[2]
Oleander/ East Orange	4-way stop	A	B[2]	B[2]

1 LOS with mitigation
2 LOS with signalization

[1.] Note that Telegraph Canyon Road just east of I-805 has been reclassified from a 6-lane major roadway to a 6-lane prime arterial (City of Chula Vista, 1989).

Phase 1 mitigation measures shall include:

- Construction of Medical Center Drive to ultimate four-lane collector standards between Medical Center Court and East Orange Avenue.
- Construction of East Palomar Street from the eastern project boundary west to the existing Oleander Avenue to four-lane major street standards.
- Installation of a traffic signal at the intersection at Medical Center Drive/East Palomar Street prior to completion of this phase.

Phase II mitigation measures shall include:

- Construction of East Palomar Street to ultimate four-lane major standards between Phase 1 improvements and easterly project boundary.
- Construction of Paseo Ladera to two-lane collector standards between East Palomar Street and Telegraph Canyon Road.
- Modify traffic signal at Telegraph Canyon Road/Paseo Ladera to accommodate south Paseo Ladera leg.

Phase III mitigation measures shall include:

- Dedication of a right of way (ROW) for a six-lane prime arterial on East Orange Avenue through the Sunbow project site
- Construction of East Orange from the easterly project boundary to Medical Center Drive as a two-lane road built to prime arterial center line standards.
- Installation of a traffic signal at East Orange Avenue/Medical Center Drive intersection.

Additional mitigation measures required for project related traffic include the following:

- Installation of a signal at East Palomar Street/Paseo Ladera Street shall occur before completion of the project.
- The project shall contribute toward improvement (widening and signalization) to I-805 interchanges with Telegraph Canyon Road, "L" Street and Orange Avenue on a fair-share basis, to the satisfaction of the City.
- Prior to any tentative map approval, the project proponent shall prepare a public facilities financing plan to determine the extent and nature of community facilities necessary to serve this portion of Chula Vista east of I-805 and south of the existing Development Impact Fee area. This financing plan shall identify the project's responsibility toward construction and financing these facilities. The plan shall be reviewed and approved by the City during the subdivision process.

Construction of SR-125 between Telegraph Canyon Road and SR-54 will also significantly lower volumes along Telegraph Canyon Road and thus partially reduce adverse impacts: this mitigation is beyond the scope of the Sunbow project.

Analysis of Significance

Under existing conditions plus anticipated traffic from the Sunbow development, project-related impacts can be mitigated to a level of insignificance. Cumulative impacts associated with the project in combination with the ECVTPP-assumed projects can also be mitigated to a level of insignificance by implementation of mitigation herein.

4.5 GEOLOGY AND SOILS

A geotechnical study of the Sunbow site was conducted by Geocon (1986) and was updated in 1987. These studies are on file with the City Planning Department and are summarized below.

Existing Conditions

The project site is located within the Coastal Plains Physiographic Province which consists of gently westward sloping deeply dissected terraces. Elevations range from a high of approximately 500 feet above MSL in the eastern portion of the project site to a low elevation of 200 feet above MSL at the property's southwestern corner in Poggi Canyon.

Four geologic formations and two surficial soil types occur on the site. The geologic formations include the Sweetwater, Otay, San Diego and Linda Vista groups. The surface soil types consist of alluvium/colluvium and topsoil. Al least one small landslide was found. Each of these formations or soil types is discussed below.

Sweetwater Formation. This formation onsite is a dense, tan, gravelly fine to coarse sandstone which is well cemented. At least 40 feet was encountered in one boring with the top of the traditional contact with the overlying Otay Formation occurring at 325 feet. The Sweetwater Formation has a high shear strength and a low expansive potential. Oversize material may be generated during grading due to the formation's strong matrix cementation.

Otay Formation. The Otay Formation is exposed in the southern half of the Sunbow site along the canyon slopes at elevations between 325 and 430 feet. Where exposed, the formation consists of friable clay and fine- to medium-grained sandstones and several bentonite beds. The sandier portions typically have low to moderate expansive potential with enough shear strength for foundation and slope stability. The bentonite layers, which vary in thickness from 1 to 3 feet, have extremely expansive clays with very low shear strength.

San Diego Formation. Soils of this formation are typically massively bedded, well sorted, very fine- to medium-grained sandstones with occasional cemented gravel lenses. In general, the sediments of this formation have good shear strength and low expansive characteristics and should be suitable for foundation support. Grain-sized distribution and low cohesion make this formation susceptible to erosion, particularly within fill slopes.

Linda Vista Formation. Sediments of this formation unconformably overlay the San Diego Formation at elevations of approximately 460 feet MSL. The characteristics of this formation include cobble-gravel-sand mixture with some minor clay lenses and locally cemented zones. The soils in the Linda Vista Formation have excellent shear strength and low expansive potential in an undisturbed or properly compacted condition. This formation could provide low expansive capping materials with some selective grading required in areas of concentrated clay. Conventional grading equipment only would be needed and the possibility for blasting is considered highly unlikely.

Topsoil. The majority of the site is covered by a thin topsoil layer of clayey composition. In general, the topsoils consist of highly expansive potentially compressible, silty sandy clays that average 2 to 3 feet in thickness.

Colluvium/Alluvium. The colluvial/alluvial deposits consist of soft to stiff, silty sandy clay and clayey sands with some gravel layers near the base of slopes or along canyon bottoms. Stream-deposited alluvial sediments were found in Poggi Canyon to depths in excess of

40 feet. The alluvial deposits are generally poorly consolidated and subject to settlement when the weight increases.

Landslides. A small landslide was mapped in the west-central portion of the site on a north facing canyon slope. This slide occurs within the Sweetwater and Otay Formations and does not exceed 250 feet in width. No other landslides were observed but some may occur during grading.

Seismicity. Active earthquake faults are present within 100 miles of the project. The La Nacion fault traverses the Sunbow site in a generally north-east to southwest line. Groundwater was observed in Poggi Canyon at a depth varying from 23 to 28 feet. The geological formations and soil deposits noted onsite also have permeability characteristics that could be susceptible to water seepage under certain conditions. Perched water conditions are likely to develop during the wet season within drainage areas.

Impacts

Based on geotechnical data, there appear to be no significant geotechnical constraints that cannot be mitigated by adherence to the recommendations in the geotechnical report, proper planning, design and construction. Potential geologic concerns include loose landslide, colluvial and alluvial deposits in the bottom of onsite canyons, and potential impacts from groundwater exist on portions of the site. Potential impacts may also result from the presence of the La Nacion fault on site. However, the possibility of a seismic event during the lifetime of the project development is considered remote due to the short length of the fault and because the fault does not offset Holocene sediment. The potential for liquefaction is also considered to be very low.

Mitigation Measures

- Mitigation measures addressing geotechnical concerns and potential impacts are contained within the Soil and Geologic report (on file at the City of Chula Vista Planning Department) and shall be adhered to, subject to approval by the City of Chula Vista. Mitigation measures outlined for grading, slope stability, foundations, faulting and site drainage are hereby incorporated by reference.

- Grading plans shall be reviewed by a qualified geologist prior to finalization. A qualified geologist shall also review project site plans to determine appropriate setbacks for development in the vicinity of the La Nacion fault.

- Additional subsurface investigation shall also be conducted and approved by the City of Chula Vista once the location of cut and fill slopes are known.

Analysis of Significance

Available geologic data indicate that that there are no major constraints on the project site to preclude development. No significant geotechnical impacts are anticipated provided that the mitigation measures contained in the Soils and Geology report are implemented.

4.6 NOISE

The following summarizes an acoustical analysis addressing noise impacts, prepared by ERC Environmental and Energy Services Company (April 1989). This EIR also incorporates by reference the acoustical analysis prepared for the first phase of the Sunbow project.

Existing Conditions

Community noise levels are generally presented in terms of Community Noise Equivalent Levels (CNEL). CNEL is the average equivalent A-weighted sound level during a 24-hour day and is calculated by adding 5 decibels (dB) to sound levels in the evening (7 p.m. to 10 p.m.) and by adding 10 decibels to sound levels at night (10 p.m. to 7 a.m.). The A-weighted scale measures noise levels corresponding to the human hearing range.

The City of Chula Vista requires that noise levels of exterior living areas (yards and patios) for residential land uses not exceed 65 dB(A) CNEL. In addition, for multi-family residential projects, the California Noise Insulation Standard (California Administrative Code, Title 25, Chapter 1, Subchapter 1, Article 4) requires that interior noise levels in multi-family residential living spaces not exceed a CNEL of 45 dB(A). The City of Chula Vista also applies this interior noise standard to single-family residences. With windows closed, typical residential units can be expected to attenuate up to 20 dB(A). Therefore, residential development in areas where noise levels exceed 65 dB(A) are not appropriate without additional attenuation.

The existing noise environment on the Sunbow project site was analyzed to determine noise levels that the site is currently exposed to prior to grading and development. Current and previous noise modeling of the traffic volumes and existing topography indicate that onsite noise levels are generally less than 65 dB(A) CNEL. There are two areas onsite which border existing roads and are therefore subject to vehicular noise. The first area is along the eastern side of Medical Center Drive and along a portion of Medical Center Court. The second area is on the southern side of Telegraph Canyon Road near Paseo Ladera. The existing average traffic volumes (ADT) on Medical Center Drive, Telegraph Canyon Road and Paseo Ladera are approximately 4,600, 16,600 and 2,500 ADT respectively.

Impacts

Future noise levels are calculated in a similar manner as existing noise conditions using the FHWA 2.0 noise model. To determine the maximum noise levels that could be experienced onsite, traffic volumes from the Sunbow traffic analysis (Willdan 1989) were used. The traffic analysis evaluated traffic volumes for project specific and cumulative conditions. In addition, project-related traffic volumes for an anticipated three-phased construction schedule were evaluated. The highest traffic volumes for all street segments were used for the noise analysis in order to provide a "worst case" analysis (see Traffic section). Future topography was based on the conceptual grading plan.

Noise modeling of the future conditions indicates that noise levels could exceed the 65 dB(A) at several locations and significant impacts could occur. Of particular concern are residential areas where noise levels might exceed 65 dB(A). The first area occurs along Medical Center Drive just north of Medical Center Court. Predicted noise levels in this area range from 63 to 68 dB(A). The highest noise levels occur along Medical Center Court which has a 6% grade. It should be noted that the general development plan identifies residential development at the edge of the roadway and that the modeled noise level occurs only approximately 35 feet from the center of the roadway. If the units are setback beyond this distance, no impacts are anticipated to occur.

The second area of concern is located at the southwest corner of Telegraph Canyon Road and Paseo Ladera. Noise levels reached a maximum of 70 dB(A) CNEL at a point along the property boundary approximately 100 feet from the centerline of Telegraph Canyon Road. However, the areas with greater than 65 dB(A) levels are steeply graded and construction in these locations is considered unlikely.

Noise modeling of future conditions also indicate that noise levels at the facades of buildings adjacent to portions of Medical Center Drive and Naples Street could also exceed 65 dB(A) CNEL and would range up to 69 dB(A) CNEL. The contour intervals which would result if no building shielding were used at first-floor levels are depicted on Figure 4.9. Noise levels resulting from traffic would exceed the City's guidelines for some of the residential areas. If mitigation measures are not implemented to reduce excessive exterior noise levels, a significant noise impact would occur. Noise impacts from operation of the helipad by Community Hospital may also be significant; refer to the Land Use section of this EIR for a discussion of this issue.

Mitigation Measures

Because the noise impact analysis was based on the General Development Plan, the results identify the approximate magnitude and location of potential impacts. In order to determine specific mitigation measures for residential areas with potential noise levels over 65 dB(A), final development plans and grading plans will be necessary. Based on the worst case analysis presented at this time, adequate mitigation measures might include set-backs, sound attenuation walls or changes in the grading plan. To ensure noise attenuation, the following measures are proposed:

- A detailed and site specific acoustical analysis shall be prepared by the applicant and submitted to the City when the SPA plans and tentative maps are submitted. Approval and verification of noise attenuation will occur through the SPA Plan and subdivision processes.

- Prior to submittal of any SPA plans or tentative maps, an acoustical study of the helipad will be conducted by Community Hospital. If significant, unmitigable impacts are found, operation of the helipad will be discontinued.

Analysis of Significance

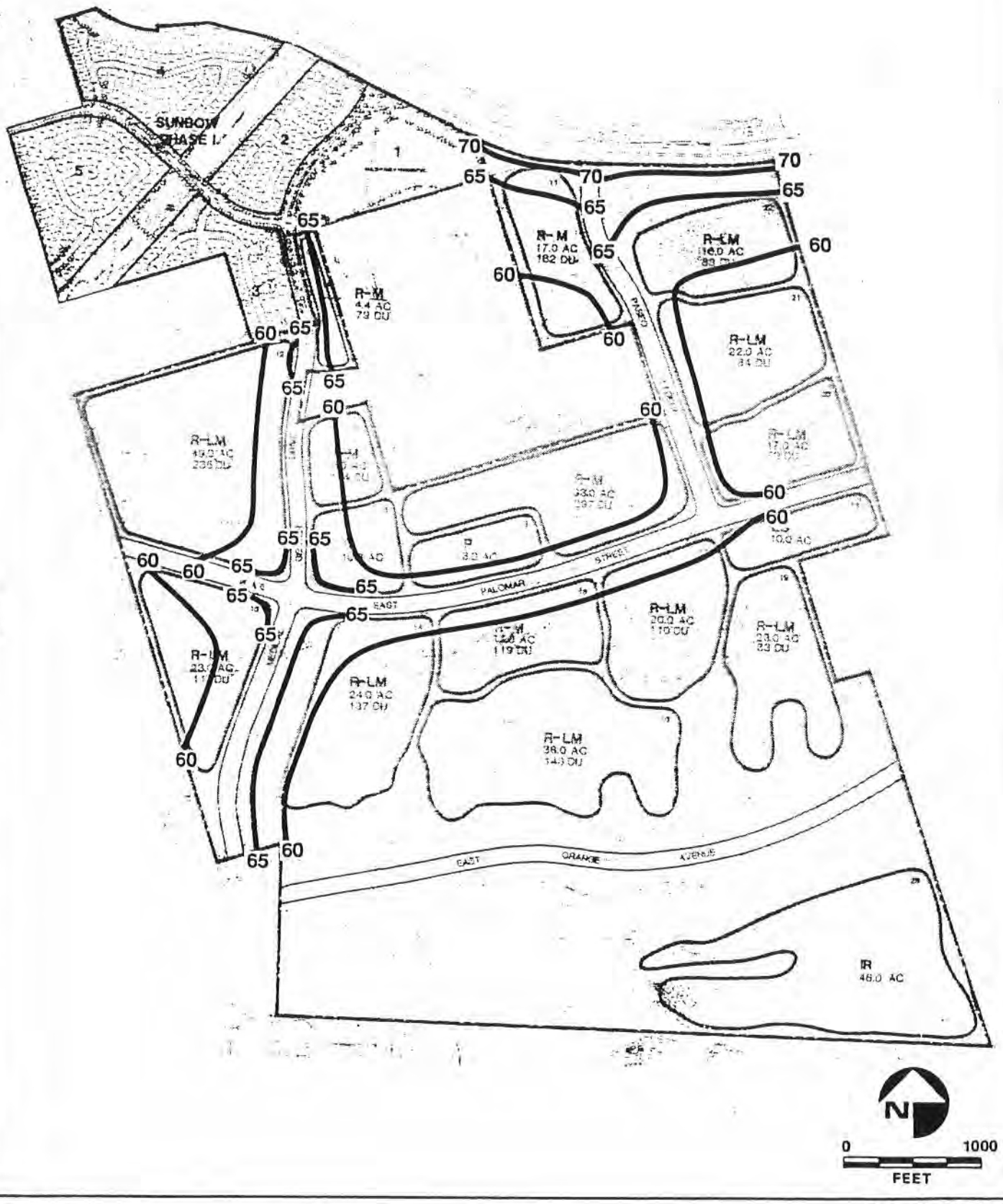
Traffic-generated noise levels would exceed 65 dB(A) CNEL in portions of the project site and significant impacts were identified. It is expected that these impacts could be mitigated below a level of significance by appropriate measures. Detailed acoustical analysis, prepared with submittal of the Sectional Planning Area (SPA) plans and tentative maps, will incorporate mitigation measures to mitigate noise impacts to an insignificant level.

4.7 AIR QUALITY

Existing Conditions

Meteorology/Climate: The climate in the vicinity of the Sunbow development project area and all of San Diego County is dominated by a semi-permanent high-pressure cell located over the Pacific Ocean. This high pressure cell maintains clear skies for much of the year. It also drives the dominant onshore circulation and creates two types of temperature inversions, subsidence and radiation, that act to degrade local air quality.

Subsidence inversions occur during the warmer months as descending air associated with the Pacific high-pressure cell comes into contact with cool marine air. The boundary between the two layers of air represents a temperature inversion which traps pollutants. The radiation inversion develops on winter nights when air near the ground cools by heat radiation and air aloft remains warm. A shallow inversion layer is formed between the two air masses which can trap vehicular pollutants such as carbon monoxide and oxides of nitrogen.



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Unmitigated Worst-Case Future Noise Levels (In dB(A) CNEL)

FIGURE 4-9

The closest and most representative weather monitoring station to the project site is the Chula Vista station, located approximately 3 miles northwest of the site. The mean temperature in Chula Vista is 59.9°F; the mean maximum and mean minimum temperatures are 67.3°F and 52.5°F, respectively. Precipitation in the vicinity of the study area averages 10 inches annually, 90 percent of which falls between November and April (University of California 1970).

The City of Chula Vista implements standards adopted by the Regional Air Quality Maintenance Plan (AQMP) as their threshold standard for air quality.

Description of Pollutants: Photochemical oxidants, commonly known as smog, are produced from complex photochemical reactions involving reactive hydrocarbons (RHC) and nitrogen oxides (NO_X). Photochemical oxidants, expressed and measured in terms of ozone (O_3), are considered a major problem in San Diego County. Significant concentrations of oxidants are often recorded at locations far from the primary emission source. For example, smog formed in the Los Angles area will sometimes be transported over the ocean into San Diego County.

Carbon monoxide (CO) is a colorless, odorless gas produced largely by the incomplete burning of fuel in internal combustion engines. Concentrations of CO occur close to heavily traveled streets, especially at locations where vehicles idle for prolonged periods (e.g., parking lots, drive-through facilities, and congested intersections). These areas of high CO build-up are generally referred to as CO "hotspots".

Since CO build-up typically occurs at locations where traffic is congested, CO concentrations are correlated with levels of service at intersections. Significant concentrations of carbon monoxide sometimes occur (depending on temperature, wind speed, and other variables) where an intersection's level of service (LOS) is D or worse.

Regulatory Framework: Ambient Air Quality Standards (AAQS) represent the maximum level of background pollution considered safe, with an adequate margin of safety, to protect the public health and welfare. The five primary pollutants of concern for which standards have been established are sulfur dioxide, carbon monoxide, nitrogen oxides, ozone, and suspended particulate matter. National Ambient Air Quality Standards (NAAQS) were promulgated by the Environmental Protection Agency (EPA) in 1971, with states retaining the option to develop different (more stringent) standards. Due to unique air quality problems in California, the California Air Resources Board (CARB) has developed additional AAQS. The currently applicable state and federal standards are presented in Figure 4.10.

In San Diego County, it is the responsibility of the Air Pollution Control District (APCD) to ensure that state and national air quality standards are achieved. APCD's current air quality plan, the 1982 State Implementation Plan (SIP) Revisions, documents the necessary overall strategy and individual tactics by which the San Diego air basin can meet its attainment goal. The SIP Revisions state that, if necessary, emission reductions with need to be enacted; if these actions are taken and if regional growth does not exceed anticipated levels, then the basin will no longer experience unhealthful air quality due to emissions generated in the basin.

The 1982 SIP Revisions and the 1985 Progress Report of the APCD employed the San Diego Association of Governments (SANDAG) Series V and VI growth forecasts which are based on Community and General Plan land use designations to project regional growth. Development that seriously departs from the forecasts could generate emissions in excess of what is necessary to attain state and federal standards.

POLLUTION	AVERAGING TIME	CALIFORNIA STANDARDS (1)		NATIONAL STANDARDS (2)		
		CONCENTRATION	METHOD	PRIMARY	SECONDARY	METHOD
OZONE	1 Hour	0.09 ppm (180 $\mu g/m^3$)	Ultraviolet Photometry	0.12 ppm (235 $\mu g/m^3$)	Same as Primary Standards	Chemiluminescent Method
CARBON MONOXIDE	8 Hour	9 ppm (10mg/m^3)	Nondispersive Infrared Spectroscopy	9 ppm (10 mg/m^3)	Same as Primary Standards	Nondispersive Infrared Spectroscopy
	1 Hour	20 ppm (23 mg/m^3)		35 ppm (40 mg/m^3)		
NITROGEN DIOXIDE	Annual Average	–	Saltzman Method	0.05 ppm (100 $\mu g/m^3$)	Same as Primary Standards	Gas Phase Chemiluminescence
	1 Hour	0.25 ppm (470 $\mu g/m^3$)		–		
SULFUR DIOXIDE	Annual Average	–	Conductimetric Method	0.03 ppm (80 $\mu g/m^3$)	–	Pararosaniline Method
	24 Hour	0.05 ppm (131 $\mu g/m^3$)		0.14 ppm (365 $\mu g/m^3$)	–	
	3 Hour	–		–	0.5 ppm (1300 $\mu g/m^3$)	
	1 Hour	0.25 ppm (665 $\mu g/m^3$)		–	–	
SUSPENDED PARTICULATE MATTER	Annual Geometric Mean	PM-10 30 $\mu g/m^3$	High Volume Sampling	PM-10 50 $\mu g/m^3$	60 $\mu g/m^3$	High Volume Sampling
	24 Hour	PM-10 50 $\mu g/m^3$		PM-10 150 $\mu g/m^3$	150 $\mu g/m^3$	
SULFATES	24 Hour	25 $\mu g/m^3$	AIHL Method No. 61	–	–	–
LEAD	30 Day Average	1.5 $\mu g/m^3$	AIHL Method No. 54	–	–	–
	Calendar Quarter	–	–	1.5 $\mu g/m^3$	1.5 $\mu g/m^3$	Atomic Absorption
HYDROGEN SULFIDE	1 Hour	0.03 ppm (42 $\mu g/m^3$)	Cadmium Hydroxide Stractan Method	–	–	–
VINYL CHLORIDE (CHLOROETHENE)	24 Hour	0.010 ppm (26 $\mu g/m^3$)	Gas Chromatography	–	–	–
ETHYLENE	8 Hour	0.1 ppm	–	–	–	–
	1 Hour	0.5 ppm				
VISIBILITY REDUCING PARTICLES	One Observation	In sufficient amount to reduce the prevailing visibility to less than 10 miles when the relative humidity is less than 70%		–	–	–

ppm = parts per million
$\mu g/m^3$ = micrograms per cubic meter
mg/m^3 = milligrams per cubic meter

(1) CO, SO_2 (1 Hour), NO_2, O_3 and PM-10 Standards are not to be exceeded. All other Standards are not to be equaled or exceeded.

(2) Not to be exceeded more than once a year.

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California and Federal Ambient Air Quality Standards

FIGURE 4-10

Ambient Air Quality Summary: Ambient air quality is monitored by the State Air Resources Board at the Chula Vista monitoring station. In the absence of site specific air quality data, data from the Chula Vista station is assumed to be representative of the site. Table 9 summarizes ambient air quality data at the Chula Vista monitoring station from 1984 through 1987.

The entire San Diego Air Basin has not attained state and federal standards for ozone. The basin is in the progress of being redesignated as an attainment area for particulates. For the remaining criteria pollutants (carbon monoxide, sulfur dioxide, nitrogen dioxide, and lead), the San Diego region is designated as an attainment area (APCD 1989).

In addition to adverse ozone levels, the project area experiences congested intersections which have a potential for CO hotspots. Currently, the potential for CO hotspots exists at four intersections in the project vicinity. During the afternoon peak hours, the intersections of East Orange/I-805 southbound ramps and East Orange/I-805 northbound ramps operate at levels of service D. In addition, the Telegraph Canyon Road/I-805 southbound ramps intersection and the Telegraph Canyon Road/I-805 northbound ramps intersection operate at levels of service E and F, respectively.

Impacts

Regional Air Quality

Potential air quality degradation resulting from the proposed project would emanate from both stationary and mobile sources. Stationary source pollutant emissions include those generated by the consumption of natural gas and/or fuel oil for mechanical/electrical power and heat generation, and the burning of wood in residential fireplaces. Stationary sources are expected to generate a significant amount of criteria pollutants such as hydrocarbons, nitrogen oxides, sulfur dioxide, carbon monoxide, and particulates. In addition to stationary sources, vehicular traffic contributes a significant amount of carbon monoxide, nitrogen oxides and hydrocarbons to the local air shed. The level of pollutants emitted from vehicles depends on several factors including trip generation rates, trip lengths, vehicle mix and smog abatement equipment. With the exception of carbon monoxide, the emissions from vehicles are independent of the way traffic is distributed on the roadways.

Table 10 contains a breakdown of the pollutants that would be generated by mobile sources associated with the Sunbow development project at buildout level in 1992. The project would generate approximately 109 tons/year of reactive hydrocarbons (RHC), the main precursor to ozone. As shown in Table 10, the project will add only a small fraction (0.5%) to the projected total emission burdens for the San Diego Air Basin.

In the San Diego area, a project is considered to have a significant, cumulative air quality impact if it has not been included in the SANDAG Series V and VI growth forecasts, which are the basis for the air quality attainment plans contained in the 1982 SIP Revisions and the 1985 Progress Report of the APCD. Land use at the project site has been designated residential in SANDAG's Series V and VI growth forecasts, with densities of 4 dwelling units/acre. Since the Sunbow development project proposes a mixed-use land use with residential densities ranging from 3 to 11 dwelling units (du)/acre (overall density average of 3.23 units per acre), as well as allocations for school and commercial development, the project is not consistent with the 1982 SIP Revisions and could affect the ability of the region's air quality strategy to attain federal and state standards. In addition, the latest SANDAG forecast (Series VII), which will be used in the next SIP Revisions, also designates the project area as residential, with slightly higher densities (7.3 du/acre).

Table 9

AMBIENT AIR QUALITY SUMMARY
CHULA VISTA MONITORING STATION

Pollutant	Average Time	California Air Quality Standards	Federal Primary Standards	Maximum 1 hr Concentrations (ppm) 1984	1985	1986	1987	Number of Days Exceeding State Standard 1984	1985	1986	1987
Oxidants (Ozone)	1 hr	0.10 ppm	0.12 ppm	0.15	0.20	0.14	0.16	18	28	20	15
Carbon Monoxide	8 hrs/	9 ppm	9 ppm	4.6	3.9	5.1	3.40	0	0	0	0
	1 hr	20 ppm	35 ppm	7.0	7.0	7.0	7.0	0	0	0	0
Nitrogen Dioxide	1 hr	0.25 ppm	---	0.20	0.16	0.14	0.15	0	0	0	0
Sulfur Dioxide	24 hrs/	0.05 ppm	0.14 ppm	0.021	0.015	0.013	0.011	0	0	0	0
	1 hr	0.25 ppm	---	0.07	0.08	0.06	0.04	0	0	0	0
Total Suspended Particulates	24 hrs	100 $\mu g/m^3$*	260 $\mu g/m^3$	88**	96**	119**	100**	---	---	---	---
Suspended Particulates (PM_{10})	24 hrs	50 $\mu g/m^3$	150 $\mu g/m^{3***}$	---	---	104**	68**	---	---	---	---

* In 1985, the California total suspended particulates standard (100$\mu g/m^3$) was replaced by the PM_{10} standard (50$\mu g/m^3$).

** Maximum 24-hour sample (in $\mu g/m^3$).

*** In 1987, a new federal primary standard for PM_{10} was specified.

ppm Parts per million.

$\mu g/m^3$ Micrograms per cubic meter.

Source: California Air Resources Board, 1984, 1985, 1986, 1987.

Table 10

SUNBOW DEVELOPMENT PROJECT
SUMMARY OF PROJECTED VEHICLE EMISSIONS
(Ton/Year)

Mobile Source Pollutants	Emissions Pounds Per Day	Emissions Tons Per Year	Burden*	
Carbon Monoxide (CO)	8,784	1,098	219,887	0.50
Nitrogen Oxides (NO_x)	1,362	169	33,868	0.50
Sulfur Dioxide (SO_2)	80	10	1,938	0.50
Total Hydrocarbons (HC)	960	120	24,017	0.50
Reactive Hydrocarbons (RHC)		109	21,721	0.50
Total Suspended Particulate Matters (TSP)	248	31	6,125	0.50

*Based on projected vehicle emissions data for the year 1992 (CARB).

Because the project has not been incorporated into these regional growth forecasts, a finding of inconsistency must be made. Important to note, however, is that the proposed project traffic will actually generate less traffic than would land use assumptions under the SANDAG forecast (Series V, VI and VII). Consequently, although the project is inconsistent with the regional forecasts, it will not contribute significantly to cumulative regional air quality impacts.

Local Air Quality

Short-term Construction Impacts. During the construction phase of the Sunbow development project, short-term emissions of several criteria air pollutants would occur. Significant emissions of nitrogen oxides, carbon monoxide, sulfur dioxide, particulates, and unburned hydrocarbons will be generated from the combustion of fossil fuels by construction equipment. In addition, clearing, earth movement, and vehicle travel on unpaved surfaces can create considerable quantities of fugitive dust. The California Air Resources Board estimates that such activities create about 1.2 tons of dust per acre disturbed per month. Construction dust is comprised primarily of large, chemically inert particles which, when inhaled, can be filtered through the human respiratory tract. The dust, therefore constitutes more of a temporary soiling nuisance on cars, homes, foliage, and other surfaces than a health hazard. Impacts of this type tend to be less severe, more localized, and somewhat more easily controlled than those of other sources. The CARB estimates that dust-control measures (i.e., regular watering) can reduce dust emission rates by about one-half.

Long-term Local Impacts. Potential for CO hotspots currently exists at intersections in the project vicinity. The traffic analysis indicates that with the increased traffic associated with the Sunbow development project and the proposed transportation improvements implemented (year 1992), intersections that currently operate at unacceptable traffic levels would be improved to operating Levels of Service C or better in the future. The transportation improvements proposed with the project would, therefore improve air quality

conditions and decrease the number of potential CO hotspots in the vicinity of the project area.

Under the cumulative development scenario, which incorporates impacts from additional traffic associated with other approved projects in the vicinity of the project site and roadway improvements of the ECVTPP (see Traffic section), intersections with LOS D will be improved to LOS C or better. Consequently, provided that roadway improvements of the ECVTPP are implemented in a timely manner in coordination with cumulative development, no CO hotspots or additional local air quality impacts will result from cumulative development.

Mitigation

There are four basic tactics for the mitigation of air quality presented as part of San Diego's attainment plans (APCD 1986). These are traffic flow improvements, ridesharing, bicycling, and transit. The project, as proposed, incorporates traffic flow improvements (i.e. road construction, road widening and signalization) and bicycling. Intersections affected by the project would be maintained at levels of service C or better, and the project provides an integrated system of open space, trails and parkways to accommodate pedestrian and bicycle traffic.

The project reduces the potential for air quality impacts through the mixed-use land use concept which can reduce vehicle trips. However, since the project, as proposed, was not included in SANDAG's Series V and VI growth forecasts, an impact must be identified, warranting mitigation. Other than reduction in project density to 7.3 du/acre, no mitigation has been identified to offset this impact.

The following measures shall be adhered to, subject to approval by the City, to reduce short-term pollutant emissions:

- Use of watering or other dust palliatives to reduce fugitive dust; emissions reductions of about 50 percent can be realized by implementation of these measures.
- Hydroseeding, landscaping, or developing of disturbed areas as soon as possible to reduce dust generation.
- Proper covering of trucks hauling fill material.
- Enforcement of a 20 mile-per-hour speed limit on unpaved surfaces.
- Use of heavy-duty construction equipment that is equipped with modified combustion/fuel injection systems for emissions control.

Significance of Impacts

The project represents growth that was not considered when formulating the air quality attainment plans for the San Diego region, consequently it is inconsistent with regional forecasts. The project will, however, generate less traffic and less air pollutants than would the site under regional forecasts, therefore the project's contribution to cumulative regional air quality impacts is not significant. Local and short-term air quality impacts can be mitigated by the above measures and measures in Section 4.4.

4.8 WATER QUALITY/DRAINAGE

Existing Conditions

The project lies within portions of three distinct major drainage basins identified as Poggi Canyon, Palm Road and Telegraph Canyon. The majority of site is tributary to the Poggi Canyon basin which comprises approximately 375 acres, while the Loma Verde and Telegraph Canyon basins drain roughly 160 acres and 70 acres respectively.

Any runoff from the project site is likely to be of good quality due to the lack of development, although no known water analysis has occurred there. Runoff leaving the project site traverses a heavily developed urban area via Poggi Canyon and likely experiences a decrease in water quality. Urban development generally increases the potential for runoff contamination over nonurban areas, with urban runoff commonly contributing bacteria, pesticides, nutrients, organics, solids, and metals to downstream waters (Wigington et al. 1983). This is due to the interception of airborne pollutants by precipitation, and the accumulation of contaminants in runoff on the surface or in drainage structures. A summary comparison of average runoff wasteloads for various urban land uses is shown in Table 11.

Table 11

URBAN SURFACE RUNOFF COEFFICIENTS

Land Use	Total Dissolved Solids (TDS) (lb/acre yr)	Biochemical Oxygen Demand (BOD) (lb/acre yr)	Total Nitrogen (lb/acre yr)	Total Phosphorus (lb/acre yr)
Residential	400	30	12	2.0
Commercial and Included Non Water Service	500	40	12	1.0
Industrial	550	30	12	1.2
Public Recreation and Similar	250	18	15	0.5

Source: SWRB, RWQCB 1975

The project site is located in the Lower Sweetwater subunit of the Sweetwater Hydrographic unit. Annual precipitation within the subunit varies form approximately 11

to 14 inches. Groundwater is generally of poor quality, with little or none used for domestic or agricultural purposes. Existing beneficial uses for groundwater in the Lower Sweetwater Subunit were identified by the State Water Resources and Regional Water Quality Control boards (1978) as municipal and domestic supply, agricultural supply, and industrial service supply. Potential additional future use for groundwater in the subunit consists of groundwater recharge (SWRB, RWQCB 1978). These designations are regional and do not reflect site-specific conditions throughout the subunit. A number of locations within the Lower Sweetwater Subunit were previously rated as inferior for domestic and irrigation uses (SWRB, RWQCB 1975). These ratings were based on observed levels of bacteria, various salts, boron, fluoride, and chlorine. The concentrations are attributed to the migration of connate waters into local valleys and previous intrusions of sea water. During the geotechnical investigation of the by Geocon (1988; on file with the City of Chula Vista), a number of exploratory boring and trenches were excavated. Groundwater was encountered during this investigation. All observed surface and subsurface materials could be susceptible to water seepage under certain conditions.

Perched water conditions are likely to develop during the rainy season within drainage areas. The project site is located within Zones 3 and 4 of the San Diego County Flood Control District. No major County flood control facilities exist or are proposed within the site itself or the immediate area (San Diego County Department of Sanitation and Flood Control 1975). A flood channel improvement proposed by the City of Chula Vista is located approximately 1 mile southwest of the project site, near the intersection of Oleander and Orange Avenues. This would consist of an 11-foot diameter spiral-ribbed pipeline, connecting with an existing 12-foot line to the west (Thomas 1987).

Impacts

The proposed development would result in significant grading, infilling of drainages and construction of impervious surfaces to accommodate the planned development. This would produce changes to both the nature and quantity of runoff within the site. Surface grading and infilling of drainages would change the direction and velocity of runoff, as well as increasing the potential for erosion by removing vegetation and creating artificial slopes. Based on the field investigation by Geocon (1986), wherever infilling of canyons or infilling ravines occur, significant impacts to drainage might occur. Onsite soils generally have a high erosional potential and uncontrolled runoff can create erosional gullies, affecting slope stability and creating a build-up of silt in natural drainages, storm drains, and at the toe of slopes.

The construction of impervious surfaces would result in a decrease of infiltration from precipitation and runoff and an overall increase in the quantity of runoff. Such an increase would magnify the potential for erosional and flooding problems downstream from the site.

Downstream drainage facilities of the three onsite drainage basins consist of lined concrete and natural channels, storm drain conduits and multiple crossing structures. Developed flow contributions to the Loma Verde Basin appear to have been considered in the design of downstream drainage facilities; however, there exists a potential impact to facilities associated with the Telegraph and Poggi Canyon basins. These potentially significant impacts would require upgrading of their existing capacities in order to accommodate the increase in flows resulting from development. The least apparent flexibility for upgrading are those crossings beneath the 805 Freeway.

An increase in onsite runoff and/or erosion could adversely affect surface water quality both within the project area and downstream by increasing the dissolved and suspended

streamloads. Additionally, the establishment of an urban development onsite could affect water quality by increasing the discharge of bacteria, pesticides, etc., as previously discussed.

Mitigation Measures

- To mitigate the effects of development on storm runoff, onsite detention facilities shall be incorporated into the stormwater management plan. To preserve historic drainage conditions for the individual basins as well as the overall watershed where canyons or ravines are filled in, installation of subdrains is required.

- A detailed drainage study conducted by a qualified hydrologist shall be submitted to City concurrent with submittal of the SPA and/or tentative map.

- All grading shall be performed in accordance with guidelines contained in the GDP and requirements in the City of Chula Vista Grading Ordinance. A geotechnical consultant should review the SPA grading plans prior to finalization and, if necessary, conduct additional field investigation.

- After appropriate alluvial/colluvial materials have been removed from drainages, subdrains shall be installed prior to backfilling. The specifications, location, and depth of subdrains shall be determined by the geotechnical consultant after review of the grading plans.

- Appropriate wall drainage and water proofing specifications will be provided by the project architect and implemented during construction.

- Grading shall be performed so that surface drainage is directed away from structures and into swales or other controlled drainage facilities.

- An appropriate revegetation plan acceptable to the City of Chula Vista shall be prepared by a qualified landscape architect for all disturbed slopes. Implementation of this plan should begin immediately after completion of grading.

- Construction of an onsite drainage system designed to contain expected 10-year storm runoff shall be required. Drainage structures shall conform with City standards. Major structures shall be designed to contain runoff from a 50-year storm.

- All drainage facilities shall be maintained to provide proper flow directions and velocities.

Analysis of Significance

No significant, unmitigable impacts to hydrology/drainage or water quality would result from project implementation if recommended mitigation measures are implemented, and if drainage system plans submitted with the SPA and tentative maps are approved by the City of Chula Vista's Department of Public Works.

4.9 BIOLOGICAL RESOURCES

Appendix D includes a survey conducted in 1987 by Pacific Southwest Biological Services. The following utilizes the 1987 data base, updated and supplemented by field and other research efforts conducted by ERCE biologists in 1988/1989.

Existing Conditions

Vegetation

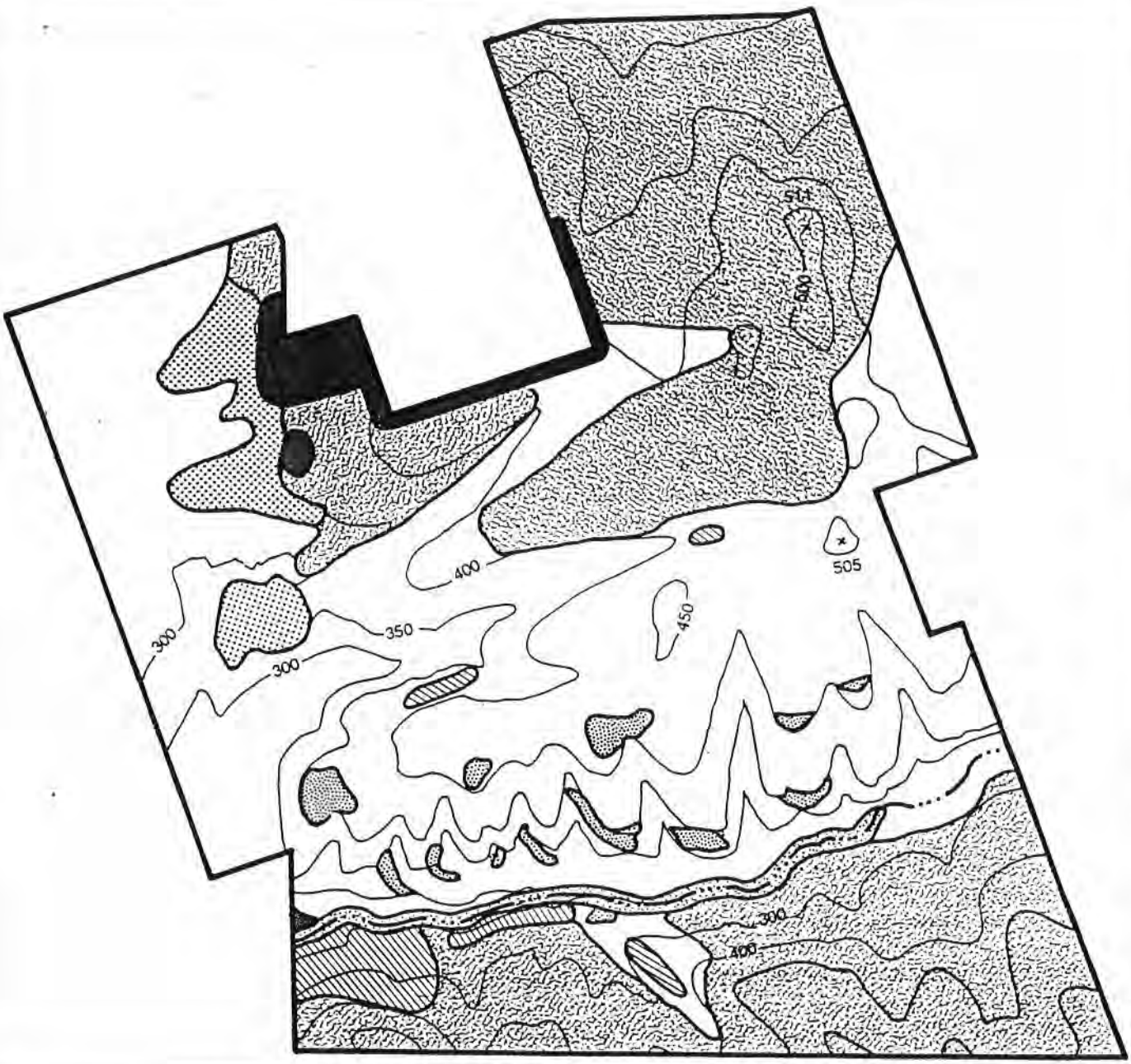
The Sunbow project site currently supports a wide variety and great diversity of plant communities. Many of these are in relatively excellent condition, with signs of human disturbance limited to a few isolated and relatively insignificant areas. Other areas show signs of extensive and long-term human usage, principally agricultural conversion.

The Sunbow site was surveyed for sensitive biological resources in 1987 by Pacific Southwest Biological Services, and a brief field verification of existing conditions and report update was performed by ERCE in late summer 1988. Plant communities identified on the Sunbow site by ERCE include (PSBS community designation equivalents identified in parentheses):

1. Non-native Grassland (Annual Grassland).
2. California Native Grassland (Clay lenses - Olivenhain and Diablo Series).
3. Expansive Clay Association (Clay Lenses - Linne Series [Bentonite]).
4. Diegan Coastal Sage Scrub (Diegan Sage Scrub - Low Phase, Diegan Sage Scrub - Sumac Phase, Cholla Cactus Stands).
5. San Diego Mesa Claypan Vernal Pool (Mima Mounds).
6. Riparian Scrub (none identified).
7. Ruderal Vegetation (Annual Grassland).

Vegetation communities are mapped in Figure 4.11. Non-native grassland covers large areas of the southeastern end (approximately 140 acres) and northeastern end (approximately 130 acres) of the Sunbow project site. These areas clearly had been used for agricultural purposes in the past, principally grazing. Indicator species in these areas include *Avena* (Wild Oat), *Bromus diandrus* (Ripgut Brome), *Hordeum leporinum* (Foxtail), *Brassica geniculata* (Field Mustard), *Raphanus sativus* (Wild Radish), and others. Other smaller pockets of non-native grassland are present on the site, occasionally in association with clay lens communities.

California Native Grassland is limited on the project site, being restricted to a few small areas of heavy clay in lenses of the Olivenhain and Diablo series in pockets in the scrub. Indicator species in these areas include *Stipa* spp. (Stipa Grasses), *Sisyrinchium bellum* (Blue-eyed Grass), *Fritillaria biflora* (Chocolate Lily), *Bloomeria crocea* (Golden Stars), and a variety of small annuals that were not identifiable at the time of the surveys. Non-native elements have invaded this habitat, as would be expected. These include *Centaurea melitensis* (Tocalote) and a number of grasses such as *Avena* (Wild Oat) and *Bromus* (Brome grasses). The very rare and endangered *Hemizonia conjugens* (Otay Tarplant) appears to be prinicipally associated with this native grassland assemblage.



LEGEND

- Diegan Coastal Sage Scrub
- Non-Native Grassland
- Expansive Clay Association/Linne Series
- San Diego Mesa Claypan - Vernal Pool
- Riparian Scrub
- California Native Grassland
- Ruderal Vegetation

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Vegetation Communities

FIG

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An Expansive Clay Association, dominated by a near monoculture of the noxious Tocalote, is found on clay lenses of the Linne series. This soil contains a large amount of Bentonite, is extremely friable and expansive, and is relatively devoid of native vegetation. One native species associated with this soil is the rare and endangered *Acanthomintha ilicifolia* (San Diego Thorn-mint).

Diegan Coastal Sage Scrub is found on most of the undisturbed areas of the site. Dominant and typical species in these areas include *Artemisia californica* (California Sagebrush), *Simmondsia chinensis* (Jojoba), *Encelia californica* (California Sunflower), *Viguiera laciniata* (San Diego Sunflower), *Malosma laurina* (Laurel Sumac), *Ferocactus viridescens* (Coast Barrel Cactus), *Opuntia prolifera* (Coast Cholla), and many others. More mesic north-facing slopes and a few canyon bottoms support a dense scrub of *Rhus integrifolia* (Lemonadeberry). Certain other areas within this community approach a Maritime Succulent Scrub community, with characteristic species such as *Opuntia prolifera*, *O. parryii* var. *serpentina* (Snake Cholla), *Ferocactus viridescens*, *Mammillaria dioica* (Fish Hook Cactus), *Dudleya edulis* (Edible Dudleya), *D. lanceolata* (Lance-leaf Dudleya), and *D. pulverulenta* (Chalk Live-forever) present in substantial numbers. *O. prolifera* forms dense thickets in several areas. Other components of Maritime Succulent Scrub, such as *Euphorbia misera* (Cliff Spurge) and *Ambrosia chenopodiifolia* (San Diego Bur-sage) are not present here, suggesting that this habitat is a transition zone to more typical coastal sage scrub.

San Diego Mesa Claypan vernal pool habitat is present on the site's northwest corner. Between ten and fifteen small pool basins are present in this area. These form apparently low quality vernal pools, with only a few pool-dependent or opportunistic plant species observed. The paucity of vernal pool forms is partially explained by the season of surveying, and, undoubtedly, partially by the small size of the basins. Plants observed in these depressions include *Psilocarphus brevissimus* (Woolly Marbles) and *Crassula aquatica* (Water Tillaea). These species are vernal pool indicator species (Zedler 1987). Other annual plants were present, but could not be identified based on their state of dessication. Pool habitat was present on three disjunct mesa areas. The most southerly area supported only marginal pool habitat. All of the mima mounds on this southerly mesa supported sage scrub, and the basins typically have been invaded by at least a small quantity of *Selaginella cinerascens* (Mesa Clubmoss). Mesa Clubmoss can persist only in very shallow basins of relatively low value, as this species will not tolerate long periods of submersion.

A small but significant area of Riparian Scrub vegetation is present in the bottom of Poggi Canyon. The indicator species in this area is *Baccharis glutinosa* (Mule Fat), with the noxious *Arundo donax* (Giant Reed), and *Ambrosia confertiflora* (Weak Leaf Burbush) present in places. This community is particularly well developed on the western end of Poggi Canyon, where it forms a dense thicket within the floodway of the ephemeral drainage.

Ruderal Vegetation is present around the medical center, where construction activities and subsequent brush clearing for fire protection have displaced the native vegetation. A few other small areas of disturbance are present in canyon bottoms and in an area degraded by staging activities for the construction of Phase One of the Sunbow project. Indicator species in these areas include *Conyza* sp. (Horseweed), *Brassica nigra* (Black Mustard), *Marrubium vulgare* (Horehound) and many other weeds.

Flora

One hundred twenty-five taxa were identified on the Sunbow project site by the PSBS investigators. Of this total, 29 are non-native weedy species, common in disturbed areas. Native plants are dominant on original soil surfaces where erosion, clearing, grading or other degradations have not occurred. Several plants constitute particularly noteworthy discoveries, as they are known from few other sites. These include *Stipa diegoensis* (San Diego County Needle Grass), *Cordylanthus orcuttianus* (Orcutt's Bird's-beak), *Hemizonia conjugens* (Otay Tarplant), and *Acanthomintha ilicifolia* (San Diego Thorn-mint). Other regionally sensitive plants observed on the site include *Dichondra occidentalis* (Western Dichondra), *Opuntia parryi* var. *serpentina* (Snake Cholla), *Viguiera laciniata* (San Diego Sunflower), *Selaginella cinerascens* (Mesa Clubmoss), and *Ferocactus viridescens* (Coast Barrel Cactus) (Table 12).

Significant differences between the PSBS survey and the more recent survey were seen in the population numbers and onsite distributions of several of these sensitive plant taxa. These are most likely a reflection of differences in climatic conditions and survey techniques. Of greatest significance was the noted great increase in the numbers and distribution of Otay Tarplant, a state-listed endangered species. The PSBS report indicates that a total of several thousand specimens were present in five disjunct populations, with the smallest populations supporting approximately 50 specimens. At least several hundred thousand specimens were seen by ERCE in 1988. The smallest populations supported in excess of 5000 specimens, with some of the larger stands covering in excess of 3000 square feet, at an average density of approximately 75 plants per square foot (= 225,000 specimens) in this representative population. In addition, the distribution of this species, while in general conformance with the PSBS mapping effort, was, as expected, much greater than seen in 1987. This further supports the notion that this population of Otay Tarplant is one of only two extensive populations of this species known, and that the Sunbow site forms essential habitat for the continued viability of this plant species.

Other sensitive plants found to be more widely distributed on the Sunbow site in 1988 include Coast Barrel Cactus, Mesa Clubmoss, and San Diego Sunflower.

Fauna

Eighty-three vertebrate taxa were observed on the Sunbow site by the PSBS investigators. Most are common forms. A few regionally declining birds and reptiles were observed or are expected to occur, based on habitat suitability (Table 12). These include resident populations of *Polioptila melanura californica* (California Black-tailed Gnatcatcher), *Ammodramus savannarum perpallidus* (Grasshopper Sparrow), *Campylorhynchus brunneicapillus sandiegensis* (San Diego Cactus Wren), *Cnemidophorus hyperythrus beldingi* (Belding Orange-throated Whiptail), and a number of wide-foraging raptor species such as Turkey Vultures, Golden Eagles, Cooper's Hawks, and others. Other less sensitive but otherwise noteworthy birds observed include Blue-gray Gnatcatchers, Bewick's Wrens, Loggerhead Shrikes, and Rufous-crowned Sparrows.

A few of the sensitive vertebrates seen onsite in 1988 were more widely distributed and slightly more abundant than reported by the PSBS investigators for 1987. This may reflect subtle changes in habitat as a result of climatic changes, differences in survey technique, or other factors. These include increases in the onsite numbers and distribution of California Black-tailed Gnatcatchers, Grasshopper Sparrows, and San Diego Cactus Wrens.

Table 12

SENSITIVE SPECIES OF PLANTS AND ANIMALS OBSERVED ON THE SUNBOW PROJECT SITE

Species	Status	Population Numbers on Site
Otay Tarplant	CNPS RED 3-3-2 CDFG: Endangered Federal ESA: C2	500,000+
San Diego Thorn-mint	CNPS RED 3-3-2 CDFG: Endangered Federal ESA: C2	approx. 50
Orcutt's Bird's-beak	CNPS RED 3-3-1	500-700
San Diego Needlegrass	CNPS RED 3-3-1	300-1000+
Snake Cholla	CNPS RED 2-3-2	100+*
Coast Barrel Cactus	CNPS RED 1-3-1	300+
Mesa Clubmoss	CNPS RED 1-2-1	*Dominant on ridges
Adder's Tongue	CNPS RED	*"Small colony"
Western Dichondra	CNPS RED 1-2-1	*
San Diego Sunflower	CNPS RED 1-2-1	1000+*
San Diego Cactus Wren	Everett-Declining	10-20 pr.
Black-tailed Gnatcatcher	Everett-Declining Remsen-2nd priority USFWS-C2	approx. 10-20 pr.
Grasshopper Sparrow	Blue-list	2+*
Turkey Vulture	Everett-Declining	*
Cooper's Hawk	Everett-Declining Blue-list Remsen-2nd priority	*
Golden Eagle	CDFG-fully protected Remsen-3rd priority	*
Northern Harrier	Blue-list Everett-Declining Remsen-2nd priority	*

Table 12 (Continued)

SENSITIVE SPECIES OF PLANTS AND ANIMALS OBSERVED ON THE SUNBOW PROJECT SITE

Species	Status	Population Numbers on Site
Black-shouldered Kite	CDFG-fully protected	*
Blue-gray Gnatcatcher	Unitt-Declining	*
Bewick's Wren	Blue-list	*
Loggerhead Shrike	Blue-list	*
Belding Orange-Throated Whiptail	IUCN-Rare, depleted SDHS-threatened	10+*

* = accurate population estimates on the SUNBOW site not determinable given constraints of the PSBS biological resources survey report.

USFWS - U.S. Fish and Wildlife Service (1986).

CDFG - California Department of Fish and Game.

UICN - International Union for the Conservation of Nature and Natural Resources (1979).

Blue List - Audubon Blue List for 1986 (Tate, 1986).

Remsen (1978) - Species of Special Concern - Priority I, II or III, in decreasing order of sensitity.

Everett (1979) - Threatened, Declining and Sensitive Bird Species in San Diego County.

SDHS - San Diego Herpetological Society (1980).

Impacts

Development of the project as proposed will retain an estimated 29.3 percent (176.6 acres) of the site as open space. The amount of "natural" open space realized at tentative map level based on the General Development Plan is generally less due to the inclusion of manufactured slopes and firebreaks in the general open space category. Generally, the project retains the majority of Poggi Canyon as natural open space as well as some slopes along Medical Center Drive south of East Palomar Street and along Telegraph Canyon Road east of Paseo Ladera. The remainder of the site, including the central and northern portions, is anticipated to be fully developed.

Significant adverse biological impacts are identified to the following species/habitats: vernal pools, riparian scrub, Cactus Wrens, Otay Tarplant, San Diego Thorn-mint, Orcutt's Bird's Beak, snake cholla, coast barrel cactus and Diegan Sage Scrub.

Vernal pools and riparian scrub are wetland resources, albeit not well-developed onsite, which are regarded as rare and significant resources by the wildlife agencies. The impact to these resources by the development of Planning Area 12 and East Orange Avenue, respectively, will precipitate the need to engage the Corps of Engineers and U.S. Fish and Wildlife Service in the Water Act Section 404 permit process and the California Fish and Game in the Streambed Alteration Agreement 1603 process.

The loss of Cactus Wren habitat in Planning Areas 13 and 16 is considered a significant effect due to the rarity of this species and the limited extent of available nesting habitat (cactus thickets). While habitat for this species is retained on the slopes of Poggi Canyon north of East Orange Avenue and the majority of the sightings (nests) are retained, the incremental loss of habitat for this species is significant. A minimum of three of the sighting locations would be lost by the development and possibly two others would be adversely affected by the proximity of development.

Otay Tarplant and San Diego Thorn-Mint are both state-listed plant species. The Otay Tarplant is extensive onsite and is retained in part in proposed Poggi Canyon open space. However, substantial numbers would be lost by development in Planning Areas 9, 10, 14 and 15. Given the high sensitivity of this species and the apparent few locations of other protected populations, this population reduction is considered significant. Due to the state-listed status of San Diego Thorn-mint, the loss of the single onsite population in Planning Area 14 is also considered significant.

The loss of Orcutt's Bird's Beak from the site is considered a significant effect. While not a state-listed species, this species has a high sensitivity rating. It would be lost from the project area by development of Planning Areas 12 and 14.

The reduction of Diegan Sage Scrub from the property is considered a cumulatively significant effect. It is estimated that about 250 to 300 acres of scrub habitat will be lost by the implementation of the proposed development plan. The loss of this declining habitat is incremental in a regional context and, in this case, is considered cumulatively significant due to the large number of inclusive sensitive plant and animal species. Aside from the species noted above, an additional seven sensitive plant species and two sensitive animal species are identified from this habitat area onsite. Individually these latter species are not considered significant, but cumulatively these moderate level sensitive species combine with the high sensitive species to dictate finding of significance.

The loss or reduction of a number of species onsite is considered adverse but less significant than the above resources. Generally, the effects to these species are not

considered significant due to the low sensitivity status of the species, low numbers onsite, low incremental nature of the regional effect, or a combination of these factors. These species include the California Black-tailed Gnatcatcher, Orange-throated Whiptails, *Dichondra occidentalis*, *Ophioglossum californicum*, *Stipa diegensis*, *Opuntia parryi* var. *serpentina*, *Ferocactus viridenscens*, *Selaginella cinerascens*, *Viguiera laciniata* and a raptor nesting site. Black-tailed Gnatcatcher habitat would be reduced but the impact to this species is not considered significant due to the fact that an estimated 8 of the 11 combined sightings by the various biological surveys would be retained in natural open space. The incremental reduction of this species' numbers and habitat does, however, contribute to the cumulative finding of significance to Diegan Sage Scrub.

Mitigation

Significant impacts were identified for riparian scrub, five plant species, the cactus wren and for Diegan Sage Scrub. Mitigation measures for these resources are discussed below:

- Riparian scrub habitat - The Corps of Engineers has jurisdiction over vernal pools and other wetland habitats. The filling of the vernal pools would necessitate filing of a re-discharge notification with the Corps and subsequent review with this agency and its advisory agencies (U.S. Fish and Wildlife Service, California Department of Fish and Game). Onsite preservation would be investigated and if this were impractical for biological, planning and economic reasons, an offsite mitigation program would be formulated in concert with the agencies. This program would entail the purchase and protection of offsite vernal pool resources or the re-creation of vernal pools at selected sites.

  The minor reduction of riparian scrub habitat in Poggi Canyon (less than 1 acre) would not entail the involvement with the Corps of Engineers. The Fish and Game will require a Streambed Alteration Agreement for the impacts to the drainage in the canyon. These impacts could be mitigated onsite within Poggi Canyon and include flood and erosion control programs and planting of an equitable extent of riparian vegetation so that there is no net loss of wetland habitats onsite.

- The loss of *Acanthomintha ilicifolia* onsite could be reduced to a level of insignificance by redesign of the southwestern corner of Planning Area 14 to avoid impacting the species. In lieu of this, a transplantation program could be detailed as part of an approved Memorandum of Understanding with the Fish and Game. The transplantation program could involve onsite transplantation and a multi-year monitoring program. A similar compensation program approved by the Fish and Game is currently being conducted in the Mira Mesa area of San Diego.

- Orcutt's Bird's Beak (*Cordylanthus orcuttianus*) is an annual species which could potentially be mitigated by reseeding in appropriate areas onsite. Seed could be collected onsite at the appropriate time of the year and broadcast or raked into an identified location. The reseeded areas should be marked and monitored for a number of years to ascertain the ffectiveness of this procedure.

- Otay Tarweed (*Hemizonia conjugens*) is an annual also and should be mitigated in a program similar to that for the above two species. As a state-listed species, a Memorandum of Understanding with the California Fish and Game would be required as part of an approved mitigation plan for the species.

- The impact to the Cactus Wren cannot be effectively reduced onsite to a level of insignificance. Habitat recreation is not considered feasible. Redesign of Medical Center Drive, Planning Area 13 along Medical Center Drive, and close scrutiny of the interface of Planning Areas 14 and 16 would be necessary at the Tentative Map level to effectively reduce the impact to insignificance.

- Diegan Sage Scrub - This cumulative finding of significance cannot be effectively reduced to a level of insignificance without major project redesign to incorporate a larger natural open space system with a larger representation of the inclusive sensitive species. Given project economics, this may not be practical and thus this effect is significant and unmitigatable.

While not as significant as the above effects, the following recommendations are made to reduce the overall level of impacts to sensitive species.

- Coast Barrel Cactus (*Ferocactus viridescens*) and Snake Cholla (*Opuntia parryi* var. *serpentina*) should be transplanted to appropriate open space onsite.

- Native species should be utilized in replanting cut and fill slopes to the extent practicable. San Diego Sunflower (*Viorguinera laciniata*) is a good candidate for south-facing slopes.

Analysis of Significance

Significant and adverse impacts to biological resources were identified. Implementation of the mitigation measures recommended would reduce many significant impacts to below a level significance. However, significant impacts identified relating to the Cactus Wren, Otay Tarplant and the Diegan Sage Scrub community cannot be mitigated without a project redesign, resulting in project-specific and cumulatively significant adverse impacts to these resources.

4.10 FISCAL ANALYSIS

The City of Chula Vista requires the use of fiscal impact reports for all projects as determined in their threshold standard policy. John McTighe & Associates was retained to prepare an analysis of the fiscal impact on the City of Chula Vista that could result from the Sunbow project (John McTighe & Associates 1989). This analysis considered all known operating costs and revenues that might be attributed to the development of the Sunbow site. The analysis also covered the added capital costs and proposed methods of financing. Sections of that report, on file at the City Planning Department, have been extracted or summarized in this section.

Existing Conditions

The site in its present vacant state generates almost no revenue or cost to the City of Chula Vista. The City of Chula Vista's preliminary 1988-89 budget is $35,747,192. These costs have been allocated to 18 "direct service" activities to allow a determination of which areas would be affected by the proposed development.

This analysis has considered all known non-enterprise fund operating costs and revenues that might be attributable to the development of the Sunbow project. City operating costs were projected based on a computer model that took into consideration the fiscal year 1988-89 budget of the City and input received from various City operating departments. City revenue projections were based on the existing revenue sources of the City. Computer

Table 13

CITY OF CHULA VISTA
1988-89 GENERAL FUND
DIRECT SERVICE ACTIVITIES' FULL COST

Activity/Department	1988-89 Full Cost
General Government and Non-Departmental	$ 1,105,712
Planning	1,086,301
Community Development	747,544
Police/Animal Regulation	13,460,289
Fire Protection	5,559,511
Building and Housing	781,854
Public Works/Engineering	
Engineering	
Design and Construction	1,181,280
Land Development	712,458
Traffic Engineering	445,852
Public Works	
Street Maintenance	1,368,221
Street Sweeping	253,700
Street Tree Maintenance	569,816
Traffic Operations	374,823
Traffic Signal and Street Light Maintenance	1,088,293
Sewer Systems Maintenance	894,800
Pump Station Maintenance	167,922
Parks and Recreation	3,509,232
Library	2,439,583
TOTAL	$ 35,747,192

Source: City of Chula Vista 1988-89 Adopted Budget; John McTighe & Associates.

modelling of the relationship of individual revenue accounts to population, land use and other factors was developed by John McTighe & Associates to simulate the changes in revenue that could be expected over the development of this project. A separate model of assessed valuation/property tax changes was developed to project the effect on City property tax revenues based on the developer's projection of buildout rate and product pricing. The 18 activities and their associated 1988-89 direct service budgeted expenditures are listed in Table 13.

Impacts

The development of the Sunbow project is projected to have an overall positive fiscal impact on the City of Chula Vista. In other words, operating revenues are projected to exceed operating costs over the ten year period of time analyzed in this study. However, the annual costs associated with the Sunbow development would begin to exceed annual revenues in the fifth fiscal year after the start of development due to the significant added cost of maintenance for the community park included in the development. Since this park should serve a larger area than included within the Sunbow development area, it seems reasonable that some of these additional park maintenance costs should be attributed to revenues received from outside of the project.

The Sunbow development is expected to have a neutral effect on the City's capital expenditures and revenues, in that the development, as part of the Sunbow GDP, would provide public facilities financed either from the developer of the property or from the property itself through the use of public debt mechanisms tied to the property (i.e., 1913 Act assessment districts). The Public Facilities Financing Plan for the Sunbow GDP development details the methods to be used to finance the affected public facilities.

Table 14 shows the projected combined operating funds costs and revenues over the buildout period and for four years beyond. The funds included in this grouping are the General Fund, Special Gas Tax, Traffic Safety Fund and State Library Act Fund.

Project costs to the City of Chula Vista would occur in two ways: one-time costs and on-going operational or maintenance costs. One-time costs are related to planning, building inspections, engineering services, and fire prevention. Planning will experience a one-time, but lengthy, impact as the plans for the development of the Sunbow project area are formalized and processed. Since this project is anticipated to extend over a nine year period, this impact should be minor at any one particular point in time. It is not now possible to quantify the cost of this impact on the current planning activity. However, Chula Vista's planning fees have been established at a level intended to recover the full cost of the Planning Department's processing resulting in no net cost to the City. These planning fees include fees for building, plumbing, electrical, housing, and sewer connection permits along with charges for environmental reviews, plan checks, zoning, and engineering.

Table 15 summarizes the projected on-going costs. At full project buildout (Year 10), generation of an annual on-going cost to the City would be $1,133,814. These cost projections include such items as street operations; street, sewer, water, and park maintenance; and police, fire, sewer, and library service.

The project would also generate ongoing revenues on an annual basis. These funds are generated by such items as property taxes, sales and use taxes, franchise taxes, property transfer taxes, utility user taxes, and motor vehicle in-lieu taxes. Other minor sources of revenue include business licenses, bicycle licenses, animal licenses, cigarette taxes, fines, forfeitures and penalties, public swimming pool user fees, and other recreation programs.

Table 14

PROJECTED ANNUAL OPERATING REVENUES AND COSTS
(in constant 1989 $)

Fiscal	Revenue	Cost	Annual Net Impact	Cumulative Net Impact	Revenue/ Cost Ratio
1990	$332,072	$220,653	$111,420	$111,420	1.50
1991	$515,627	$366,662	$148,966	$260,385	1.41
1992	$817,963	$664,853	$153,110	$413,495	1.23
1993	$1,253,046	$959,963	$293,083	$706,579	1.31
1994	$1,347,525	$1,174,606	$172,919	$879,498	1.15
1995	$1,522,936	$1,172,232	$350,704	$1,230,202	1.30
1996	$1,522,936	$1,172,232	$350,704	$1,931,611	1.30
1997	$1,522,936	$1,172,232	$350,704	$1,931,611	1.30
1998	$1,522,936	$1,172,232	$350,704	$2,282,315	1.30
1999	$1,522,936	$1,172,232	$350,704	$2,633,020	1.30

Source: John McTighe & Associates, 1989.

Table 15

SUMMARY OF ON-GOING ANNUAL CITY COST INCREMENTS RESULTING FROM DEVELOPMENT OF SUNBOW
(in constant 1989 $)

Fiscal Year	Cost
1990	$ 220,653
1991	366,662
1992	664,853
1993	959,963
1994	1,174,606
1995	1,133,814
1996	1,133,814
1997	1,133,814
1998	1,133,814
1999	1,133,814

Source: John McTighe & Associates, 1989.

The City places its idle funds in interest-bearing investments. Generally, as the City's total revenue increases, the amount of money available for investment also increases. The analysis has assumed that only the net positive difference between annual revenue and expenditures would be available to earn interest. Therefore, incremental additional revenue ($7,773 estimated in 1990) would be available to the City as a result of the project from investment earnings on project-generated funds.

The Sunbow project would also result in moneys available to the City from certain special funds. These include the Traffic Safety Fund, which receives revenue from fines for violations of the Vehicle Code; the State Library Act Fund, which receives State library funding for expenditures over a fixed per capital amount; the Sewer Service Revenue Fund, based on sewer service charges; and the Special Gas Tax Fund, which is distributed by the State according to a set of formulas that consider the population of Counties compared to the State total, the population of cities to total County population, and the assessed value of cities compared to the total assessed value within the County. The total ongoing revenues by source of the project and the basis for these projections are presented in the John McTighe & Associates fiscal analysis on file at the City.

Mitigation Measures

Because implementation of the project is anticipated to result in a positive fiscal impact to the City of Chula Vista, no mitigation is considered necessary. Although annual costs associated with the Sunbow plan would begin to exceed annual revenues in the fifth fiscal year after the start of development, future project negative net costs would be offset by positive fiscal impacts generated by development of other land uses designated in the City's General Plan. The project should be monitored to confirm the positive fiscal impact projected by the fiscal analysis.

Analysis of Significance

Based on the fiscal analysis prepared by John McTighe & Associates (1989), the project's operating revenues are projected to exceed operating costs (over the ten year period of time analyzed), which would result in a positive fiscal impact to the City of Chula Vista. Therefore, this positive fiscal impact would not create a significant adverse environmental (fiscal) impact, and would require neither mitigation nor findings pursuant to CEQA.

SECTION 5
REQUIRED CEQA SECTIONS

5.1 GROWTH INDUCEMENT

This section of this EIR examines the growth inducement potential of the proposed project in terms of two main factors: (1) Stimulating the development of surrounding property at greater density than allowed by the proposed City of Chula Vista General Plan and zoning; and (2) the extension of services and improvements into an area where they previously were unavailable.

The land use designations and density of the Sunbow project are consistent with the land use designations and densities recommended in Scenario IV as part of the draft General Plan for the City of Chula Vista. If Scenario IV is adopted, the project would not require a rezone or general plan amendment and, therefore, would not stimulate the development of surrounding property at a level inconsistent with the City's plans and policies. If Scenario IV is not adopted, the Sunbow project might be inconsistent with the General Plan and further environmental review would be required to determine possible growth inducing impacts.

In addition, the City has been developing and refining a growth management plan for the past several years. The plan's intent throughout its revisions has been to direct growth in an orderly fashion, to avoid leapfrog development, and to protect and preserve the City's amenities. The proposed growth management plan provides a more specific approach to the direction of growth and is intended to supplement the General Plan.

Development of the site would not create growth inducing impacts to areas west, north or south of the site. The land to the east of the project site is currently vacant. Although planning has begun on the site, no formal plans have been submitted and there is no indication of when development may occur. Implementation of this project may encourage development of the area immediately east and south of Sunbow but it is not expected to represent a significant growth inducing impact. These areas are designated for urban growth and development is consistent with the City's goals for directing growth. In addition, there is significant planned development farther east of the site which, when built-out, would surround the Sunbow site.

The second factor for determining growth inducement impacts is the availability of urban-level public services. Although there are currently no urban-level services available on the site, these services are available in adjacent developments. Extensions of service lines for water and sewer would be sized to served the Sunbow project site only and would not cross vacant land. Police and fire protection would be extended to the site but would not result in growth inducement impacts. Construction of the road system to serve the site would result in growth inducement impacts to the territory to the east if the all of the proposed roads were constructed at the start of the project. However, since the roads will be built in three phases over the next 5-10 years, the growth inducing impacts are considered to be less than significant. The project is also required to meet all threshold standards established by the City of Chula Vista. This will ensure that services are provided concurrent with need which reduces the possibility of growth inducing impacts.

5.2 Relationship Between Local Short-Term Use of the Environment and the Maintenance and Enhancement of Long-Term Productivity

The following discussion is a summary of the project-related impacts that may be significant on a cumulative basis. This project in combination with other existing, approved and reasonably foreseeable projects may affect the overall maintenance and enhancement of the long term productivity of the area. A more detailed analysis for each issue is included in Section 4.0 of this EIR.

Project implementation would commit the site to a mixed use development with cumulative impacts similar to other developments. Generally the physical impacts include landform alteration, increased run-off and changes in erosional patterns, loss and/or displacement of biological resources and loss of perceived open space. This development would also generate additional air pollutants in the region and would contribute to the effect on the long term productivity of the entire County. These cumulative impacts would be present with any development of the site and could only be avoided through the "no project" alternative.

In terms of cumulative impacts to public services, cumulative impacts would result from the increased demands for water, sewer service and energy. Development of the site would also generate energy demands. To date, San Diego Gas and Electric has demonstrated its ability to meet energy demands associated with growth. Energy resources will continue to be evaluated with each incremental phase of development to endure adequate electricity and natural gas supply. Implementation of the project design would also incrementally reduce the capacity at the Point Loma Metro Sewer Plant. Due to the large area served by that plant and the comparatively small increase generated by the Sunbow project, the significance of the project related cumulative impacts are not considered significant. However when combined with other projects in the vicinity, significant impacts might occur if threshold standards are not followed and mitigation measures are not implemented.

The proposed project will incrementally increase water consumption and result in significant impacts, although on a project-specific basis the Sunbow development would represent a minor impact on water availability. Implementation of conservation measures would reduce the impacts to the extent feasible, but due to the uncertain regional water supply, any development requiring additional water must be considered to have a significant cumulative impact.

The project will contribute incrementally to demands on the City's circulation system, fire and police protection, library services, schools and parks. These impacts can be adequately mitigated through measures recommended in this EIR.

In summary, the development of the Sunbow project contributes to the cumulative need for public service, transportation facilities and an adequately developed urban infrastructure. The cumulative benefits that can also be expected to occur include increased housing supplies, employment opportunities and revenues. Considering the land use designations for the site, planned urban development is considered an appropriate and productive long-term use of the site.

5.3 Significant Irreversible Environmental Changes

Visual resources on the site would be altered substantially by the proposed development and grading would permanently alter the existing topography. The project, as proposed, will result in a significant and irreversible loss of biological habitat. Energy and water resources would be committed in site-preparation (grading and construction) and by future

residents. Energy sources are, for the most part, irreplaceable. A permanent loss of natural resources used for building materials and support of urban land uses would also occur. Ambient noise levels in the project vicinity would increase because of higher traffic volumes and other noise sources associated with urban activities.

In addition to the impacts stated above, the approval of the project would be based on the availability of the necessary public services and utilities. This requires a commitment from the agencies to supply these services. Such commitments are essentially irreversible since future land uses would be dependent on these agencies for the services and utilities.

5.4 CUMULATIVE IMPACTS SUMMARY

Land Use

The project will contribute to an incremental increase in the area's conversion of open space to urban land uses. This site's development has been incorporated into comprehensive future land use projections of the City and considered in formation of a balanced land use mix of Chula Vista. Consequently, no adverse cumulative land use impacts will result from project implementation.

Landform Alteration/Visual Quality

Project grading and development will contribute to an unavoidable, unmitigable adverse cumulative impact on the area's visual quality.

Public Services and Utilities

The project's contribution to cumulative impacts on public services and utilities can be mitigated to below a level of significance with two exceptions. Cumulative impacts to water supply and non-renewable energy resources associated with ongoing development on a regional scale are unavoidable and unmitigable.

Traffic and Transportation

Cumulative impacts were assessed incorporating project traffic included in the ECVTPP Phase 6 (see Traffic section). Potential cumulative impacts will be mitigated by implementation of roadway improvements which will ensure acceptable roadway and intersection levels of service, thereby resulting in no cumulative impacts after mitigation.

Geology and Soils

Any potential cumulative impacts regarding identified geotechnical issues will be mitigated to an insignificant level by mitigation herein and in the project geotechnical report.

Noise

Future onsite noise levels attributed to cumulative traffic will exceed acceptable levels. Mitigation herein requiring subsequent detailed and site specific noise analyses will serve to mitigate cumulative noise impacts to an insignificant level.

Air Quality

The project was not incorporated into previous San Diego regional growth projections, and is thus found inconsistent with regional plans. Project traffic would actually be less than

that generated by the site under the regional plans, consequently the project will not contribute significantly to regional air quality impacts. The project's contribution to local cumulative impacts can be mitigated by measures in Section 4.4 and 4.7.

Water Quality and Drainage

Site development will result in an increase in drainage/runoff, contributing to drainage capacity impacts on facilities in Telegraph and Poggi Canyon basins, as well as general water quality impacts. Mitigation proposed herein and standard City requirements during grading and construction will minimize cumulative impacts to an insignificant level.

Biological Resources

Significant impacts to riparian scrub, vernal pools, Diegan Sage Scrub habitat, five plant species and the Cactus Wren have been identified. After mitigation, cumulatively significant and unmitigable impacts associated with the Cactus Wren, Otay tarplant, and Diegan Sage Scrub will result from project implementation.

Fiscal Analysis

The project will result in a net positive fiscal impact to the City. No environmental/CEQA-related cumulative impacts are associated with fiscal characteristics of the project.

5.5 Summary of Unavoidable Adverse Impacts

This section briefly describes only those impacts identified in this EIR as unmitigable, resulting in an unavoidable adverse impact if the project is implemented. Impacts are discussed in detail in Section 4 under each specific environmental topic.

Landform Alteration/Visual Quality

The project's development, street grading and associated infrastructure will result in unavoidable project specific and cumulative adverse visual impacts which cannot be mitigated.

Public Services and Utilities

The project will contributed to an unavoidable and cumulatively significant adverse impact on the region's limited water supply and non-renewable energy resources. Other identified cumulative service and utility impacts can be mitigated to an insignificant level.

Biological Resources

Significant impacts to biological resources will result from project implementation. After mitigation, unavoidable and significant project specific and cumulative adverse impacts will result regarding the following resources: Cactus Wren, Otay tarplant and the Diegan sage scrub habitat.

SECTION 6
ALTERNATIVES

The California Environmental Quality Act (CEQA) requires that an EIR include a discussion of reasonable project alternatives including a "no project" alternative. The following discussion presents the "no project" alternative, a project redesign and an alternate site.

6.1 NO PROJECT ALTERNATIVE

Under this alternative, the site would remain as vacant land and no development would occur. No streets or services would be extended and the General Plan designations would remain the same. No significant land use impacts were identified for the proposed project providing that the Scenario IV designations are adopted and none would be expected with this alternative. No extensions of Medical Center Drive, Orange Avenue, Paseo Ladera or Palomar Street would occur with this alternative. Project-generated ADT would be eliminated as would the project's contribution to funds and area-wide improvements. This alternative would result in some environmental impacts since traffic impacts will occur due to other approved projects and the Sunbow project contribution to regional traffic solutions would be eliminated. However, the impacts and improvements required for this alternative are substantially less than with the proposed project. Although no extensions of public services or utilities would be necessary with the "No Project" alternative, some improvements to water and sewer lines might still be necessary to serve existing and planned developments located to the east and south of the site. This alternative would reduce the recreational facilities provided in this portion of the City and would also eliminate the number of students generated who would attend area schools. The need for additional police and fire services would be delayed but not eliminated.

The "No Project" alternative would result in beneficial impacts to regional air quality, water supply and biological resources. This alternative would result in no significant impacts to other resources and the existing conditions would be retained. The project site is privately owned and is planned and zoned for urban development. The "No Project" alternative would only temporarily retain the property as vacant land and future development plans would be proposed.

6.2 PROJECT REDESIGN

This alternative was created to slightly modify the project to move the proposed community recreational area to a site adjacent to Greg Rogers Park; 8 acres of low density residential development would be eliminated and 8 acres of low-medium density residential development would be added resulting in an potential maximum increase of approximately 50 units. No other changes are included. This redesign would enlarge and enhance the existing park with active recreational uses such as swimming pools and playing fields/courts. Although this alternative would be consistent with the City's General Plan, it would result in potential land use conflicts. The number of park visitors would increase and the potential for land use conflicts between the park and surrounding residential development could also increase. Traffic from additional park visitors and from the additional residences would also increase and might impact the street system more than with the proposed project. Impacts to landform alteration/visual quality, air quality, water quality, noise and most services and utilities would also experience slight increase. There would be additional students from the increased residences exacerbating the existing significant impacts. Other areas of environmental impacts would remain relatively constant.

In summary, this alternative would increase the level of impacts in most areas but would enhance the existing park and provide a large and better equipped facility. Not evaluated in this alternative were other uses for the 8 acres of replacement low-medium residential development. Other uses might decrease the level of impacts below that expected under this alternative.

6.3 ALTERNATIVE SITE LOCATION

This alternative analyzes the potential environmental impacts if the Sunbow project were to be built on another site. Although there are numerous locations suitable in the Southbay region, none are owned by the Sunbow applicant. Each site would have its own unique environmental conditions and construction of the Sunbow project on another site would result in similar impacts. The type and amount of services needed for the site would not change although provision of those services might result in additional growth inducing impacts if lines are extended across undeveloped territory. Land use designations in the draft General Plan and in the Sunbow GDP are consistent; implementation of the Sunbow GDP on another site might be inconsistent with land use designations and result in significant impacts. Impacts to noise, geology, biology, landforms and visual quality would be specific to the alternative site selected. In summary, additional environmental impacts might occur for various issues and would be dependent upon selection of a specific site. Since there are numerous sites which could be suitable for development of the Sunbow project, evaluation of a specific alternative site is not possible without a detailed feasibility study and additional environmental analyses. The Sunbow site is appropriate for the development proposed, is consistent with policies and with land use designations in the draft General Plan and represents a logical, orderly pattern of growth for the City.

SECTION 7
REFERENCES

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SECTION 8
INDIVIDUALS AND AGENCIES CONSULTED

Chula Vista Elementary School District

Chula Vista Fire Department
Carol Gove

Chula Vista Parks Department
Manuel A. Mollinedo - Director

Chula Vista Police Department
Captain Keith Hawkins

Chula Vista Public Works Department
Cliff Swanson - Engineering Department
Roger Daoust - Engineering Department
Sam Roller - Advanced Planning

Local Agency Formation Commission (San Diego)
Jane P. Merrill - Executive Officer

City of San Diego Metropolitan Wastewater Division

San Diego County Water Authority
Larry Michaels
Charles Rhodes

San Diego Gas & Electric

State of California Department of Fish and Game
Fred Worthley - Regional Manager

State of California Department of Transportation
James T. Cheshire - Chief, Environmental Planning

State of California Department of Water Resources
Charles R. White - Chief, Planning Branch

Sweetwater Union High School District
Tom Silva - Planning Director

Otay Water District
Manuel Arroyo - District Planning Engineer
Gary Decker - Chief Engineer

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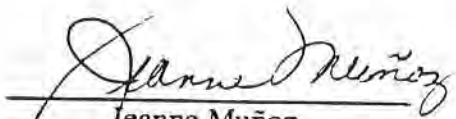
SECTION 9
PREPARERS AND CONSULTANT IDENTIFICATION

This report was prepared by ERC Environmental and Energy Services Co., formerly WESTEC Services, Inc. of San Diego, California. Professional staff and consultants contributing to the report are listed below.

Joyce Crosthwaite; B.A. Environmental Studies
Stephen Lacy; MS, Biology
Thuy Le; MS, Chemical Engineering
John McTighe; Public Affairs Consultants - Fiscal Consultant
Jeanne Muñoz; Ph.D. Anthropology
Kathy G. Nadler; Public Affairs Consultants - Fiscal Consultant
Karlee Nevil; B.A. Environmental Studies
Joseph Oliva, Willdan Associates - Traffic Consultant
James Prine; B.S. Terrestrial Ecology
Robert Sergant; Willdan Associates Traffic Consultant
Vince Scheidt; Consulting Biologist

I hereby affirm that to the best of our knowledge and belief, the statements and information herein contained are in all respects true and correct and that all known information concerning the potentially significant environmental effects of the project has been included and fully evaluated in this EIR.



Jeanne Muñoz
Senior Project Manager/
Project Director

APPENDIX A

NOTICE OF PREPARATION AND LETTERS OF COMMENT

STATE OF CALIFORNIA—OFFICE OF THE GOVERNOR GEORGE DEUKMEJIAN, Governor

OFFICE OF PLANNING AND RESEARCH
NTH STREET
NTO, CA 95814

DATE: December 21, 1988

TO: Reviewing Agencies

DEC 23 1988

RE: The City of Chula Vista's NOP for
Rancho Del Sur Partnership, Chula Vista (EIR #88-1)
SCH# 88121423

Attached for your comment is the City of Chula Vista's Notice of Preparation of a draft Environmental Impact Report (EIR) for the Rancho Del Sur Partnership, Chula Vista (EIR #88-1) project.

Responsible agencies must transmit their concerns and comments on the scope and content of the EIR, focusing on specific information related to their own statutory responsibility, within 30 days of receipt of this notice. We encourage commenting agencies to respond to this notice and express their concerns early in the environmental review process.

Please direct your comments to:

Douglas D. Reid
City of Chula Vista
P.O. Box 1087
Chula Vista, CA 92012

with a copy to the Office of Planning and Research. Please refer to the SCH number noted above in all correspondence concerning this project.

If you have any questions about the review process, call Keith Lee at 916/445-0613.

Sincerely,

David C. Nunenkamp
Chief
Office of Permit Assistance

ttachments

cc: Dpigias D. Reid

#: 88101483

: Sent by Lead   "1": Sent by SCH

Bob Fletcher
Air Resources Board
1102 Q Street
Sacramento, CA 95814
916/322-8267

Karen Cagle
Dept. of Boating & Waterways
1629 S Street
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California Coastal Commission
631 Howard Street, 4th Floor
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415/543-8555

Sharron Taylor
California Energy Commission
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916/324-3231

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Caltrans - Division of Aeronautics
P.O. Box 942874
Sacramento, CA 94274-0001
916/324-0761

Ron Helgeson/George Smith
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Planning and Analysis Division
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916/322-9621

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916/324-6421

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Public Utilities Commission
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Ted Fukushima
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Hadell Gayou
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Reed Holderman
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Al Fisher
Caltrans, District
2501 Pullman St.

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330 Golden Shore, Suite 50
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Rolf E. Wall
Marine Resources Region
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Joan Jurancich
State Water Resources Control Board
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415/464-1255 (8-561)

CENTRAL COAST REGION (3)
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Fresno Branch Office
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Redding Branch Office
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619/241-6583

COLORADO RIVER BASIN REGION (7)
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Palm Desert, CA 92260
619/346-7491

SANTA ANA REGION (8)
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Riverside, CA 92506
714/782-4130 (8-632)

SAN DIEGO REGION (9)
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San Diego, CA 92124-1331
619/265-5114 (8-636)

APCD/AQMD: San Diego APCD

...Dedicated to Community Service
10696 JAMACHA BOULEVARD, SPRING VALLEY, CALIFORNIA 92078
TELEPHONE 670-2222, AREA CODE 619

January 12, 1989

Mr. Douglas D. Reid
Environmental Review Coordinator
Planning Department
City of Chula Vista
P.O. Box 1087
Chula Vista, CA 92012

SUBJECT: Draft E.I.R. - 88-1

Dear Mr. Reid:

The Sunbow Planned Community lies within the boundaries of the Otay Water District. However, this development will be required to annex to the appropriate improvement district within the District.

At this time, the District is postponing water service commitment for any new developments, until arrangements have been made with developers to provide financing and construction of terminal water reservoir storage. In addition to terminal reservoir storage requirements, the District will require the installation of transmission and distribution water pipelines to adequately deliver potable water for residential, commercial and fire protection purposes for the Sunbow Development.

The District is encouraging the use of reclaimed water for large landscaping areas, (i.e.) parks, open space and median strips as well as the use of drought tolerant landscaping. It is requested that the City of Chula Vista incorporate these considerations for reduced potable water demand into the Sunbow Community.

If you have any further questions, or require additional information please contact Manuel Arroyo at 670-2238 or Mitch Young at 670-2245.

Very truly yours,

Gary E. Decker
Chief engineer

GED/mds

2

DEPARTMENT OF FISH AND GAME
330 Golden Shore, Suite 50
Long Beach, CA 90802
(213) 590-5113

December 28, 1988

Douglas D. Reid
City of Chula Vista
Planning Department
P.O. Box 1087
Chula Vista, CA 92012

Dear Mr. Reid:

We have reviewed the Notice of Preparation of a Draft EIR for the Rancho Del Sur Partnership (SCH 88121423). We recommend that the following issues be addressed in the document:

1) A complete assessment of flora and fauna within and adjacent to the project area with particular emphasis upon identifying endangered, threatened, and locally unique species and sensitive and critical habitats; 2) discussion of direct, indirect, and cumulative impacts expected to adversely affect biological resources with specific measures to offset such impacts; 3) discussion of potential adverse impacts from any increased runoff, sedimentation, soil erosion, and/or urban pollutants on streams and watercourses on or near the project site with mitigation measures proposed to alleviate such impacts; and 4) provision of buffer areas and maintenance of streambeds in their natural condition through non-structural flood control methods to increase their usefulness as effective wildlife corridors.

There should be discussion of alternatives to the project which would not only minimize adverse impacts to wildlife but which would also be more beneficial for wildlife and wildlife habitat. Those discussions should consider the Department's policy that there should be no net loss of wetland acreage or habitat values. We oppose projects which do not provide adequate mitigation for such losses. Changes in the bed, channel, or bank or in the natural flow of any river, stream, or lake will require notification to the Department of Fish and Game as called for in the Fish and Game Code.

Thank you for the opportunity to review and comment on this project. If you have any questions, please contact Kris Lal of our Environmental Services staff at (213) 590-5137.

Sincerely,

Fred Worthley
Regional Manager
Region 5

cc: Office of Planning & Research

JAN 3 1988

STATE OF CALIFORNIA—RESOURCES AGENCY
GEORGE DEUKMEJIAN, Governo

DEPARTMENT OF WATER RESOURCES
P.O. Box 6598
LOS ANGELES
90055

JAN 19 1989

JAN 27 1989

City of Chula Vista
P. O. Box 1087
Chula Vista, CA 92012

Attention: Douglas D. Reid

Subject: Notice of Preparation of DEIR for Rancho Del Sur Partnership, Chula Vista (EIR #88-1), dated December 21, 1988, SCH# 88121423.

Your Notice of Preparation has been reviewed by our Department staff. Our recommendations, as they relate to water conservation and flood damage prevention, are attached.

In addition, we recommend that you consider implementing a comprehensive program to use reclaimed water for irrigation thus freeing fresh water supplies for beneficial uses that require high quality water.

For further information, you may wish to contact John Pariewski at 213-620-3951.

Thank you for the opportunity to review and comment on this report.

Sincerely,

Charles R. White

Charles R. White, Chief
Planning Branch
Southern District

Attachments

cc: Office of Planning and Research
State Clearinghouse
1400 Tenth Street
Sacramento, CA 95814

DEPARTMENT OF WATER RESOURCES RECOMMENDATIONS FOR WATER CONSERVATION AND WATER RECLAMATION

To reduce water demand, implement the water conservation measures described here.

Required

The following State laws require water-efficient plumbing fixtures in structures:

- Health and Safety Code Section 17921.3 requires low-flush toilets and urinals in virtually all buildings as follows:

  "After January 1, 1983, all new buildings constructed in this state shall use water closets and associated flushometer valves, if any, which are water-conservation water closets as defined by American National Standards Institute Standard A112.19.2, and urinals and associated flushometer valves, if any, that use less than an average of 1-1/2 gallons per flush. Blowout water closets and associated flushometer valves are exempt from the requirements of this section."

- Title 20, California Administrative Code Section 1604(f) (Appliance Efficiency Standards) establishes efficiency standards that give the maximum flow rate of all new showerheads, lavatory faucets, and sink faucets, as specified in the standard approved by the American National Standards Institute on November 16, 1979, and known as ANSI A112.18.1M-1979.

- Title 20, California Administrative Code Section 1606(b) (Appliance Efficiency Standards) prohibits the sale of fixtures that do not comply with regulations. No new appliance may be sold or offered for sale in California that is not certified by its manufacturer to be in compliance with the provisions of the regulations establishing applicable efficiency standards.

- Title 24 of the California Administrative Code Section 2-5307(b) (California Energy Conservation Standards for New Buildings) prohibits the installation of fixtures unless the manufacturer has certified to the CEC compliance with the flow rate standards.

- Title 24, California Administrative Code Sections 2-5352(i) and (j) address pipe insulation requirements, which can reduce water used before hot water reaches equipment or fixtures. These requirements apply to steam and steam-condensate return piping and recirculating hot water piping in attics, garages, crawl spaces, or unheated spaces other than between floors or in interior walls. Insulation of water-heating systems is also required.

- Health and Safety Code Section 4047 prohibits installation of residential water softening or conditioning appliances unless certain conditions are satisfied. Included is the requirement that, in most instances, the installation of the appliance must be accompanied by water conservation devices on fixtures using softened or conditioned water.

- Government Code Section 7800 specifies that lavatories in all public facilities constructed after January 1, 1985, be equipped with self-closing faucets that limit flow of hot water.

To be implemented where applicable

Interior:

1. Supply line pressure: Water pressure greater than 50 pounds per square inch (psi) be reduced to 50 psi or less by means of a pressure-reducing valve.

2. Drinking fountains: Drinking fountains be equipped with self-closing valves.

3. Hotel rooms: Conservation reminders be posted in rooms and restrooms.* Thermostatically controlled mixing valve be installed for bath/shower.

4. Laundry facilities: Water-conserving models of washers be used.

5. Restaurants: Water-conserving models of dishwashers be used or spray emitters that have been retrofitted for reduced flow. Drinking water be served upon request only.*

6. Ultra-low-flush toilets: 1-1/2-gallon per flush toilets be installed in all new construction.

Exterior:*

1. Landscape with low water-using plants wherever feasible.

2. Minimize use of lawn by limiting it to lawn-dependent uses, such as playing fields. When lawn is used, require warm season grasses.

3. Group plants of similar water use to reduce overirrigation of low-water-using plants.
4. Provide information to occupants regarding benefits of low-water-using landscaping and sources of additional assistance.

---

*The Department of Water Resources or local water district may aid in developing these materials or providing other information.

5. Use mulch extensively in all landscaped areas. Mulch applied on top of soil will improve the water-holding capacity of the soil by reducing evaporation and soil compaction.

6. Preserve and protect existing trees and shrubs. Established plants are often adapted to low water-using conditions and their use saves water needed to establish replacement vegetation.

7. Install efficient irrigation systems that minimize runoff and evaporation and maximize the water that will reach the plant roots. Drip irrigation, soil moisture sensors, and automatic irrigation systems are a few methods of increasing irrigation efficiency.

8. Use pervious paving material whenever feasible to reduce surface water runoff and to aid in ground water recharge.

9. Grade slopes so that runoff of surface water is minimized.

10. Investigate the feasibility of using reclaimed waste water, stored rainwater, or grey water for irrigation.

11. Encourage cluster development, which can reduce the amount of land being converted to urban use. This will reduce the amount of impervious paving created and thereby aid in ground water recharge.

12. Preserve existing natural drainage areas and encourage the incorporation of natural drainage systems in new developments. This aids ground water recharge.

13. To aid in ground water recharge, preserve flood plains and aquifer recharge areas as open space.

FLOOD DAMAGE PREVENTION

In flood-prone areas, flood damage prevention measures required to protect a proposed development should be based on the following guidelines:

1. It is the State's policy to conserve water; any potential loss to ground water should be mitigated.

2. All building structures should be protected against a 100-year flood.

3. In those areas not covered by a Flood Insurance Rate Map or Flood Boundary and Floodway Map, issued by the Federal Emergency Management Agency, the 100-year flood elevation and boundary should be shown in the Environmental Impact Report.

4. At least one route of ingress and egress to the development should be available during a 100-year flood.

5. The slope and foundation designs for all structures should be based on detailed soils and engineering studies, especially for hillside developments.

6. Revegetation of disturbed or newly constructed slopes should be done as soon as possible (utilizing native or low-water-using plant material).

7. The potential damage to the proposed development by mudflow should be assessed and mitigated as required.

8. Grading should be limited to dry months to minimize problems associated with sediment transport during construction.

STATE OF CALIFORNIA—BUSINESS AND TRANSPORTATION AGENCY GEORGE DEUKMEJIAN, Governor

DEPARTMENT OF TRANSPORTATION
DISTRICT 11, P.O. BOX 85406, SAN DIEGO 92138-5406

January 23, 1989

11-SD-805
4.4-6.1

Douglas D. Reid
Environmental Review Coordinator
Planning Department
City of Chula Vista
P.O. Box 1087
Chula Vista, CA 92012

Dear Mr. Reid:

Notice of Preparation of a DEIR for
Sunbow, SCH 88121423 (a planned community
with 2,614 residential units)

Caltrans District 11 will appreciate the opportunity to review the DEIR and the Traffic Study for this project. Project specific and cumulative traffic impacts to Interstate Route 805 and future State Route 125 will be of particular interest to our agency. Our contact person for Interstate 805 between Orange Avenue and Telegraph Canyon Road is Jim Linthicum, District Project Studies Engineer, (619) 237-6952.

Sincerely,

JESUS M. GARCIA
District Director

By
James T. Cheshire
JAMES T. CHESHIRE, Chief
Environmental Planning Branch

MO:yg

JAN 25 1989

LAFCO

1600 Pacific Highway · Room 452
San Diego, CA 92101 · (619) 531-5400

San Diego Local Agency Formation Commission

January 9, 1989

Douglas Reid
Planning Department
City of Chula Vista
P.O. Box 1087
Chula Vista, CA 92012

JAN 12 1989

SUBJECT: Notice of Preparation of Rancho del Sur EIR

Dear Mr. Reid:

Thank you for the opportunity to comment on the Notice of Preparation for the Rancho del Sur Environmental Impact Report. LAFCO is a responsible agency that will use the certified EIR to complete the annexation and sphere amendment requests. We offer the following general comments:

1. The EIR should clearly address the amendment to Chula Vista's sphere and the annexation as a part of the project description.

2. LAFCO is concerned with the availability of public services required to service the development. Specifically, the EIR should address Otay Water District's ability to provide water and adequate water storage for the developing territory. It is unclear if major water transmission lines (parallel aqueduct lines) are necessary prior to further extension of water service by Otay Water District. The EIR should contain a full assessment of this issue.

3. The adequacy of sewage disposal should also be discussed in detail. Although Chula Vista has contractual capacity with the Metropolitan Sewerage System, the availability of physical capacity needed to handle the demands of all pending development including this project should be fully discussed in the EIR.

4. Emergency public services, such as police, fire protection and emergency medical responses should be discussed in the EIR.

Again, thank you for the opportunity to comment on this Notice of Preparation. If further information is needed, please call Dana Smith at 531-5400.

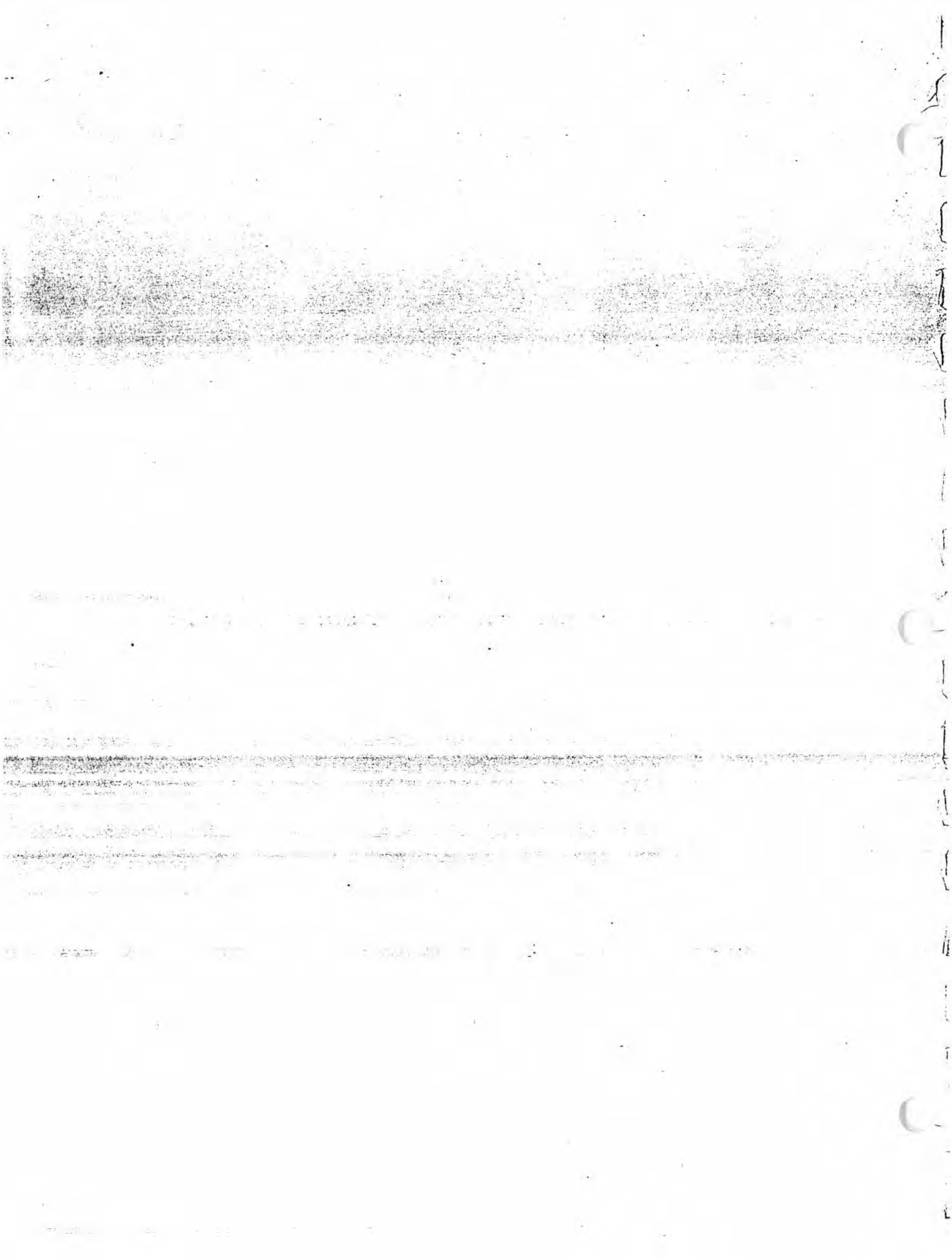
Sincerely,

Jane P. Merrill

JANE P. Merrill
Executive Officer

APPENDIX B

PUBLIC SERVICES AND UTILITIES CORRESPONDENCE



... Dedicated to Community Service
10595 JAMACHA BOULEVARD, SPRING VALLEY, CALIFORNIA 92078
TELEPHONE 670-2222, AREA CODE 619

January 12, 1989

Mr. Douglas D. Reid
Environmental Review Coordinator
Planning Department
City of Chula Vista
P.O. Box 1087
Chula Vista, CA 92012

SUBJECT: Draft E.I.R. - 88-1

Dear Mr. Reid:

The Sunbow Planned Community lies within the boundaries of the Otay Water District. However, this development will be required to annex to the appropriate improvement district within the District.

At this time, the District is postponing water service commitment for any new developments, until arrangements have been made with developers to provide financing and construction of terminal water reservoir storage. In addition to terminal reservoir storage requirements, the District will require the installation of transmission and distribution water pipelines to adequately deliver potable water for residential, commercial and fire protection purposes for the Sunbow Development.

The District is encouraging the use of reclaimed water for large landscaping areas, (i.e.) parks, open space and median strips as well as the use of drought tolerant landscaping. It is requested that the City of Chula Vista incorporate these considerations for reduced potable water demand into the Sunbow Community.

If you have any further questions, or require additional information please contact Manuel Arroyo at 670-2238 or Mitch Young at 670-2245.

Very truly yours,

Gary E. Decker
Chief engineer

GED/mds

Sweetwater Union High School District

ADMINISTRATION CENTER
1130 FIFTH AVENUE
CHULA VISTA, CALIFORNIA 92011
(619) 691-5553

PLANNING DEPARTMENT

August 8, 1988

Ms. Betty Dehoney
Senior Project Manager
WESTEC Services, Inc.
5510 Morehouse Drive
San Diego, CA 92121-1709

Dear Ms. Dehoney:

RE: SUNBOW DEVELOPMENT ENVIRONMENTAL IMPACT REPORT

The Sweetwater Union High School District currently has inadequate facilities to serve the 2,190 new dwellings proposed in the Sunbow development. The District is presently operating over capacity and does not have sufficient funds for the purchase of school sites and/or the construction of new schools. However, representatives of Sunbow have met with the Administrator of Planning, Andrew Campbell, to discuss this issue. The feasibility of establishing a Mello-Roos Community Facilities District to assist in financing the school needs resulting from this project is currently being explored.

I have enclosed for your reference, a copy of the CBEDS enrollment for the 1987-1988 school year. Additionally, the District has calculated an average student generation factor of 0.29 students per household.

If you are in need of additional information, please do not hesitate to call me at 691-5553. I look forward to reviewing the Draft EIR prepared for this project.

Respectfully,

Thomas Silva
Director of Planning

TS/sly

Attachment

SCHOOL	SCHOOL CAPACITY				CBEDS ENROLLMENT October 1987	UNHOUSED STUDENTS
	Trailer	Relo's	Permanent	Total		
BVJHS		120	1284	1404	1364	80
BVHS		300	1632	1932	1620	(12)
CPMS			1456	1456	1119	(337)
CPHS		180	1568	1748	1850	282
CVJHS	360		1070	1430	1325	255
CVHS		480	1356	1836	1814	458
GJHS			1096	1096	902	(194)
HJHS		120	1386	1506	1364	(22)
HHS		120	1388	1508	1490	102
MVMS			1246	1246	1122	(124)
MVHS		120	1300	1420	1719	419
MoJHS			1674	1674	1365	(309)
MoHS	180	180	1270	1650	2092	822
NCJHS	60		922	982	1023	101
SoWJHS	60	300	828	1188	1142	314
SoWHS	120	480	1214	1814	2088	874
SUHS		300	1958	2318	2126	168
DRC			N/A		214	
SPECIAL ED.			N/A		159	
PHS			N/A		387	
TOTAL	780	2700	22648	26208	26285	2877

*REVISED 3/24/88

CITY OF
CHULA VISTA
FIRE DEPARTMENT

July 27, 1988

Ms. Betty Dehoney
Senior Project Manager
WESTEC Services, Inc.
5510 Morehouse Drive
San Diego, CA 92121-1709

SUNBOW DEVELOPMENT

The Fire Department welcomes the opportunity to offer comments relative to the Sunbow Project.

The requirements listed herein are generalized and will become more specific when additional data is made available to us.

1. Minimum roadway widths shall be 20 feet. Vertical clearance is 13'6". The gradient for fire apparatus access roads shall not exceed 15% maximum.

2. Dead-end fire apparatus access roads in excess of 150 feet in length shall be provided with provisions for the turning around of fire apparatus; either by a 75'x24' hammerhead or a 40' radius cul-de-sac.

3. Fire apparatus access roads shall extend to within 150 feet of all portions of any buildings.

4. Fire hydrants are required at 300 foot spacings. Fire hydrants shall be installed, tested and fully operational prior to <u>any</u> combustible construction materials being placed on-site.

5. Fire flow requirements are listed below:

   a. Single family dwellings . . . . . 1,000 gpm
      (To include duplexes.)

   b. Apartments . . . . . .2,000 gpm
      (Add 500 gpm for each floor above the first floor.)

   c. Commercial/Industrial . . . . . 5,000 gpm*

   *Whenever the required fire flow for any building

exceeds 3,500 gpm, the authority having jurisdiction may require an automatic fire sprinkler system be installed throughout the building.

6. Fire alarm systems are required for any apartment building three stories or more in height or containing more than 15 apartments and in hotels either three stories or more in height or containing 20 or more guest rooms.

7. Automatic fire sprinkler systems are required based on the 1985 Edition of the Uniform Fire Code, Section 10.308. Additionally, fire sprinkler systems are required in Chula Vista for any building four (4) stories or 40 feet or more in height.

The immediate impact on fire prevention services would include EIR review, design review, tentative and final parcel map review and construction plan review. In addition, site visits would be necessary for inspection of water supply plus construction inspections.

On-going yearly inspections would thereafter be conducted at the commercial and industrial complexes as well as apartment houses. An additional fire inspector may be necessary to handle the increased workload.

It is my understanding that Martin Chase, Management Services, City of Chula Vista, will or has contacted you regarding a citywide study of response times.

Please contact Battalion Chief Samuel G. Lopez at (619) 691-5055 for information regarding fire suppression activities and medical responses which may be affected by this project.

If I may be of further assistance, please contact me.

Carol A. Gove

CAROL A. GOVE
FIRE MARSHAL

CAG/m

CC: Winters
Lopez

0203

CITY OF
CHULA VISTA
POLICE DEPARTMENT

August 2, 1988

Betty Dehoney
Senior Project Manager
Westel Services, Inc.
5510 Morehouse Drive
San Diego, CA 92121-1709

I have prepared the following information to assist you in your preparation EIR for the Sunbow Development.

Over the past 20-25 years, the city of Chula Vista has ascribed to a 1.1 to 1.3 officer per 1,000 population ratio. Currently, the ratio is approximately 1.13. We would need approximately 6.5 additional officers to maintain our current levels of service. 29+32

Under the current beat structure, the Sunbow Development is an open area bordered by two of our current beats and the development would probably be divided up between those beats.

The city adopted a thresholds/standards policy in November 1987 and I've included a copy for your reference. The Police Department is currently meeting those standards and in my most recent survey covering the period 7-1-88 through 7-31-88 (emergency) calls were 4 minutes, 5 seconds average.

If you have any further questions, please feel free to contact me at 691-5184.

5137

Sincerely,

Keith Hawkins, Captain
Uniform Division Commander

...Dedicated to Community Service
10595 JAMACHA BOULEVARD, SPRING VALLEY, CALIFORNIA 92078
TELEPHONE: 462-2222, AREA CODE 619

August 23, 1988

Ms. Betty Dehoney
Senior Project Manager
WESTEC SERVICES, INC.
5510 Morehouse Drive
San Diego, CA 92121-1709

Subject: Sunbow EIR (W.O. 1871)

Dear Ms. Dehoney:

This is in response to your letter of July 21, 1988 regarding the proposed plan to build an additional 2190 units in the Sunbow development. The proposed development lies within the Otay Water District, but outside of any improvement district. To obtain water service, the property will have to be annexed to an improvement district. In this case, it may be Improvement District No. 22, which would correspond with Sunbow's previous annexation of its first phase (Rancho del Sur Phase I).

The Otay Water District has been in communication with Sunbow developers regarding the construction of terminal storage to serve the Central Area system under which the Sunbow development lies. It has been proposed that a new Improvement District No. 27 be formed with other developers and Sunbow to finance the construction of a 50 mg terminal reservoir. This would provide a maximum of five average days of storage for emergency situations. In addition, the Otay Water District is studying long term water availability in terms of water supply from the San Diego County Water Authority (CWA). CWA has adopted several plans to construct additional facilities to increase the amount of water delivered to its member agencies. Depending on how soon these facilities can be completed, and dependent on additional facilities that Otay may need to construct to overcome CWA deficiences, Otay's ability will be determined to meet the demands of this or other new developments. This a complex situation that is being studied by CWA and Otay staffs.

The District has plans to build offsite facilities to meet the projected demands in the Central Area system. Enclosed is a copy of the Central Area Master Plan, adopted by the Board of Directors in January 1987 for additional information. The only update that

we have on this master plan is the required terminal storage. The current policy is to have five average days of terminal storage. Otay is now planning to build a 50 mg reservoir, instead of an 80 mg, as indicated on the master plan.

With respect to water conservation efforts, the District will probably limit the amount or schedule water use during off-peak periods. Additionally, the use of reclaimed water for landscaping will be emphasized. Developers will be asked to install mains for the use of reclaimed water in open spaces.

If you have any other questions, please contact Manuel Arroyo at 670-2238.

Very truly yours,

Manuel Arroyo

for
Gary E. Decker
Chief Engineer

GED/MA:cp

Enclosure

CITY OF
CHULA VISTA

PARKS AND RECREATION DEPARTMENT

August 12, 1988

Ms. Betty Dehoney
WESTEC Services, Inc.
5510 Morehouse Drive
San Diego, CA 92121

Dear Ms. Dehoney:

In response to your letter of July 21, 1988 requesting information on parks and recreation requirements for the Environmental Impact Report for Sunbow development, the following information is provided:

1. Based on the proposed number and type of dwelling units, 18.64 acres of parkland would be required. The acreage requirements are based on a standard of 3 acres per 1,000 persons. Attached to the letter is a copy of the section of the Parkland Dedication Ordinance dealing with amounts of area to be dedicated.

2. The Parks and Recreation Department is interested in developing additional recreational facilities in this area, including a swimming pool complex, gymnasium and community center. In addition, lighted tennis and ballfields are also desired, along with park areas for passive picnicking and active play. However, the Department's highest priority is to develop the recreational buildings and pool complex. Attached is a copy of the ordinance related to park development specifications.

If you have any questions, or need additional information, please do not hesitate to call. We apologize for the delay in responding to your request.

Sincerely,

Manuel A. Mollinedo, Director
Department of Parks and Recreation

Enclosures

MAM:CCS

17.10.030 Application.

The provisions of this chapter shall apply to all subdivisions and divisions created by parcel maps excepting therefrom industrial and completely commercial subdivisions and those subdivisions or divisions of land for which tentative subdivision or parcel maps have been filed within thirty days after the effective date of this chapter.

17.10.040 Area to be dedicated-Required when-Amounts for certain uses.

The amount of parkland dedication required, in accordance with Sections 17.10.010 through 17.10.130, is based on a standard of 3 acres per 1000 people and shall be offered at the time of filing of the final map. The area to be dedicated shall be as follows:

A. Single-family dwelling units, ~~3.7~~ 3.22 persons per dwelling unit, ~~three hundred twenty-two~~ four hundred twenty three square feet per unit, or one acre per one hundred ~~thirty-five~~ three units;

B. Attached, cluster housing or planned unit developments under either condominium or subdivided ownership, ~~3.1~~ 2.80 persons per dwelling unit, ~~two hundred seventy-two~~ three hundred sixty-six square feet per unit, or one acre per one hundred ~~sixty~~ nineteen units;

C. Duplexes, ~~2.5~~ 2.48 persons per dwelling unit, ~~two hundred eighteen~~ three hundred twenty-five square feet per unit, or one acre per ~~two hundred~~ one hundred thirty four units;

D. Multiple family dwelling units, ~~2.0~~ 2.21 persons per dwelling unit, ~~one hundred seventy-four~~ two hundred eighty-eight square feet per unit, or one acre per ~~two hundred fifty~~ one hundred fifty-one units;

E. Mobile homes, ~~1.8~~ 1.64 persons per dwelling unit, ~~one hundred fifty-seven~~ two hundred fifteen square feet per unit, or one acre per two hundred ~~seventy-eight~~ three units.

F. Residential and transient motels/hotels, 1.50 persons per dwelling unit, one hundred ninety-six square feet per unit, or one acre per two hundred twenty two units.

~~These amounts of land shall be offered at the time of filing of the final map. If, in the judgment of the city, suitable land does not exist within the subdivision, or for subdivisions containing fifty lots or less, only the payment of fees in lieu of land and improvements may be required. In such cases the amount of the fee shall be the amount established by the city council in the master fee schedule by resolution, plus the value of the improvements required in Section 17.10.070. Where the city deems that a combination of dedication and payment, as provided in this section, would better serve the public and the park and recreation needs of the future residents of a subdivision, it may require such combination provided, however, the city council may, by resolution, waive all or any portion of said dedication or in lieu fee requirements in the interests of stimulating the construction of housing for low income families. (Ord. 1306 § 1 (part), 1978; Ord. 1088 § 1 (part), 1976.)~~

ORDINANCE NO. 2243

AN ORDINANCE OF THE CITY OF CHULA VISTA AMENDING CHAPTER 17.10 OF THE CHULA VISTA MUNICIPAL CODE RELATING TO NEIGHBORHOOD PARK AND COMMUNITY PARK REQUIREMENTS

The City Council of the City of Chula Vista does ordain as follows:

SECTION I: That Chapter 17.10 of the Chula Vista Municipal Code be, and the same is hereby amended to read as follows:

Chapter 17.10

PARKLANDS AND PUBLIC FACILITIES

Sections:

17.10.010 Dedication of land and development of improvements for park and recreational purposes.

Pursuant to the authority granted by Section 66477 of the Government Code of the state, every subdivider shall, for the purpose of providing neighborhood and community park and recreational facilities directly benefiting and serving the residents of the regulated subdivision, dedicate a portion of the land and develop improvements thereon or in lieu thereof pay ~~a~~ fees for each dwelling unit in the subdivision or do ~~both~~ a combination thereof, as required by the City in accordance with this chapter. The dedication, improvement, or payment of fees in lieu thereof or combination thereof shall be applicable to all residential subdivisions of any type allowed under the various and several residential zones of the city and shall be in addition to any residential construction tax required to be paid pursuant to Chapter 3.32 of this code.

17.10.020 Determination of park and recreational requirements benefiting regulated subdivisions.

The park and recreational facilities for which dedication of land and improvements thereon and/or payment of a fee is required by this chapter shall be those facilities as generally set forth in the park and recreational element of the general plan of the city adopted by Resolution No. 3519 on the 22nd day of September, 1964, and as thereafter amended.

17.10.030 Application.

The provisions of this chapter shall apply to all subdivisions and divisions created by parcel maps excepting therefrom industrial and completely commercial subdivisions and those subdivisions or divisions of land for which tentative subdivision or parcel maps have been filed within thirty days after the effective date of this chapter.

17.10.040 Area to be dedicated-Required when-Amounts for certain uses.

The amount of parkland dedication required, in accordance with Sections 17.10.010 through 17.10.130, is based on a standard of 3 acres per 1000 people and shall be offered at the time of filing of the final map. The area to be dedicated shall be as follows:

A. Single-family dwelling units, ~~3.7~~ 3.22 persons per dwelling unit, ~~three hundred twenty-two~~ four hundred twenty three square feet per unit, or one acre per one hundred ~~thirty-five~~ three units;
B. Attached, cluster housing or planned unit developments under either condominium or subdivided ownership, ~~3.1~~ 2.80 persons per dwelling unit, ~~two hundred seventy-two~~ three hundred sixty-six square feet per unit, or one acre per one hundred ~~sixty~~ nineteen units;
C. Duplexes, ~~2.5~~ 2.48 persons per dwelling unit, ~~two hundred eighteen~~ three hundred twenty-five square feet per unit, or one acre per ~~two hundred~~ one hundred thirty four units;
D. Multiple family dwelling units, ~~2.0~~ 2.21 persons per dwelling unit, ~~one hundred seventy-four~~ two hundred eighty-eight square feet per unit, or one acre per ~~two hundred fifty~~ one hundred fifty-one units;
E. Mobile homes, ~~1.8~~ 1.64 persons per dwelling unit, ~~one hundred fifty-seven~~ two hundred fifteen square feet per unit, or one acre per two hundred ~~seventy-eight~~ three units.
F. Residential and transient motels/hotels, 1.50 persons per dwelling unit, one hundred ninety-six square feet per unit, or one acre per two hundred twenty two units.

~~These amounts of land shall be offered at the time of filing of the final map. If in the judgment of the city, suitable land does not exist within the subdivision, or for subdivisions containing fifty lots or less, only the payment of fees in lieu of land and improvements may be required. In such cases, the amount of the fee shall be the amount established by the city council in the master fee schedule by resolution, plus the value of the improvements required in Section 17.10.070. Where the city deems that a combination of dedication and payment, as provided in this section, would better serve the public and the park and recreation needs of the future residents of a particular subdivision, it may require such combination, provided, however, the city council may, by resolution, waive all or any portion of said dedication or in lieu fee requirements in the interests of stimulating the construction of housing for low and moderate income families. (Ord. 1806 § 1 (part), 1978; Ord. 1668 § 1 (part), 1976.)~~

17.10.060 ~~Combination of dedication and fee payment permitted when.~~ Criteria for area to be dedicated.

Acceptance of land for parkland is at the City Council's discretion and in exercising its discretion, Council may consider the following criteria, in addition to any other the Council considers relevant:

A. Topography, soils, soil stability, drainage location of land in subdivision available for dedication.

B. Size and shape of the subdivision and land available for dedication.

C. Physical relationship of the site to the surrounding neighborhood.

D. Location of the site with regard to accessibility to the residents of the neighborhood and its contribution to neighborhood security.

E. The amount, usability, and location of publicly owned property available for combination with dedicated lands in the formation of public park and recreation facilities.

F. Recommendation of the Parks and Recreation Commission.

An offer of dedication may be accepted or rejected by the City Council.

~~The following circumstances may arise which require a combination of the dedication of land and payment of fees:~~

~~A. Only a portion of the land to be subdivided is proposed on the general plan as the location for a local park. That portion of the land within the subdivision falling within the park location as shown on the general plan shall be dedicated for local park purposes, and a fee shall be required for any additional land that would have been required to be dedicated.~~

~~B. A major part of the local park or recreation site has already been acquired, and only a small portion of land is needed from the subdivision to complete the site. The remaining portion shall be required by dedication, and a fee required for the remainder to pay for improvement of the park and recreation facilities in the area serving the subdivision.~~

~~C. A residential development may constitute only a small portion of a particular neighborhood park district, and upon completion of the subdivision, which may be the only developed area in the district, there may be no need for a fully improved neighborhood park. Under such circumstances, the developer may be required to dedicate land in accordance with Section 17.10.040, and in addition thereto, deposit the fees as presently designated, or as may in the future be amended, in the master fee schedule, for development of the park in the future.~~

~~For the purpose of implementing the fee as shown in the master fee schedule, any rooms as shown on plans submitted by the subdivider, regardless of their designation thereon, which may be used for bedroom purposes shall be regarded as a bedroom. Residential motels and hotels and transient motels and hotels shall only be required to deposit in lieu fees pursuant to the master fee schedule for Section 17.10.040. (Ord. 1961 § 1 (part), 1982; Ord. 1668 § 1 (part), 1978.)~~

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17.10.07 50 ~~Subdivider/////// Park~~ development ~~responsibility~~ improvements- Specifications.

In addition to the dedication of land as required in Section 17.10.040, it shall be the responsibility of the subdivider to develop all or a portion of such land for neighborhood or community park purposes to the satisfaction of the Director of Parks and Recreation and the Parks and Recreation Commission in accordance with the following ~~general~~ criteria:

A. Parklands are to be graded in accordance with a plan which shall be subject to the approval of the director of parks and recreation.
B. All street improvements shall be installed.
C. All utilities shall be extended to the property line.
D. An automatic irrigation system shall be installed.
E. Turf shall be installed.
F. ~~One tree per thousand square feet of land area shall be planted in the event the city determines that the improvement of the parkland shall be delayed for a subsequent period of time after the park land has been dedicated, the subdivider shall not be required to install such improvements, but instead shall pay the fee indicated in Section 17.10.080 (Ord. 1668 § 1 (part), 1976.)~~
F. Landscaping, including trees, shrubs and other plant material, shall be planted in accordance with the City's Landscape Manual.
G. A concrete walkway system shall be installed.
H. Park fixtures, such as signage, tables, benches, trash receptacles, drinking fountains and bike racks, shall be installed.
I. A drainage system shall be installed, if necessary.
J. Play areas, with play equipment for pre-schoolers and primary school-age children, shall be installed.
K. Security lighting fixtures shall be provided.
L. One picnic shelter shall be provided for every 1,000 people.
M. One tennis court shall be provided for every 2,000 people.
N. One baseball/softball field shall be installed for every 5,000 people.
O. One multi-purpose court for basketball, volleyball, and badminton shall be installed for every 5,000 people.
P. One soccer field shall be constructed for every 10,000 people.

In addition to those items listed above, the following facilities shall be required in a community park:

Q. One 50 meter swimming pool with related facilities, such as dressing rooms, will be constructed for every 20,000 people.
R. One community center and gymnasium will be constructed for every 24,000 people.
S. One lighted softball field shall be developed for every 5,000 people.
T. A restroom facility shall be constructed in every community park and may be constructed in neighborhood parks.

17.10.070 In lieu fees for land dedication and/or park development improvements.

A. In lieu fees for land dedication: If, in the judgment of the city, suitable land does not exist within the subdivision, or for subdivisions containing 50 lots or less, the payment of fees in lieu

of land shall be required. In such cases, the amount of the fee shall be the amount established by the city council in the master fee schedule by resolution and based on the area to be dedicated as-set forth in Section 17.10.040. However, when a condominium project, stock cooperative or community apartment project exceeds 50 dwelling units, dedication of land may be required notwithstanding that the number of parcels may be less than 50.

Where the city deems that a combination of dedication and payment, as provided in this chapter, would better serve the public and the park and recreation needs of the future residents of a particular subdivision, it may require such combination. Provided, however, the city council may, by resolution waive all or any portion of said dedication or in lieu fee requirements in the interests of stimulating the construction of housing for low and moderate income families.

Residential motels and hotels and transient motels and hotels shall be required to deposit fees in lieu of dedication of land required in Section 17.10.050 pursuant to the fees in the master fee schedule.

B. In lieu fees for park development improvements: If, in the judgment of the city, suitable land does not exist within the subdivision, or for subdivisions containing 50 lots or less, the payment of fees in lieu of developing improvements shall be required. In such cases, the amount of the fee shall be the amount established by the city council in the master fee schedule by resolution and based on the improvements required in Section 17.10.050. However, when a condominium project, stock cooperative or community apartment project exceeds 50 dwelling units, improvements may be required notwithstanding that the number of parcels may be less than 50.

Where the city deems that a combination of improvements and payment, as provided in this chapter, would better serve the public and the park and recreation needs of the future residents of a particular subdivision, it may require such combination; provided, however, the city council may, by resolution waive all or any portion of said improvements or in lieu fee requirements in the interests of stimulating the construction of housing for low and moderate income families.

In the event the city determines that the improvement of the parkland shall be delayed for a substantial period of time after the parkland has been dedicated, the subdivider shall not be required to install such improvements, but instead shall pay the fee as set forth in the master fee schedule for the value of improvements required in Section 17.10.050.

Residential motels and hotels and transient motels and hotels shall be required to deposit fees in lieu of park development improvements required in Section 17.10.050 pursuant to the fees in the master fee schedule.

17.10.080 Limitation on use of land and/or fees.

The amount of land, improvements ~~and~~ or in lieu fees or combination thereof received under this chapter shall be used ~~only~~ for the purpose of providing neighborhood and community park and recreational facilities to serve the subdivision for which received. The amount and location of the land or in lieu ~~and amount of~~ fees or combination thereof shall bear a reasonable relationship to the use of the park and recreational facilities by the future inhabitants of the subdivision.

17.10.090 Commencement of park development.

The city will acquire land for park purposes ~~within a specific facilities served zone~~ as soon as sufficient funds are available. Any fees collected under this chapter shall be committed within five years after the payment of such fees or the issuance of building permits on one-half of the lots created by the subdivision, whichever occurs later. ~~and will commence improvements at the time building permits have been issued relative to at least eighty percent of the residentially zoned property within the specified zone. Improvement shall continue based upon revenues received within each zone.~~

17.10.100 Collection and distribution of fees.

A. Prior to the acceptance of a final subdivision map or approval of a parcel map, any required fees shall have been paid to the city. Any land to be contributed for the purposes outlined in this chapter shall be dedicated to the city and shown on the final subdivision or parcel map. The director of finance shall be responsible for the collection and distribution of fees as set forth in this chapter. ~~and the city council shall review, at least annually, the park and recreational element of the general plan, including the service areas for parks required to be dedicated or acquired pursuant to the terms of this chapter.~~ Fees collected for neighborhood and community parks shall be kept in separate funds. However, the City shall have the ability to shift fee amounts between the neighborhood and community park funds when necessary.

B. Planned developments shall be eligible to receive a credit as determined by the City Council, against the amount of land required to be dedicated, or the amount of the fee imposed, for the value of private open space within the development which is usable for active recreational uses. Such credit, if given, shall be determined on a case by case basis.

17.10.110 Periodic review and amendment authorized.

Costs, population density, and local conditions change over the years, and the specified formula for the payment of fees for acquisition of park sites as stated in this chapter is subject to periodic review and amendment by the city council.

~~17.10.120 Principles and standards.~~

~~The following principles and standards are intended to serve as a general guide in determining the neighborhood facilities for which sites normally will be required in accordance with the general plan.~~

~~A. An elementary school site of approximately ten acres will be required for each six hundred families, more or less, required to be served by such school. Such school site shall be central to the population to be served and shall not be fronted on a major thoroughfare.~~

~~B. Whenever possible, playground and neighborhood recreation areas shall be developed in conjunction with elementary school sites. A park site, if required, shall not normally be less than seven acres in area, except that such site, when adjacent to a school, shall not normally be less than three acres, and such sites shall specifically include areas with natural advantages for park development.~~

SECTION II: This ordinance shall take effect and be in full force on the thirty-first day from and after its adoption.

Presented by

Manuel Mollinedo, Director of Parks and Recreation

Approved as to form by

12/10/97

D. Richard Rudolf, Assistant City Attorney

3574a

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APPENDIX C

TRAFFIC REPORT

TRAFFIC ANALYSIS

for

SUNBOW PLANNED COMMUNITY
Chula Vista, California

May 26, 1989

Prepared by:

Willdan Associates
6363 Greenwich Drive, Suite 250
San Diego, CA 92122
(619) 457-1199

JN:36472:js

May 26, 1989

Ms. Jeanne Muñoz
ERC ENVIRONMENTAL &
ENERGY SERVICES CO.
Western Regional Operations
5510 Morehouse Drive
San Diego, CA 92121

Dear Jeanne:

Please find enclosed the revised traffic analysis for the Sunbow project in the City of Chula Vista. This study has been revised based on our Thursday, May 11, 1989 meeting at the City with Doug Reid and Sunbow representatives. The methodology utilized to evaluate cumulative impacts via the draft East Chula Vista Transportation Phasing Plan (ECVTPP) was specified by the City Traffic Engineer (Hal Rosenberg) in a May 19, 1989 phone conversation. The revisions include the following:

1. The cumulative development scenarios, including "committed" and "full entitlement" were deleted from the analysis.

2. Impacts under cumulative development were analyzed using the Draft ECVTPP Phase 6 cumulative computerized travel forecasts.

3. Project specific impacts and mitigations measures were consistent with our previous March 22, 1989 analysis. However, impacts under cumulative development (assuming State Route 125 in the network) were significantly reduced.

4. Since this traffic analysis was consistent with methodologies utilized in the EastLake II traffic analysis, then the Threshold (phasing) requirements imposed on other area developers would apply to the Sunbow development.

Should there be any other questions or comments, we would be pleased to make any modifications to the traffic analysis as appropriate.

Sincerely,

WILLDAN ASSOCIATES

Robert M. Sergeant
Division Manager

RMS:JPO:js
JN:36472
enclosure

copy: Hal Rosenberg, City of Chula Vista

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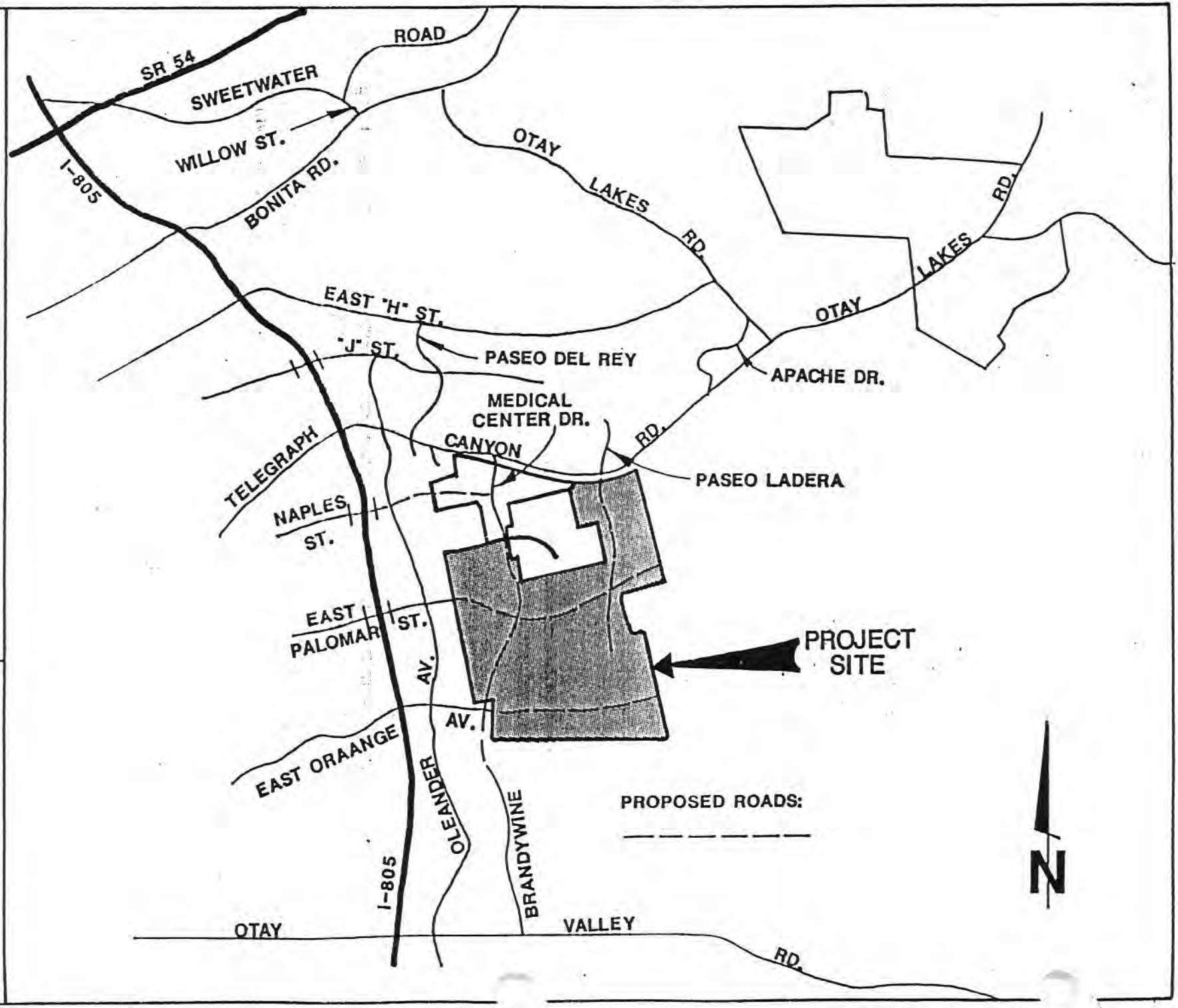
INTRODUCTION

The Sunbow Partnership is seeking approval of a General Development Plan for the proposed Sunbow Planned Community south of the City of Chula Vista. The project site is located south of Telegraph Canyon Road, east of Interstate 805, and will be traversed by future extensions of Medical Center Drive, East Orange Avenue, East Palomar Street, and Paseo Ladera. All of these roads are planned Circulation Element Roads in the City of Chula Vista. As part of this development proposal, an application for annexation into the City of Chula Vista will be filed with LAFCO. Rancho del Sur was the first phase of the Sunbow planning program and lies to the north and west of the proposed phase two project. Phase one is a 108 acre residential project that contains a variety of dwelling unit types totaling to 485 units. Rancho del Sur has been annexed to the City of Chula Vista. The proposed Sunbow Development Plan includes 1,050 single family detached dwelling units (DU's), 846 multi-family DU's, 8 acres village center, 7 acres recreation center, 10 acres elementary school site, 46 acres of light industrial uses, and 31 acres of community park. Figure 1 shows the project vicinity and site location while Figure 2 depicts the proposed site utilization and major access routes.

Willdan Associates has been retained to analyze the potential transportation impacts which may be anticipated with development of the proposed project. The analysis identifies existing traffic conditions in the project vicinity, generates, distributes, and assigns traffic from the proposed project under existing plus project development and existing plus committed project full entitlement development conditions. Long range impacts of the project have not been addressed because General Plan travel forecasts currently being updated by SANDAG and the JHK Associates for the City of Chula Vista were not available at the time this study was conducted. However, by utilizing the East Chula Vista Transportation Phasing Plan, Phase 6 (which assumes the buildout of the Sunbow project and other project's phased development), a short term cumulative analysis will be performed to assess project related impacts. The study also analyzes and identifies internal street configurations, proposes a project phasing plan and recommends specific measures to mitigate identified project impacts.



SITE LOCATION MAP

WILLDAN ASSOCIATES

FIGURE 1

2

Figure 2 - Site Plan (To be furnished by ERC)

EXISTING CONDITIONS

Existing regional access to the project site is provided by Interstate 805 via interchanges with Telegraph Canyon Road and Orange Avenue. Interstate 805 is a major north/south eight lane divided, freeway which branches off Interstate 5 in Sorrento Valley (the North City area of the City of San Diego), reconnecting in San Ysidro just north of the International Border with Mexico. Currently the freeway carries 97,000 average daily trips (ADT) north of Telegraph Canyon Road and 74,000 ADT south of Orange Avenue.

Telegraph Canyon Road is an east/west arterial connecting the Interstate 805 freeway on the west with Otay Lakes Road on the east. At the present point of intersection with Otay Lakes Road, Telegraph Canyon Road terminates and Otay Lakes Road changes from a north/south road to the east/west continuation of Telegraph Canyon Road. Telegraph Canyon Road is presently constructed to full six lane divided standards between Interstate 805 and Paseo del Rey, four lanes between Paseo del Rey and Paseo Ladera, transitioning to two lanes between Paseo Ladera and Otay Lakes Road. Left turn lanes are provided at each of the signalized intersections in the proposed project vicinity. Traffic signals are provided at the following intersections with Telegraph Canyon Road:

- Interstate 805 northbound ramps
- Halecrest Street
- Crest Drive/Oleander Avenue
- Paseo del Rey
- Medical Center Drive
- Paseo Ladera

All other intersecting streets are stop sign controlled with Telegraph Canyon Road given the right-of-way.

Telegraph Canyon Road is ultimately planned and designated as a six lane prime arterial for its entire length between Interstate 805 and Hunte Parkway which is located in the EastLake development area. The Rancho del Sur development is presently widening Telegraph Canyon Road to its ultimate six lane cross section along the southerly project boundary between Paseo del Rey and Medical Center Drive. A Development Agreement with EastLake Development Company requires the improvement of Telegraph Canyon Road to a six lane prime arterial east of Otay Lakes Road. An assessment district is presently being formed to complete this

improvement and additional assessment districts are being considered to upgrade the remaining two lane portions of Telegraph Canyon Road.

Medical Center Drive is presently a two lane road south of Telegraph Canyon Road, which connects to Medical Center Court. This facility serves as the primary access route to the Chula Vista Hospital and Medical Center complex. The northbound approach to Telegraph Canyon Road widens to two lanes providing separate left and right turn lanes. The Rancho del Sur development is presently widening Medical Center Drive to a Class I collector between Telegraph Canyon Road and Medical Center Court. A new intersection with the extension of East Naples will also be constructed mid-way between these two existing intersections.

East Naples Street is an east/west Class II collector connecting to Naples Street on the west and the existing Chula Vista City limits on the east. Naples/East Naples Street provides a continuous east/west route under the Interstate 805 freeway to the Tidelands development area. East Naples is presently 40 feet curb to curb contained on 60-70 feet of right-of-way with one lane and parking provided in each direction. A four way stop sign provides traffic control at Oleander Avenue in the proposed project vicinity. The Rancho del Sur development is constructing East Naples from its present terminus with the Foxhill access road to Medical Center Drive as a Class II collector within 80 feet of right-of-way. East of the Medical Center Drive this road will provide access to Rancho del Sur residential development. The intersection with Medical Center Drive will be controlled by stop signs on the East Naples street approaches.

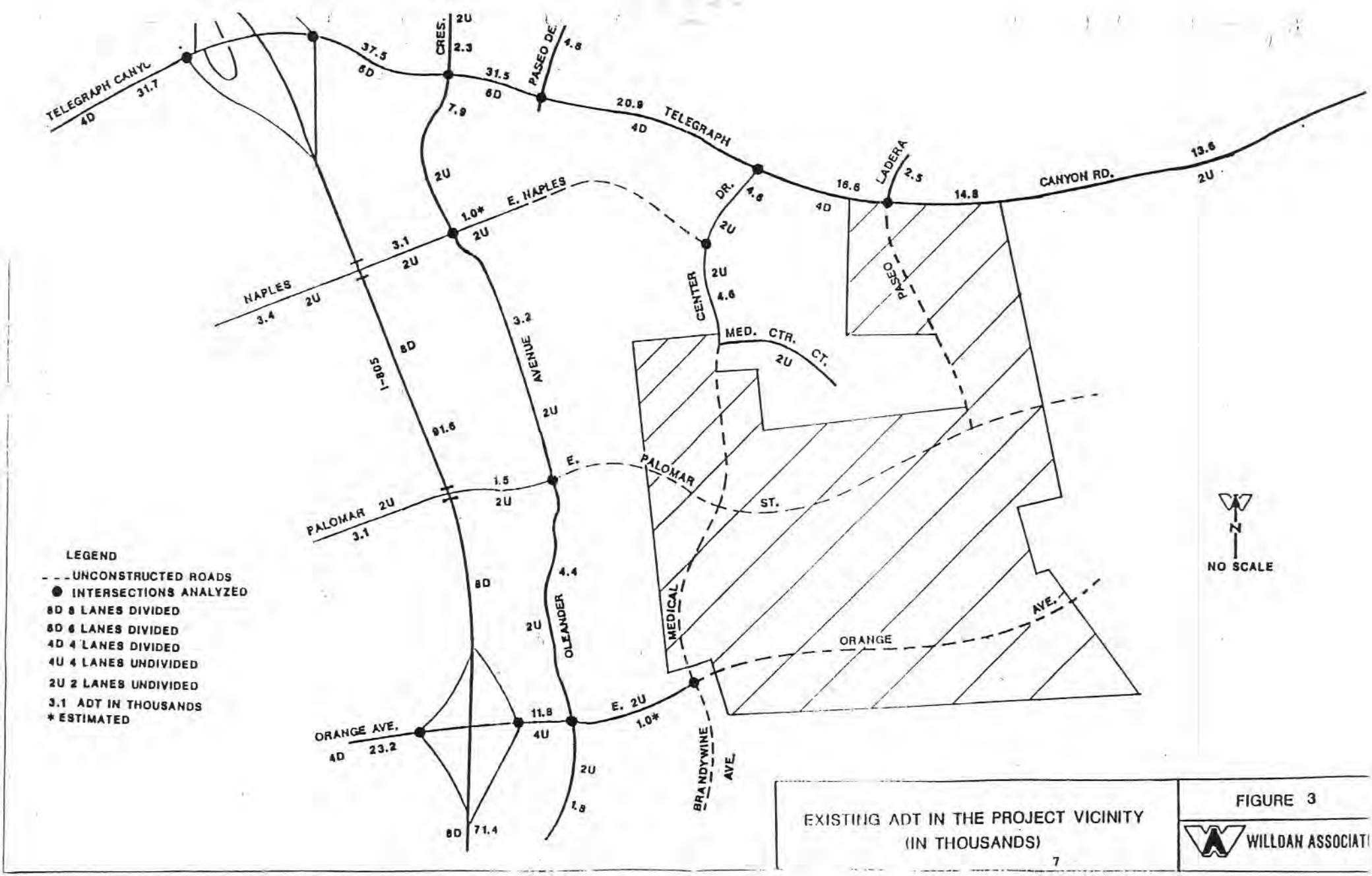
Oleander Avenue is a north/south Class II and III collector connecting to Telegraph Canyon Road on the north with Otay Valley Road on the South. The road parallels the Interstate 805 freeway and intersects with various east/west collectors which serve the City of Chula Vista western area. Oleander Avenue contains one lane in each direction and is stop sign controlled, except for its intersection with Telegraph Canyon Road.

East Palomar Street is an east/west Class I collector west of Interstate 805 and a four lane major street east of Interstate 805 connecting the Interstate 5 freeway on the west (via Palomar Street in the City of Chula Vista) with Oleander Street on the east. In the proposed project vicinity, East Palomar Street is 64 feet curb to curb in 84 feet of right of way with one lane provided in each direction and parking allowed along both sides. The intersection with Oleander Avenue is a "T" intersection with stop sign control on East Palomar Street. East Palomar Street crosses under the Interstate 805 freeway and accesses the Interstate 5 freeway with a diamond interchange. The proposed Circulation Element calls for a partial interchange to be constructed at Interstate 805. This would provide ramps to and from the north only.

Orange Avenue is an east/west major street connecting to Broadway (in the City of Chula Vista) on the west and to Oleander Avenue on the east. Orange Avenue connects to the Interstate 805 freeway with a diamond interchange. In the project vicinity, Orange Avenue is 64 feet curb to curb in 84 feet of right-of-way between the Interstate 805 northbound ramps and Oleander Avenue. The freeway overcrossing is 50 feet wide with 3 to 4 foot sidewalks. West of the Interstate 805 interchange Orange Avenue is 82 feet curb to curb in 102 feet of right-of-way with two lanes provided in each direction. The section of Orange Avenue east of the Interstate 805 interchange is striped for one lane in each direction across the overcrossing and then transitions to an 82 feet curb to curb section just west of Oleander Avenue. The Orange Avenue intersection with Oleander Avenue is four way stop sign controlled. The easterly extension of Orange Avenue terminates at the short stub section of Brandywine Avenue north of the Orange Avenue alignment. Brandywine Townhouse development is presently constructing Orange Avenue from Oleander Avenue to Brandywine Avenue to one-half width of a six lane prime arterial (52 foot paved section) along the south side of the street. The intersection with Brandywine Avenue will be stop sign controlled. The Circulation Element Update calls for Orange to be constructed as a six lane prime arterial from Interstate 805 to Paseo Ranchero and then as an expressway east to State Route 125.

Brandywine Avenue is a north/south local street presently extending north from Otay Valley Road to approximately 600 feet south of Orange Avenue. The Brandywine Townhouse Development is constructing the section of Brandywine Avenue south of Orange Avenue to the Chula Vista southern limits as a four lane collector. The section of Brandywine Avenue north of Orange Avenue is proposed to be incorporated into the southerly extension of Medical Center Drive.

The Interstate 805 interchanges with Telegraph Canyon Road and Orange Avenue will provide direct regional access to the project site in the short term. The Telegraph Canyon Road/L Street interchange is a partial cloverleaf. The east side of the interchange (northbound ramps) are standard diamond ramp design. The northbound off ramp provides two lanes which are striped to allow dual right turns. The eastbound approach provides one left turn and two through lanes. The westbound approach provides one free right turn lane and two through lanes with the outside lane striped for an optional right turn. The Rancho del Sur project will provide for widening and restriping to add dual left turns to the eastbound approach to the Interstate 805 northbound ramp intersections. The west side of the interchange (L Street approach) provides a loop ramp for southbound/eastbound off movement. The eastbound approach has one free right turn lane and two through lanes. The westbound approach has one left turn lane and two through lanes. The southbound off ramp and southbound on ramp are offset with the on ramp approximately 100 feet west of the off ramp. The southbound off ramp is presently one lane. CALTRANS is proposing to widen this ramp to two lanes and correct the offset at the time that Rancho del Sur installs a traffic signal for the southbound ramp intersection. The northbound ramps are already signalized.



EXISTING ADT IN THE PROJECT VICINITY
(IN THOUSANDS)

FIGURE 3

WILLDAN ASSOCIATI

The Orange Avenue interchange is a simple diamond design. Both the northbound and southbound off ramps provide two lanes with separate right and left turn lanes. The eastbound and westbound approaches provide one turn lane and one through lane respectively. The ramp intersections are stop sign controlled at both off ramps. There are presently no plans for improvements to this interchange.

Public transportation is presently limited to regional bus transit provided by MTDB and the City of Chula Vista. Due to the undeveloped nature in the immediate project vicinity, public transit does not currently serve the project site. However, Chula Vista transit 703, 704, and 707 provide local service via Telegraph Canyon Road, Medical Center Drive, Oleander Avenue/Crest Drive, Naples Street, and Palomar Street respectively. Figure 3 shows the existing conditions in the project vicinity.

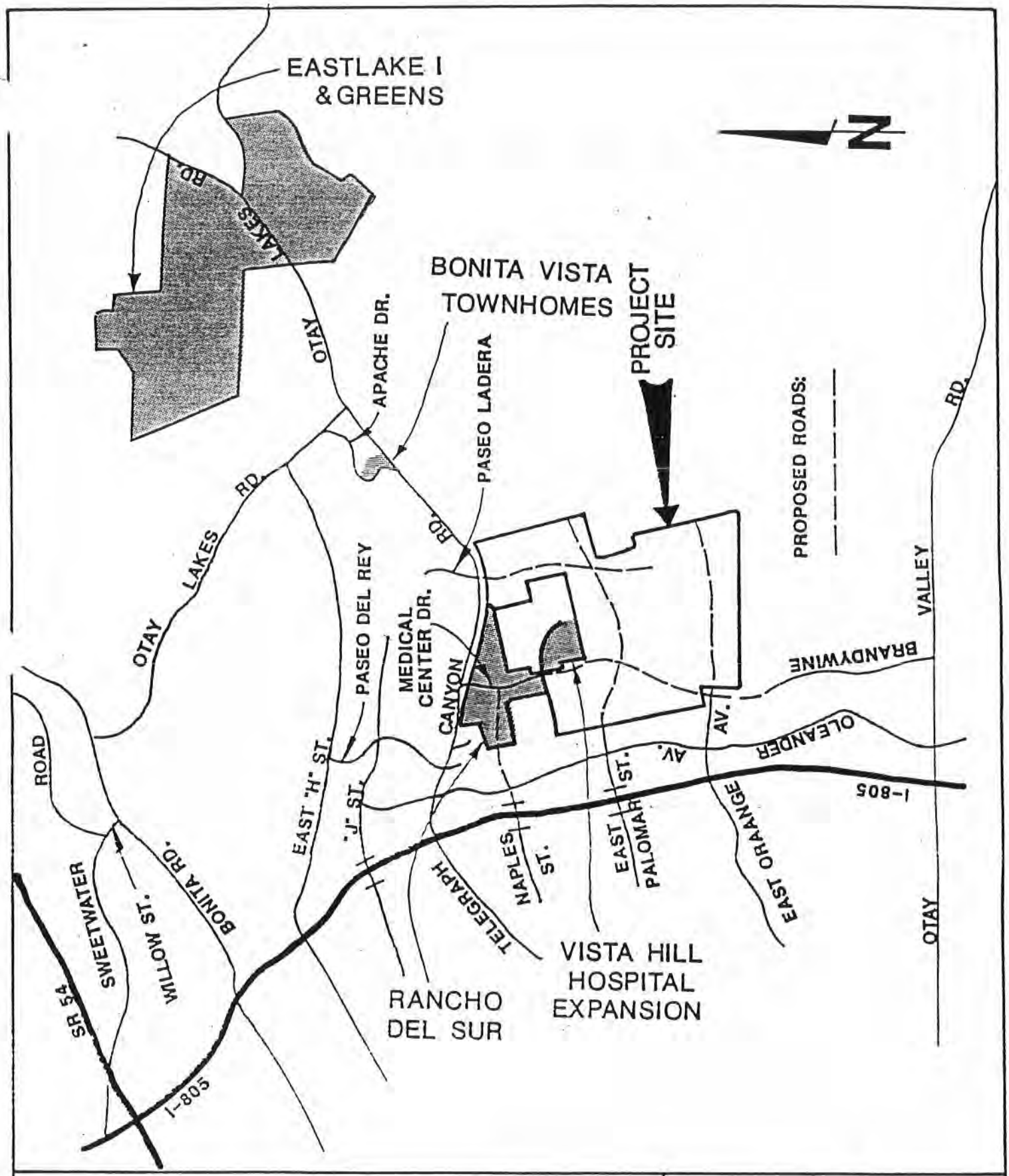
Related Projects

The City of Chula Vista Planning Department and Traffic Engineering Division were consulted concerning related projects to be included in this traffic impact analysis. The Planning Department indicated that the following projects be included:

- Rancho del Sur (Sunbow One)
- Vista Hill Hospital expansion
- EastLake I and Business/Industrial Park
- EastLake Greens
- Bonita Vista Town Homes

The Rancho del Sur and Vista Hill Hospital expansion project sites are immediately adjacent to Sunbow Two; and have therefore been included as part of the project area forecast. The other related projects are remote from the Sunbow Two site but will share part of the external street system with Sunbow Two land uses. Figure 4 shows the locations of the related projects.

Rancho del Rey SPA I is an approved project in eastern Chula Vista and is located north of East "H" Street. This project will generate significant traffic volumes. However, these trips will impact East "H" Street and Otay Lakes Road and these respective roadways have or will be upgraded to ultimate standards by the developer. Street segments in the Sunbow project vicinity are not expected to be utilized by Rancho del Rey traffic, and therefore, were not included in the cumulative analysis.



RELATED PROJECTS

FIGURE 4

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IMPACTS

In order to evaluate the potential project and cumulative (approved projects) impacts, we have estimated the trips expected to be generated from these projects. These trips were then distributed and assigned to the street system and critical street segment and intersection capacities evaluated for impacts. Due to the uncertainty in the timing of State Route 125, the East Chula Vista Transportation Phasing Plan (ECVTPP) Phase 6 is consistent with the assumed buildout of the proposed project (and other approved projects) included State Route 125 and was used to analyze potential cumulative impacts.

Trip Generation

The traffic which will result from the proposed project (as well as approved projects) is estimated using accepted trip generation rates and peak hour factors which are based on categories of land uses. The rates have been developed by various agencies and summarized by SANDAG in their Traffic Generators manual.

According to SANDAG, the eight acre neighborhood commercial site will generate 1,200 daily trips per acre at its driveways. Some of these trips, however, will already be on the street system and are either linked with other trips or stopover trips, known also as "passerby" trips. The City of San Diego has completed research on passerby or linked trips, by conducting detailed surveys at similar sites in the City of San Diego. Linked trips refer to drivers stopping at a commercial establishment on their way home from another trip, then continuing home. Therefore, the trips is already on the street system, and should not be "double counted" by the gross traffic generation rate. The recommended cumulative or linked trip rate for a neighborhood shopping center (less than ten acres) is 600 trips per acre (per July 2, 1986 memo from Alan Holden, Jr., Deputy Director, Transportation and Traffic Engineering Division, City of San Diego). Usage of these cumulative trip rates within the City of Chula Vista has been agreed upon by the City Traffic Engineer (H. Rosenberg).

Table 1 summarizes the generation of expected trips from the proposed project. Table 2 indicates the assumed land use phasing for the East Chula Vista Transportation Phasing Plan.

Table 1

Trip Generation

Proposed Project:

Land Use	Intensity	Trip Rate	ADT	%	AM Peak Hour In	AM Peak Hour Out	%	PM Peak Hour In	PM Peak Hour Out
SFD	1,050 DU	10/DU	10,500	8%	168	672	10%	735	315
MFD	846 DU	8/DU	6,768	8%	108	433	10%	474	203
Comm. Park	31.0 ac	50/ac	1,550	4%	31	31	8%	62	62
Light Ind.	46.0 ac	90/ac	4,140	11%	410	45	12%	99	398
Neighborhood Commercial	8.0 ac	600/ac*	4,800	4%	115	77	11%	264	264
Commercial/ Rec.	7.0 ac	50/ac	350	4%	7	7	8%	14	14
Elem. School	10.0 ac	60/ac	600	26%	94	62	5%	9	21
			28,708		933	1,327		1,657	1,277

* Based on "passerby" reduction as outlined by the City of San Diego and Chula Vista City Traffic Engineer.

Table 2

EAST CHULA VISTA LAND USE PHASING - Revised 1-9-89

Developer	Base Year (1/1/89)	Increment 1	Increment 2	Increment 3	Increment 4	Increment 5
EastLake	505 DU 19 Ac. Ind.	962 DU 20 Ac Ind. 10 Ac. Comm.	626 DU 20 Ac. Ind. 21 Ac. Comm.	534 DU 26 Ac. Ind. 18 Ac. Comm.	514 DU 26 Ac. Ind. 7 Ac. Comm.	486 DU 20 Ac. Ind. 14 Ac. Comm.
Rancho del Rey		457 DU 10 Ac. Ind. 1 Ac. Comm.	709 DU 9 Ac. Ind. 2 Ac. Comm.	426 DU 9 Ac. Ind. 2 Ac. Comm.	236 DU 6 Ac. Ind. 2 Ac. Comm.	219 DU
Mission Verde	27 DU	49 DU				
Daly Homes	21 DU					
Ladera Villas		29 DU				
Sunbow	340 DU	145 DU	460 DU 8 Ac. Comm.	440 DU	400 DU	400 DU
Terra Nova		339 DU				
Bonita Long Canyon	279 DU	119 DU				
Salt Creek				300 DU	200 DU	245 DU
Bonita Meadows			205 DU	200 DU		
Rancho San Miguel				100 DU	150 DU	150 DU
Otay Ranch						
Sudberry	10 Ac. Comm.					
Phasing Totals	**1,172 DU 19 Ac. Ind. 10 Ac. Comm.**	**2,100 DU 30 Ac. Ind. 11 Ac. Comm.**	**2,000 DU 29 Ac. Ind. 31 Ac. Comm.**	**2,000 DU 35 Ac. Ind. 20 Ac. Comm.**	**1,500 DU 32 Ac. Ind. 9 Ac. Comm.**	**1,500 DU 46 Ac. Ind. 14 Ac. Comm.**

Table _ (continued)
EAST CHULA VISTA LAND USE PHASING - Revised 1-9-89

Developer	Increment 6	Increment 7	Increment 8	Increment 9	Increment 10	Increment 11	Total
EastLake	355 DU 20 Ac. Ind. 14 Ac. Comm	372 DU 20 Ac. Ind.	20 Ac. Ind.	20 Ac. Ind.	20 Ac. Ind.	20 Ac. Ind.	4,354 DU 251 Ac. Ind. 84 Ac. Comm.
Rancho del Rey	551 DU 7 Ac. Ind.	678 DU 10 Ac. Ind.	418 DU 9 Ac. Ind.	334 DU 9 Ac. Ind.	6 Ac. Ind.		154 DU 75 Ac. Ind. 7 Ac. Comm.
Sunbow	184 DU 46 Ac. Ind.						2,368 DU 46 Ac. Ind. 8 Ac. Comm.
Terra Nova							339 DU
Salt Creek	260 DU	300 DU	300 DU	340 DU	599 DU	290 DU	2,834 DU
Bonita Meadows							405 DU
Rancho San Miguel	150 DU	150 DU	150 DU	250 DU	150 DU		1,250 DU
Otay Ranch			432 DU 5 Ac. Comm.	476 DU 5 Ac. Comm.	751 DU 5 Ac. Comm.	501 DU 5 Ac. Comm.	2,160 DU 20 Ac. Comm.
Sudberry							10 Ac. Comm.
Phasing Totals	**1,500 DU 27 Ac. Ind. 14 Ac. Comm.**	**1,500 DU 30 Ac. Ind.**	**1,300 DU 29 Ac. Ind. 5 Ac. Comm.**	**1,400 DU 29 Ac. Ind. 5 Ac. Comm.**	**1,500 DU 26 Ac. Ind. 5 Ac. Comm.**	**791 DU 20 Ac. Ind. 5 Ac. Comm.**	**17,864 DU 352 Ac. Ind/BP 129 Ac. Comm.**

As shown, the proposed project is estimated to generate 28,708 ADT with 2,260 and 2,934 trips occurring during the AM and PM peak hours, respectively. Comparison between the AM and PM peak hour traffic generation on Table 1 clearly indicate the proposed project will have a greater impact on the street network during the PM peak hour. Analyzing the peak hour is important because this generally places the highest demand on the surrounding street system and intersections.

Trip Distribution and Assignment

The distribution of trips typically results from an estimate of ultimate travel destinations and which elements of the street system would be used to reach those destinations. The basis for this recognition is the driver's consideration of time, distance, and convenience in choosing a route. Attractions include work areas, shopping centers, schools, parks, and public buildings. A major element is access to Interstate 805 and the interaction between residential uses with commercial, employment, education, and recreational uses.

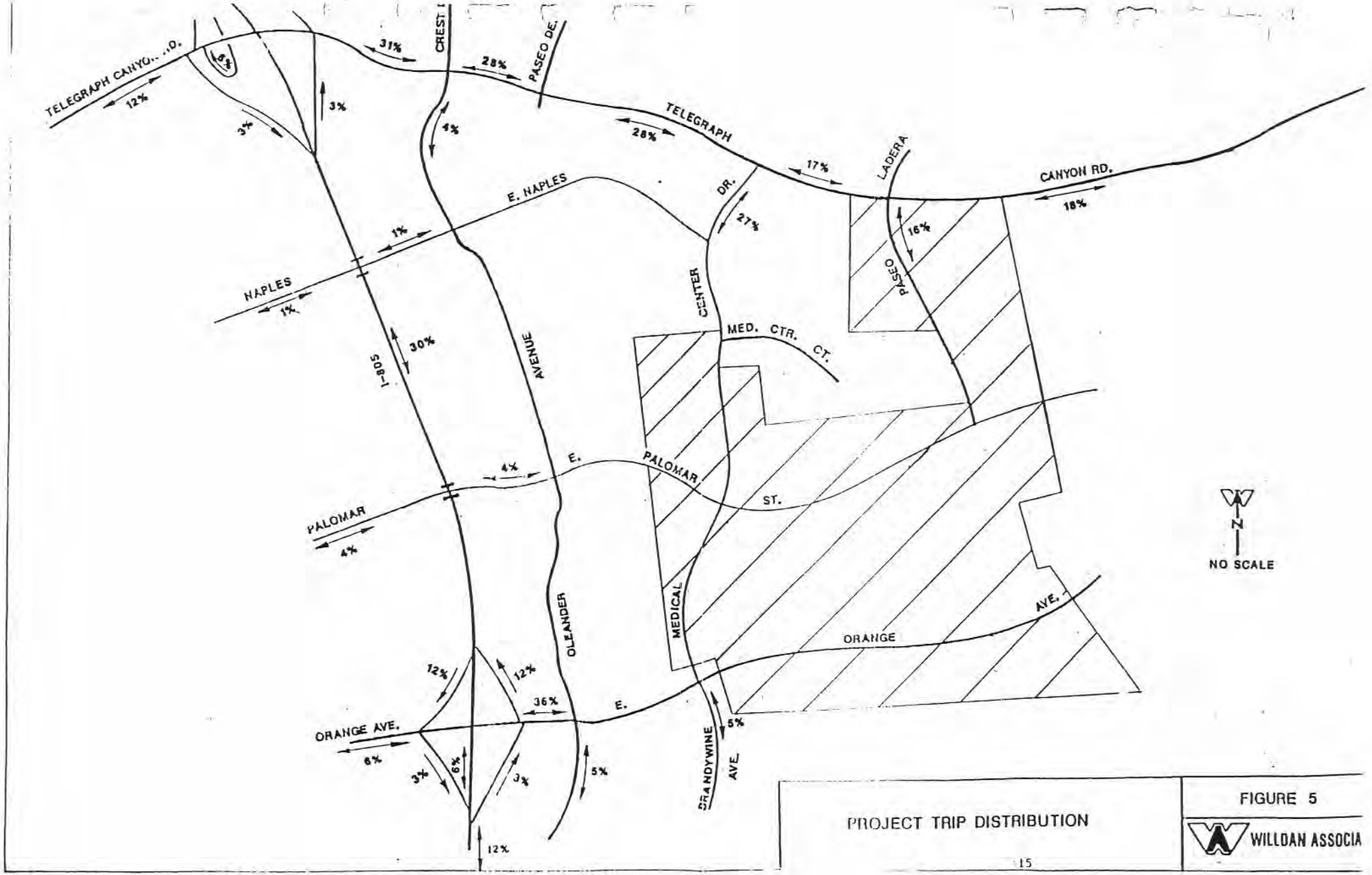
In order to estimate the likely distribution of trips to and from the proposed project, we utilized PM peak hour turning movement counts in the project vicinity and a prior traffic study prepared for the Rancho del Sur project. The assumed trip distribution for the proposed project is shown in Figure 5. Figure 6 shows the proposed project's daily trip assignment to the surrounding street system. Neither Figure 5 nor 6 includes any project traffic utilizing the proposed Palomar Street ramps. The construction of these ramps will reduce the amount of project traffic using Telegraph Canyon Road. Their construction, however, will likely not occur until after the project is built out and our analysis is therefore a worst case.

Trip Assignment (cumulative)

The proposed project's impacts were evaluated at two levels, including existing plus project only and under ECVTPP Phase 6, which includes the phased development of other projects and includes the buildout of the proposed project. The details involved for these separate alternatives are described in the following sections.

Street Segments (Existing + Project)

Figure 7 shows the existing plus project daily traffic volumes in the project vicinity. In order to assess the short range impacts of the proposed project on street segment capacities, we have utilized Table 3 (City of Chula Vista Roadway Capacity Standards) which was developed through discussions with the City of Chula Vista Traffic Engineer (Hal Rosenberg) and is based on approximate level of service (LOS C) capacities and correlates ADT to levels of service for different road



PROJECT TRIP DISTRIBUTION

FIGURE 5

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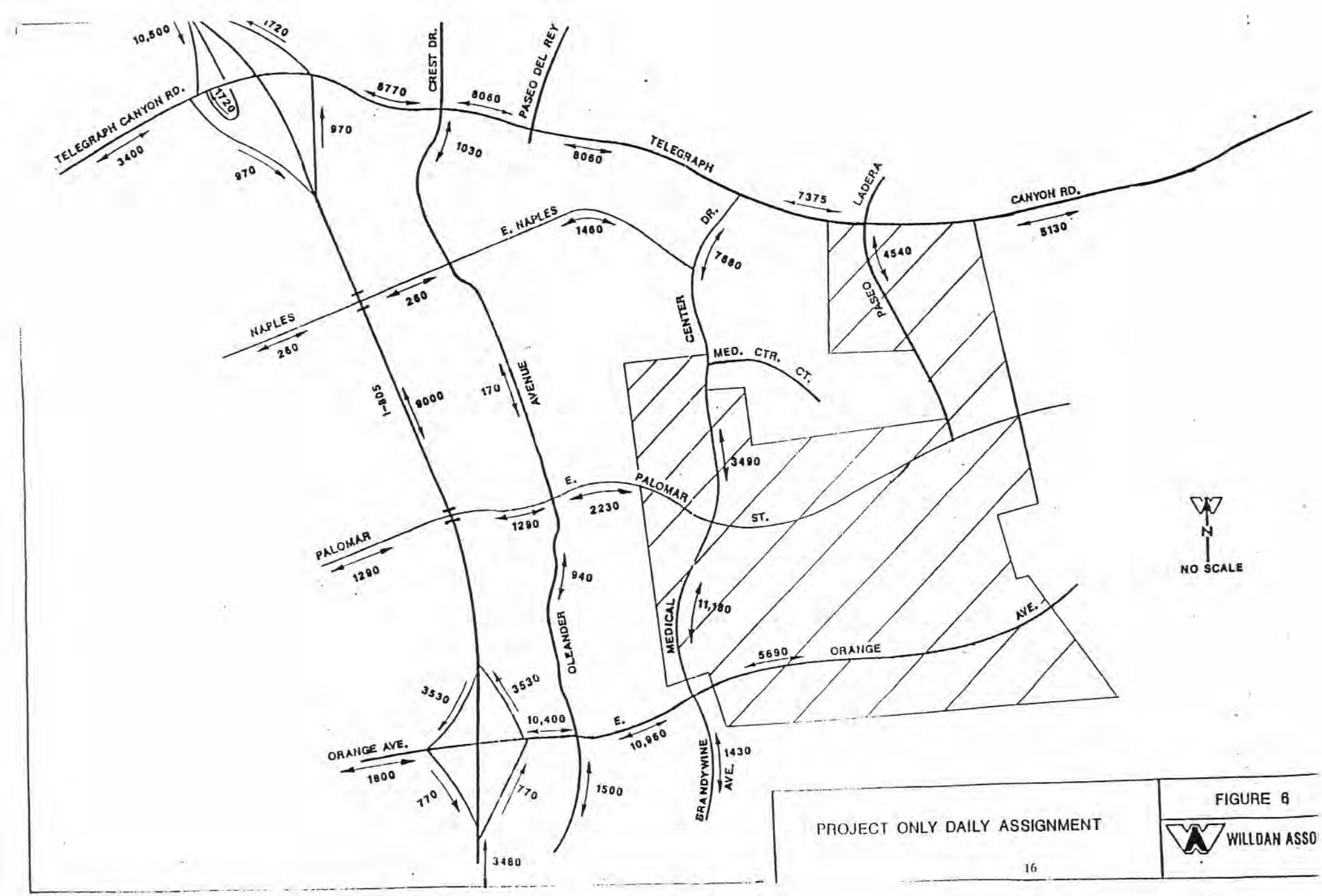

PROJECT ONLY DAILY ASSIGNMENT

FIGURE 6

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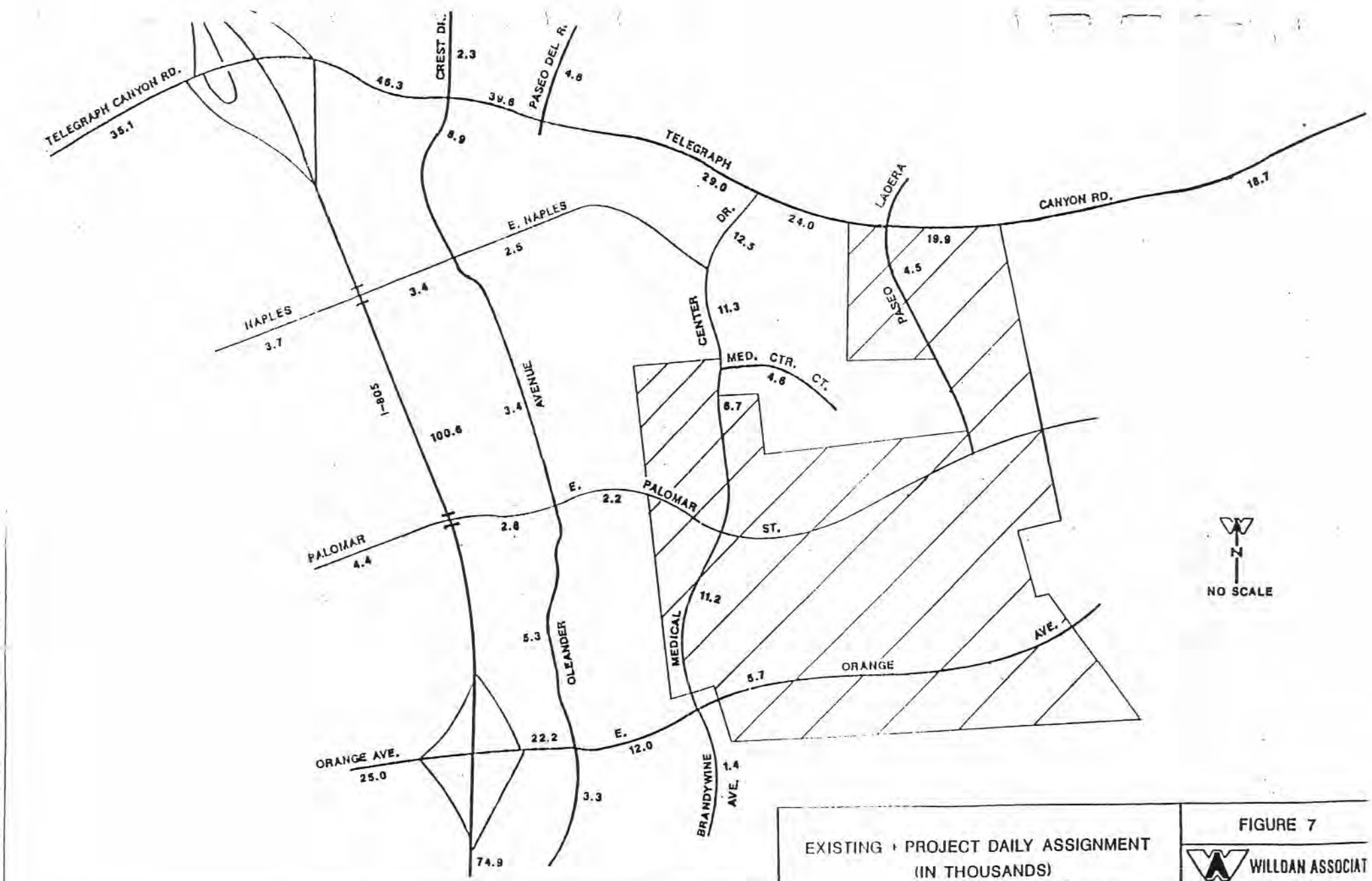


EXISTING + PROJECT DAILY ASSIGNMENT
(IN THOUSANDS)

FIGURE 7

WILLDAN ASSOCIAT

classifications. Table 4 shows the corresponding daily street segment volumes, volume to capacity (V/C) ratios, and associated levels of service under existing and existing plus project development scenarios.

As shown, under existing conditions most street segments operate at acceptable levels of service. Telegraph Canyon Road/'L' Street operate at LOS D east and west of Interstate 805. Orange Avenue west of Interstate 805 currently operates at LOS E.

When the proposed project's daily trips are added to existing traffic (along with programmed street segment and interchange improvements), all street segments are projected to operate at LOS C or better.

Street Segments (Phase 6 Cumulative Development with State Route 125)

This short term scenario assumes the approved projects build out at "full entitlement", which realistically is projected to be 10 years in the future. In this time frame, it is reasonable to assume State Route 125 will be constructed north of Telegraph Canyon Road to State Route 54. The construction of this facility will change travel patterns in eastern Chula Vista significantly.

Figure 8 shows the estimated daily traffic assignment in the proposed project's vicinity under existing plus project plus approved project's "full entitlement" development scenario with State Route 125 assumed in the street network. These volumes were taken from Phase 6 of the ECVTPP, which was the final phase the Sunbow project was assumed. Table 5 indicates the Phase 6 daily volumes, V/C ratios, and levels of service on the surrounding street system with State Route 125 assumed constructed between Telegraph Canyon Road and State Route 54.

As shown, volumes on Telegraph Canyon Road decrease significantly between Paseo Ladera and Interstate 805 from those projected under existing plus project development conditions.

Table 3

CITY OF CHULA VISTA ROADWAY CAPACITY STANDARDS*

AVERAGE DAILY VEHICLE TRIPS

ROAD CLASS	X-SECTION V/C Ratio	LEVEL OF SERVICE A (.6)	B (.7)	C (.8)	D (.9)	E (1.0)
Expressway	104/128	52,500	61,300	70,000	78,800	87,500
Prime Arterial	104/128	37,500	43,800	50,000	56,300	62,500
Major Street (6 lanes)	104/128	30,000	35,000	40,000	45,000	50,000
Major Street (4 lanes)	80/104	22,500	26,300	30,000	33,800	37,500
Class I Collector	74/94	16,500	19,300	22,000	24,800	27,500
Class II Collector	52/72	9,000	10,500	12,000	13,500	15,000
Class III Collector	40/60	5,600	6,600	7,500	8,400	9,400

* LOS 'C' Capacities are from the City of Chula Vista Circulation Element of the General Plan. Other levels of service are derived by volume to capacity (V/C) ratios.

Table 4

Short Term Cumulative Street Segment Volumes, V/C Ratios, and Levels of Service Under "Committed" Development

Street Segment	Functional Capacity Existing	Functional Capacity Programmed	Existing ADT	Existing V/C	Existing LOS	Existing + Project ADT	Existing + Project V/C	Existing + Project LOS
"L" Street								
w/of I-805	37,500	45,000*	31,700	.85	D	35,100	.78	C
Telegraph Cyn. Rd.								
e/of I-805[1]	62,500*	62,500	37,500	.60	B	46,300	.74	C
e/of Crest/Oleander	45,000*	50,000	31,500	.70	B	39,600	.80	C
w/of Medical Center Dr.	37,500	50,000	20,900	.56	A	29,000	.58	A
w/of Paseo Ladera	37,500	62,500	16,600	.44	A	24,000	.39	A
e/of Paseo Ladera	37,500	62,500	14,800	.39	A	19,900	.32	A
Medical Center Drive								
s/of Telegraph Canyon Road	12,500	27,500	4,600	.37	A	12,500	.45	A
n/of Medical Center Court	12,500	27,500	4,600	.37	A	11,300	.41	A
Naples Avenue								
e/of Oleander	12,500	15,000	1,000	.08	A	2,500	.17	A
w/of Oleander	12,500	15,000	3,100	.25	A	3,400	.23	A
e/of Melrose	12,500	15,000	3,400	.27	A	3,700	.25	A

*Street segment with modifications at approach to freeway ramps.

[1] This segment of Telegraph Canyon Road has been reclassified from a 6-lane major roadway to a 6-lane prime arterial (City of Chula Vista, 1989).

Table 5

ECVTPP Phase 6 Cumulative Street Segment
Volumes, V/C Ratios and Levels of Service

Street Segment	Functional LOS C Capacity*[1.]	Volume	V/C	LOS
"L" Street				
w/of I-805	45,000	13,300	.30	A
Telegraph Cyn. Rd.				
e/of I-805	50,000	32,400	.65	B
e/of Oleander	37,500	20,400	.54	A
w/of Medical Center Dr.	37,500	19,300	.51	A
w/of Paseo Ladera	37,500	25,400	.68	B
e/of Paseo Ladera	37,500	23,100	.62	B
Medical Center Drive				
s/of Telegraph Cyn. Rd.	27,500	19,200	.70	B
s/of E. Naples Ave.	27,500	19,000	.69	B
s/of Medical Center Ct.	27,500	16,600	.60	A
s/of E. Palomar St.	27,500	17,700	.64	B
East Orange Avenue				
w/of I-805	37,500	25,000	.67	B
e/of I-805	37,500	20,100	.54	A
e/of Oleander Ave.	37,500	12,100	.33	A
e/of Medical Center Dr.	37,500	5,700	.15	A
Oleander Avenue				
s/of Telegraph Cyn. Rd.	15,000	9,400	.63	B
s/of Naples Ave.	9,400	4,800	.51	A
s/of Palomar Ave.	9,400	4,700	.50	A
s/of Orange Ave.	9,400	3,700	.39	A
East Palomar Street				
w/of I-805	27,500	10,800	.39	A
e/of I-805	37,500	10,800	.29	A
w/of Oleander	37,500	7,400	.20	A
East Naples Street				
w/of I-805	15,000	7,500	.50	A
e/of I-805	15,000	7,500	.50	A
w/of Oleander	15,000	5,500	.37	A
Paseo Ladera				
s/o Telegraph Cyn. Rd.	27,500	9,400	.63	B

*Represents Coded Network in ECVTPP Phase 6.

1. Los C Capacity is a planning capacity definition identified in the city's threshold standards, as opposed to Los E which defines the functional traffic engineering maximum Los E.

Table 5 (continued)

Street Segment	Functional Capacity Existing	Functional Capacity Programmed	Existing ADT	Existing V/C	Existing LOS	Existing + Project ADT	Existing + Project V/C	Existing + Project LOS
Palomar Street								
w/of Oleander	25,000	37,500	1,500	.06	A	2,800	.07	A
e/of Melrose	25,000	27,500	3,100	.12	A	4,400	.16	A
Oleander Avenue								
s/of Telegraph Canyon Road	12,500	15,000	7,900	.63	B	8,900	.59	C
s/of Naples Ave.	9,400	9,400	3,200	.34	A	3,400	.36	A
s/of Palomar Ave.	9,400	9,400	4,400	.47	A	5,300	.56	A
s/of Orange Ave.	9,400	9,400	1,800	.19	A	3,300	.35	A
Orange Avenue								
w/of I-805	25,000	37,500	23,200	.93	E	25,000	.67	B
e/of I-805	25,000	37,500	11,800	.47	A	22,200	.59	A
e/of Oleander	25,000	37,500	1,000	.04	A	12,000	.32	A
Brandywine Avenue								
s/o Orange Ave.	12,500	27,500	1,900	.15	A	3,300	.12	A

This is a direct result of State Route 125 accommodating EastLake traffic with destinations north which were assumed to utilize Telegraph Canyon Road in the previous development scenarios.

The proposed project's trip assignment will not be significantly altered by the addition of State Route 125 in the street network. The geographic proximity to Interstate 805, Orange Avenue, and Telegraph Canyon Road will continue to make these routes the most desirable for project related travel. All street segments in the project vicinity will operate at acceptable levels of service in this scenario.

Intersections

Intersections are of particular interest, since the level of service at which an intersection operates is an indication of the delay which can be expected. The intersections of interest with respect to the proposed project are signalized intersections along Telegraph Canyon Road, Interstate 805 northbound and southbound on and off ramps with Telegraph Canyon Road and Orange Avenue, and the East Naples Street, East Palomar Street, and East Orange Avenue intersections with Oleander Avenue.

Table 6 summarizes the projected levels of service (PM peak hour) for these intersections under existing conditions, existing plus project, and existing plus project plus Phase 6 cumulative development. The analysis consisted of Intersection Capacity Utilization (ICU) calculations which indicates the level of service expected under each development scenario. The method used was specified by the City of Chula Vista, assigning hourly lane capacities of 1,700 and 1,500 vehicles per hour of green time for through and turn lanes, respectively, and summing of the critical volumes. Also, a .07 minimum phase was assumed as well as a .05 yellow clearance. These calculations appear in the Appendix to this report and Tables A-1 through A-3 contain a description of conditions and ranges for the various levels of service.

These intersections were also analyzed under the ECVTPP Phase 6 cumulative development which assumed State Route 125 constructed between Telegraph Canyon Road and State Route 54 as a four lane freeway. This will significantly change travel patterns on Telegraph Canyon Road. The intersection PM peak hour volumes were estimated by reductions in daily traffic and by examination of turn movements produced from the model.

Under existing conditions, the Telegraph Canyon Road/Paseo Ladera intersection is signalized and operates at LOS A. Under existing plus project development (which adds the northbound leg to the intersection) the resulting level of service remains at A with the existing geometrics. Under Phase 6 cumulative development, LOS B is projected during the PM peak hour.

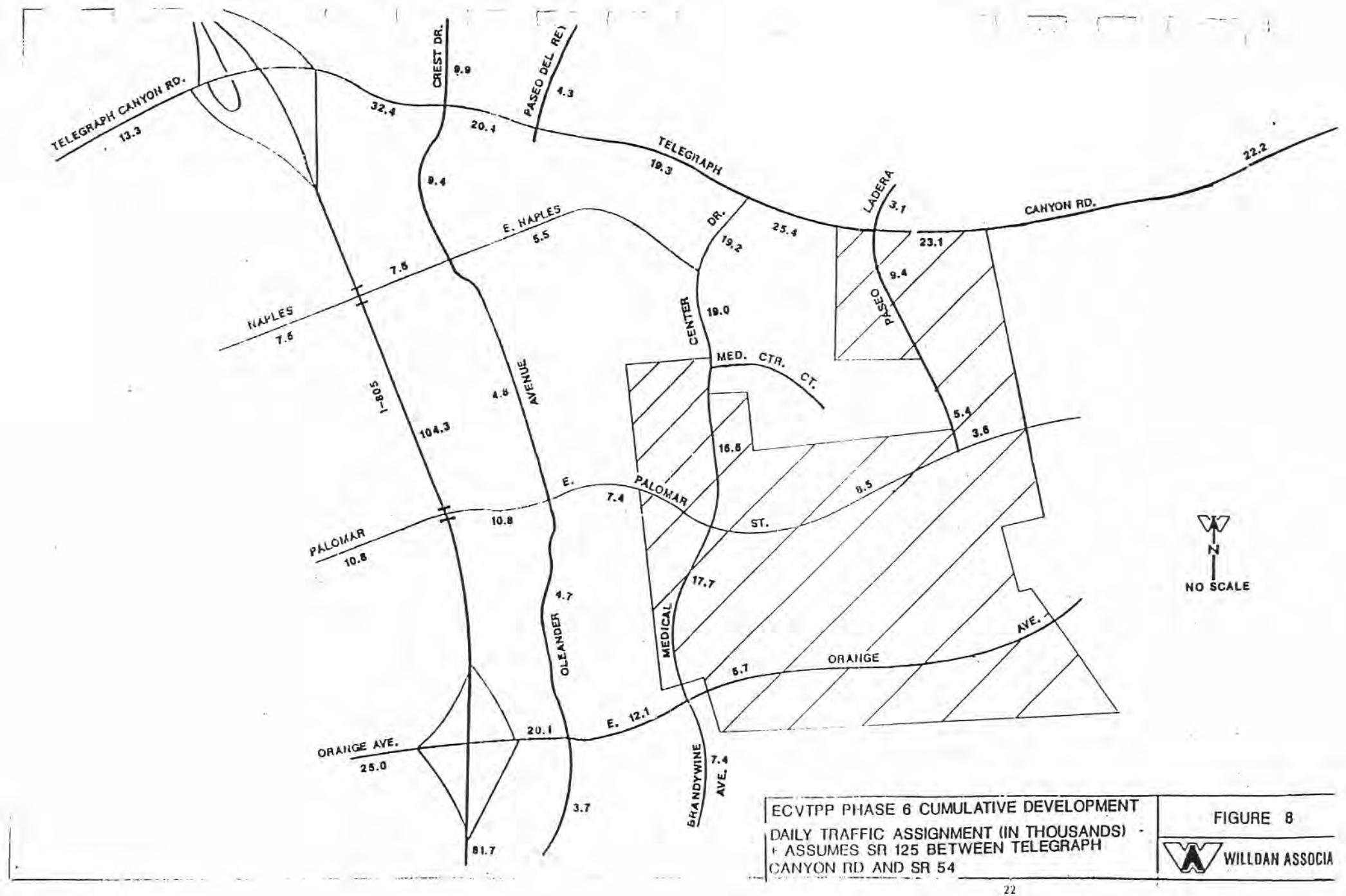
Table 6

Project Vicinity Intersection Levels of Service

Intersection	Control	Existing LOS	Existing + Proj. LOS	Phase 6 Cumulative w/SR 125 LOS
Telegraph Cyn. Rd/ Paseo Ladera	Signal	A	A	B
Telegraph Cyn. Rd/ Medical Center Dr.	Signal	A	B	C
Telegraph Cyn. Rd/ Paseo del Rey	Signal	A	C	B
Telegraph Cyn. Rd/ Crest/Oleander	Signal	A	C	C[1]
Telegraph Cyn. Rd/ Halecrest	Signal	A	B	C
Telegraph Cyn. Rd/[1.] I-805 N/B ramps	Signal	C	C[1]	C[1]
Telegraph Cyn. Rd/[1.] I-805 S/B ramps	Stop on ramp	C	B[1,2]	A[1,2]
East Orange/ I-805 S/B ramps		D	C[1,2]	C[1,2]
East Orange/ I-805 N/B ramps		D	B[1,2]	C[1,2]
Oleander/ East Naples	4-way stop	B	A[2]	A[2]
Oleander/ East Palomar	Stop on Palomar	A	A[2]	A[2]
Oleander/ East Orange	4-way stop	A	B[2]	B[2]

1 LOS with mitigation
2 LOS with signalization

[1.] Note that Telegraph Canyon Road just east of I-805 has been reclassified from a 6-lane major roadway to a 6-lane prime arterial (City of Chula Vista, 1989).



ECVTPP PHASE 6 CUMULATIVE DEVELOPMENT
DAILY TRAFFIC ASSIGNMENT (IN THOUSANDS) -
+ ASSUMES SR 125 BETWEEN TELEGRAPH
CANYON RD AND SR 54

FIGURE 8

WILLDAN ASSOCIA

Table 6

Project Vicinity Intersection Levels of Service

Intersection	Control	Existing LOS	Existing + Proj. LOS	Phase 6 Cumulative w/SR 125 LOS
Telegraph Cyn. Rd/ Paseo Ladera	Signal	A	A	B
Telegraph Cyn. Rd/ Medical Center Dr.	Signal	A	B	C
Telegraph Cyn. Rd/ Paseo del Rey	Signal	A	C	B
Telegraph Cyn. Rd/ Crest/Oleander	Signal	A	C	C[1]
Telegraph Cyn. Rd/ Halecrest	Signal	A	B	C
Telegraph Cyn. Rd/ I-805 N/B ramps	Signal	C	C[1]	C[1]
Telegraph Cyn. Rd/ I-805 S/B ramps	Stop on ramp	C	B[1,2]	A[1,2]
East Orange/ I-805 S/B ramps		D	C[1,2]	C[1,2]
East Orange/ I-805 N/B ramps		D	B[1,2]	C[1,2]
Oleander/ East Naples	4-way stop	B	A[2]	A[2]
Oleander/ East Palomar	Stop on Palomar	A	A[2]	A[2]
Oleander/ East Orange	4-way stop	A	B[2]	B[2]

1 LOS with mitigation
2 LOS with signalization

The Telegraph Canyon Road/Medical Center Drive intersection currently operates at LOS A during the PM peak hour. Adding the proposed project's PM peak hour trips results in LOS B with existing geometrics. Under Phase 6 cumulative development, LOS C is projected during the PM peak hour.

The Telegraph Canyon Road/Paseo del Rey intersection operates at LOS A under existing conditions during the PM peak hour. When the proposed project's PM peak hour trips are added to existing flows, the resulting level of service is C. Under Phase 6 cumulative development, LOS B is projected during the PM peak hour.

The Telegraph Canyon Road/Crest Drive/Oleander Avenue intersection operates at LOS A under existing conditions during the PM peak hour. When the proposed projects PM peak hour trips are added, the level of service is C.

Under Phase 6 cumulative development, the Telegraph Canyon Road/Crest Drive/ Oleander Avenue intersection will require modification on the north and south approaches to achieve LOS C. The northbound Oleander Avenue approach will require one left and one left plus through plus right turn lane and the southbound Crest Drive approach will require one left plus through plus right and one right turn lane. North/south split phasing at this signalized intersection will also be necessary.

The Telegraph Canyon/Halecrest intersection operates at LOS A under existing conditions. The level of service will drop to LOS B with project development for the PM peak hour. LOS C is projected under Phase 6 cumulative development during the PM peak hour.

The Telegraph Canyon Road/Interstate 805 northbound on and off ramps intersection operates at LOS E during the PM peak hour under existing conditions. Under existing plus project development, LOS C can be achieved by widening the eastbound Telegraph Canyon Road approach to accommodate three through lanes and a dual left turn lane along with widening the Interstate 805 northbound off ramp to accommodate one left and two right turn lanes. Under Phase 6 cumulative development, LOS C is projected during the PM peak hour.

The Telegraph Canyon Road/Interstate 805 southbound on and off ramps intersection is currently unsignalized with stop control on the southbound off ramp. It should be noted that right turns only are permitted from the southbound off ramp. Using the Unsignalized Intersection methodology described in "Transportation Research Board SR 209, 1985 Highway Capacity Manual", this intersection was determined to operate at LOS F during the PM peak hour. Under existing plus project conditions, LOS C can be achieved with major modifications to existing geometrics. These modifications include signalization, three through lanes and one right turn lane on eastbound "L" Street, dual left turn lanes and two through lanes on westbound Telegraph Canyon Road, and two right turn lanes on the Interstate

805 southbound to westbound off ramp. Under Phase 6 cumulative development, the level of service improves to A during the PM peak hour.

The Interstate 805/Orange Avenue interchange is a diamond design with stop control at the northbound and southbound off ramps. The eastbound Orange Avenue approach at the northbound Interstate 805 on and off ramp/Orange Avenue intersection (overpass) will require improvement to accommodate dual left turn lanes and two through lanes. Under existing plus project plus short term cumulative conditions, the resulting level of service is C with the previously mentioned improvements.

The southbound on and off ramp/Orange Avenue intersection operates at LOS D with existing geometrics during the PM peak hour. Under existing plus project conditions, LOS C can be achieved with signalization, two through lanes eastbound and westbound, and widening the southbound off ramp to accommodate one left, one right, and one right plus left turn lanes. Under existing plus project plus short term cumulative development, the resulting level of service is C with prior improvements assumed.

The Oleander Avenue/East Palomar Street intersection is currently a "T" intersection with stop control on eastbound Palomar Street. This intersection experiences relatively low traffic volumes and operates at LOS A during the PM peak hour with existing geometrics. Under existing plus project conditions, LOS A is projected assuming this intersection is signalized. The level of service will remain at A under short term cumulative development during the PM peak hour.

The East Orange Avenue and East Naples Street intersections with Oleander Avenue are controlled by four way stop signs today. Utilizing the Multi-Way Stop Analysis methodology described in "TRB SR 209", we analyzed these intersections to determine approximate level of service under existing conditions. Both intersections operate at an acceptable level of service today with existing geometrics. The Oleander Avenue/East Orange Avenue intersection is expected to operate at LOS B under existing plus project and existing plus project plus short term cumulative development with signalization and left turn lanes assumed on the north and southbound Oleander Avenue approaches. The Oleander Avenue/East Naples Street intersection is projected to operate at LOS A under existing plus project and existing plus project plus short term cumulative development assuming signalization, as well as one left turn lane and one through plus right turn lane on all approaches.

Project Phasing

In order to determine the proposed project's short term impact under phased construction, the developer provided conceptual project phasing. This section will

address the construction of the internal street system and identification of off site improvements associated with the project implementation.

Three project phases are identified for the project implementation. These development phases will be added to existing conditions plus the buildout of Rancho del Sur (Sunbow I). A brief description of each development phase and an overview of transportation improvements is listed below. Table 7 summarizes development thresholds and street improvements by phase for the proposed project.

Table 7

Transportation Phasing Plan - Sunbow II

Phase 1

Planning Area	Land Use	ADT
13-17	637 SFD	6,370
6,7,10	380 MFD	3,040
8	8 ac. Vill. Ctr.	4800
9	7 ac. Comm. Rec.	350
Total:	1,017 DU	14,560

Phase 2

18-22	413 SFD	4,130
11-12	466 MFD	3,728
26	10 ac. school	600
Total:	879 DU	8,458
	10 ac. school	
Cumulative:	1,896 DU	17,268
	8 ac. Vill. Ctr.	4,800
	7 ac. Comm. Rec.	350
	10 ac. school	600
		23,018

Phase 3

25	46 ac. Industrial	4,140
23-24	31 ac. Park	1,550
Total:	46 ac. Industrial	5,690
	31 ac. Park	
Cumulative:	1,896 DU	17,268
	46 ac. Industrial	4,140
	8 ac. Vill. Ctr.	4,800
	31 ac. Park	1,550
	7 ac. Comm. Rec.	350
	10 ac. school	600
		28,708

Transportation Improvements

1. Construct Medical Center Drive to ultimate four lane collector standards between Medical Center Court and East Orange Avenue.
2. Construct East Palomar Street to ultimate four lane major standards eastern Phase 1 boundary to Oleander Avenue.
3. Install traffic signal at Medical Center Drive/East Palomar Street.
4. Construct East Palomar Street to ultimate four lane major standards between Phase 1 improvements and easterly project boundary.
5. Construct Paseo Ladera to two lane collector standards between East Palomar Street and Telegraph Canyon Road.
6. Modify traffic signal at Telegraph Canyon Road/Paseo Ladera to accommodate south Paseo Ladera leg.
7. Construct East Orange Avenue from Medical center Drive to easterly project boundary with two travel lanes built to prime arterial standards.
8. Dedicate right-of-way for a six lane prime arterial on East Orange Avenue through project.
9. Install traffic signal at East Orange Avenue/Medical Center Drive intersection.

Phase I

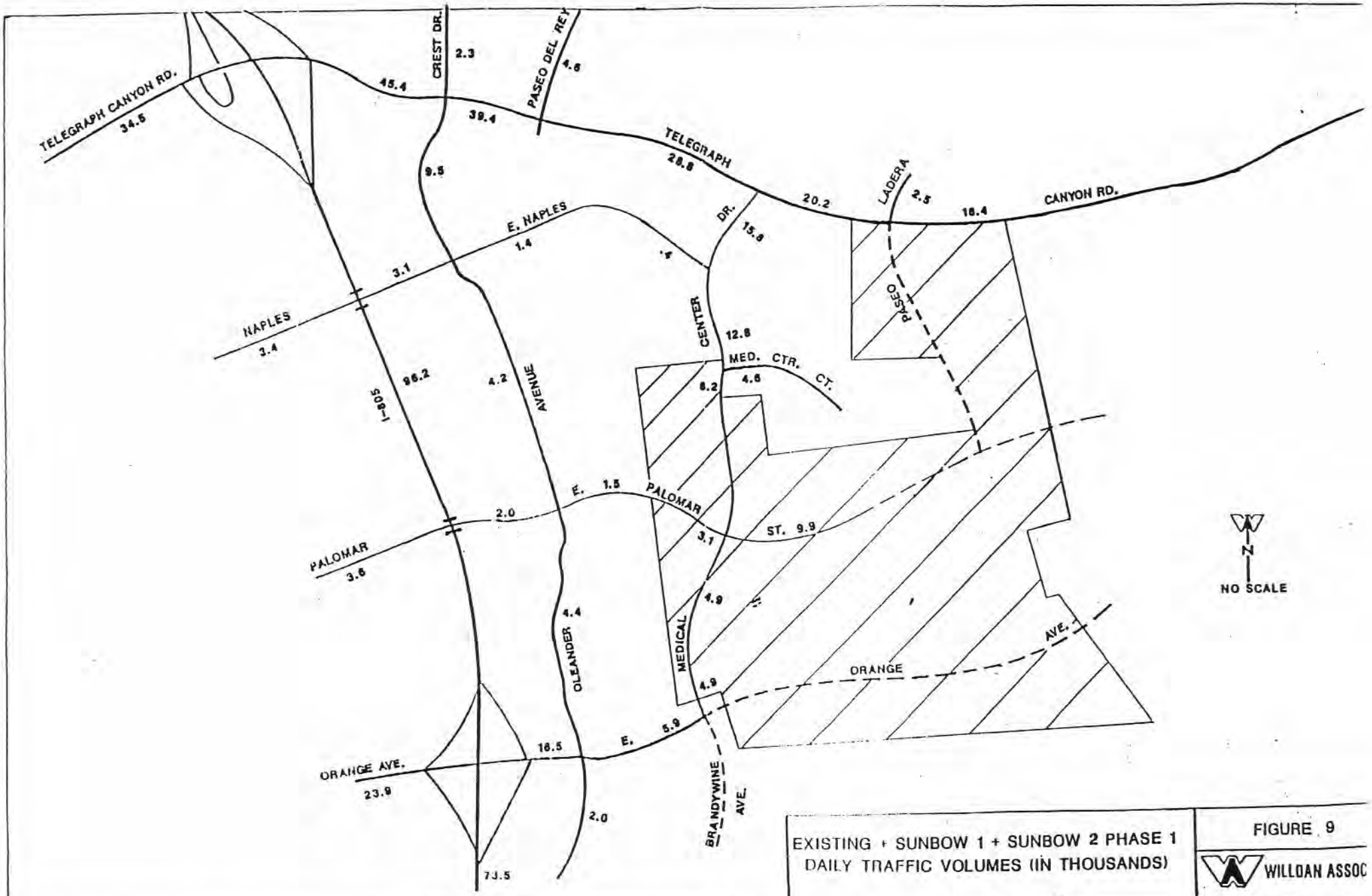
Sunbow 2 Phase 1 assumes the development of planning areas 6-10 and 13-17 (refer to Figure 2). This corresponds to 637 SFD, 380 MFD, 8 acres of Village Center, and 7 acres of community recreation. These uses will generate 14,560 ADT. The majority of these trips will access East Palomar Street and use Medical Center Drive for connection to Telegraph Canyon Road. In order to accommodate projected volumes along Medical Center Drive, this roadway will require construction to ultimate four lane collector standards between Medical Center Court and East Orange Avenue. East Palomar Street will require construction to ultimate four lane major standards between the Phase 1 eastern boundary west to the existing Oleander Avenue/East Palomar Street intersection (partially off site). These connections will allow Phase 1 traffic to utilize Medical Center Drive, East Palomar Street, and East Orange Avenue to access the surrounding street system. Figure 9 shows the anticipated volumes on the surrounding street system at the completion of Sunbow 2 Phase 1.

Phase 2

Sunbow 2 Phase 2 assumes the development of planning areas 11, 12, 18-22 and 26. This corresponds to 413 SFD, 466 MFD, and 10 acre elementary school site. These uses will generate 8,458 ADT. The trips from this phase will access the eastern segment of East Palomar Street and Paseo Ladera. In order to accommodate daily traffic volumes from the Sunbow 2 Phases 1 and 2, East Palomar Street should be constructed to ultimate four lane major standards from the terminus of Phase 1 improvements to the easterly Sunbow 2 boundary. Paseo Ladera should be constructed as a two lane collector between East Palomar Street north to Telegraph Canyon Road. Also, signal modification at the Telegraph Canyon Road/Paseo Ladera intersection will be necessary to accommodate the southern Paseo Ladera leg of this intersection. Figure 10 shows the anticipated volumes on the surrounding street system at the completion of Sunbow 2 Phase 1 and 2.

Phase 3

Sunbow 2 Phase 3 assumes the development of planning areas 23-25. This corresponds to 46 acres of industrial and 31 acres of parks. These uses will generate 5,690 ADT. The trips from this phase will take access to East Orange Avenue. In order to accommodate daily traffic volumes from the Sunbow 2 Phases 1 through 3, East Orange Avenue should be constructed from the easterly project boundary to Medical Center Drive as a two lane roadway built to prime arterial standards. Right-of-way for the ultimate six lane prime arterial should also be dedicated through the Sunbow 2 project. Figure 11 shows the antici-



EXISTING + SUNBOW 1 + SUNBOW 2 PHASE 1
DAILY TRAFFIC VOLUMES (IN THOUSANDS)

FIGURE 9

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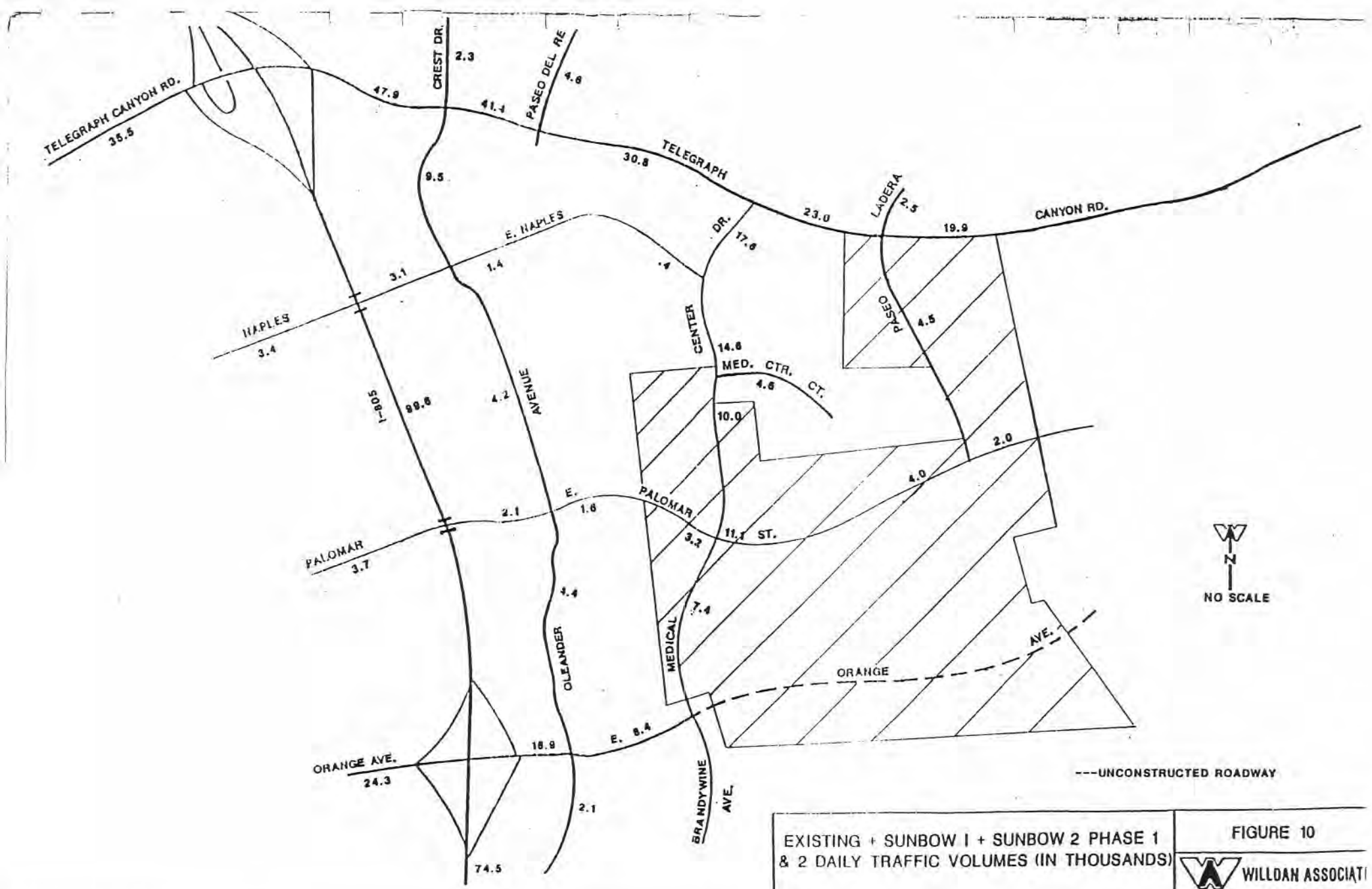
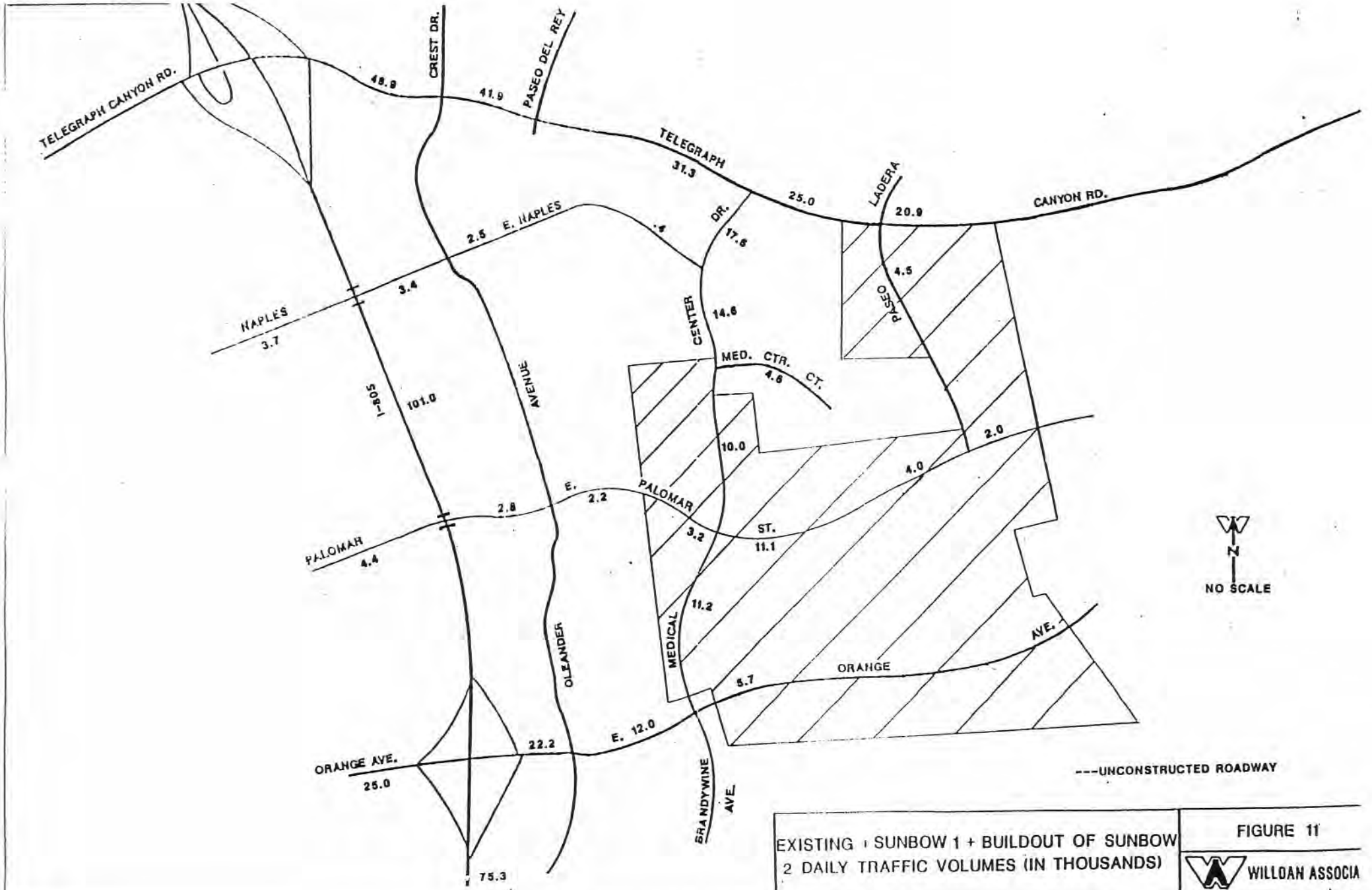


EXISTING + SUNBOW I + SUNBOW 2 PHASE 1 & 2 DAILY TRAFFIC VOLUMES (IN THOUSANDS)

FIGURE 10

WILLDAN ASSOCIATI



EXISTING + SUNBOW 1 + BUILDOUT OF SUNBOW 2 DAILY TRAFFIC VOLUMES (IN THOUSANDS)

FIGURE 11

WILLDAN ASSOCIA

pated volumes on the surrounding street system at buildout of the Sunbow 2 project.

The Sunbow 2 project should install traffic signals at Medical Center Drive/East Palomar Street, East Palomar Street/Paseo Ladera, and East Orange Avenue/ Medical Center Drive intersection by completion of the project. However, these signals should not be turned on until the City Traffic Engineer determines it is needed based on traffic conditions.

MITIGATION MEASURES

The proposed Sunbow 2 project is expected to generate approximately 28,700 ADT with 2,930 trips projected during the PM peak hour. The other projects will generate significant traffic in east Chula Vista, however, overall circulation improvements will be ensured by subdivision improvements and Phasing Plan Threshold improvement levels. Therefore, no interim adverse traffic impacts are expected.

Under existing plus project development, project related impacts can be fully mitigated with implementation of transportation improvements listed in the transportation phasing plan for the proposed Sunbow 2 project (refer to Table 7). The project should also contribute on a fair share basis toward improvements (widening and signalization) to the Interstate 805 interchanges with Telegraph Canyon Road/"L" Street and Orange Avenue.

The Telegraph Road improvements could include the widening of Telegraph Canyon Road at the Interstate 805 northbound on ramp to create a free right turn lane from westbound to northbound. A public facilities financing plan should be prepared to address the project's overall financial responsibility toward this and other community-wide improvements.

Under short term ECVTPP Phase 6 development, the construction of State Route 125 between Telegraph Canyon Road and State Route 54 was assumed. With this facility in place and previous street improvements programmed, no further mitigation will be necessary.

The City's growth management plan, which includes minimum permitted levels of service, will also assure that no significant adverse impacts will result from this project. Under this program, no building permits will be issued if traffic conditions exceed the establishment thresholds.

In summary, to mitigate project specific impacts, the following improvements will be necessary:

1. Construct Medical Center Drive to Class I collector standards between Medical Center Court and East Orange Avenue.

2. Construct East Palomar Street between eastern project boundary and Oleander Avenue to four lane major street standards.

3. Construct Paseo Ladera between Telegraph Canyon Road and East Palomar Street to Class I collector standards and modify existing Telegraph Canyon Road/Paseo Ladera traffic signal to accommodate south leg.

4. Install traffic signals at Medical Center Drive/East Palomar Street, Medical Center Drive/East Orange Avenue, and East Palomar Street/ Paseo Ladera.

5. Contribute toward improvement (widening and signalization) to Interstate 805 interchanges with Telegraph Canyon Road "L" Street and Orange Avenue on a fair share basis.

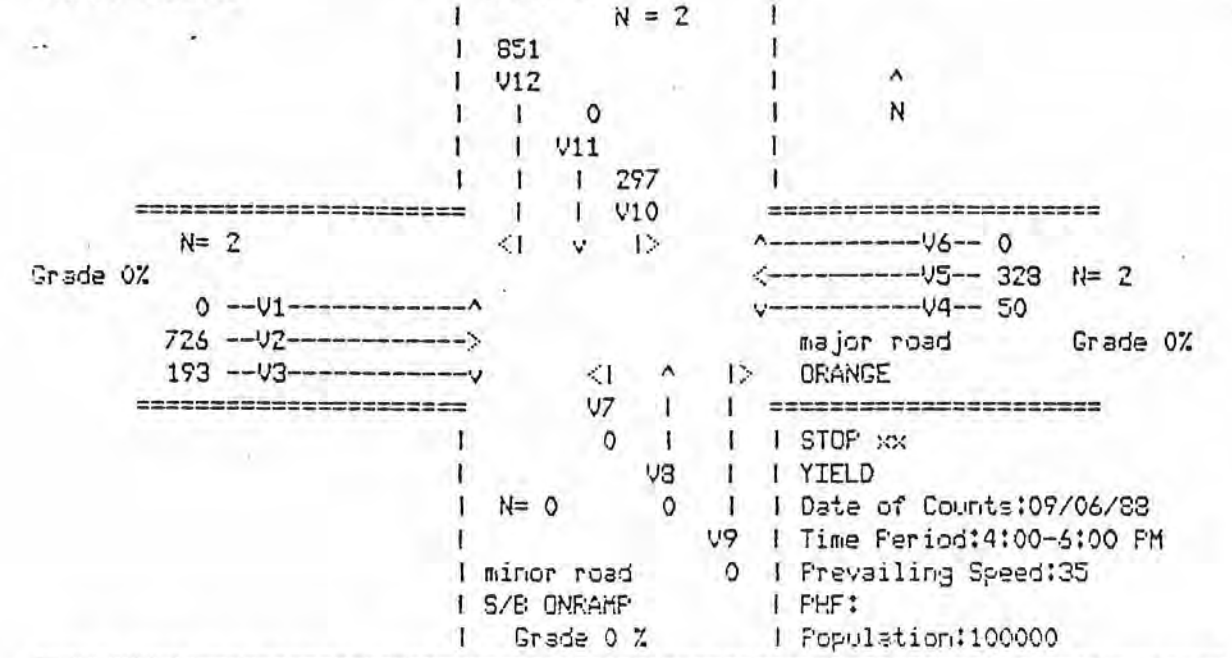
6. Prepare a public facilities financing plan to determine the extent and nature of community wide facilities necessary to serve this portion of Chula Vista east of Interstate 805 and south of the existing Development Impact Fee area. This financing plan shall identify the project's responsibility toward constructing and financing these facilities.

APPENDIX

```
. _ATION:OLEANDER AVENUE/EAST PALOMAR S |NAME:EXISTING CONDITIONS
----------------------------------------------------------------------------------
HOURLY VOLUMES                            | VOLUMES IN PCPH
                              <N          |
 ajor street:OLEANDER                     |
 ======================================== | ======================================
                   <---V5--- 138          |                        <---V5---
       245---V2--->   v---V4---   54      |          ---V2--->     v---V4---   59
  0%    63---V3---v               N= 1    |          ---V3---v
================ <|    |> ==========      | ================ <|    |> ========
 te of Counts: |   |    |  |              |                |   |   |   |
 /08/88        |   V7   V9 | X STOP       |                |   V7  V9  |
Time Period:   |   |    |  |  YIELD       |                |   |   |   |
 :00-6:00 PM   |   84   102|              |                |   92  112|
 proach Speed: Minor Street:   Grade      |
30          EAST PALOMAR        0%        |
PHF:             N= 2
 pulation: 100000
==================================================================================
VOLUME ADJUSTMENTS
----------------------------------------------------------------------------------
 vement no.           |  2  |  3  |   4   |   5   |  7  |  9  |
----------------------------------------------------------------------------------
Volume (vph)          | 245 |  63 |  54   |  138  |  84 | 102 |
----------------------------------------------------------------------------------
Vol(pcph),see Table 10.1|XXXXXXXX|XXXXXXXX| 59 |XXXXXXXX| 92 | 112 |
==================================================================================
 TEP 1 : RT From Minor Street          |             /-> V9
==================================================================================
Conflicting Flows, Vc                  | 1/2 V3+V2= 32 + 245 = 277 vph(Vc9)
 ritical Gap, Tc                       | Tc=  5.5 secs (Tab.10.2)
   tial Capacity, Cp                   | Cp9=  809 pcph (Fig.10.3)
Ac  al Capacity, Cm                    | Cm9=Cp9=  809 pcph
==================================================================================
 TEP 2 : LT From Major Street          |             v-- V4
==================================================================================
Conflicting Flows, Vc                  | V3+V2= 63 + 245 = 308 vph(Vc4)
 ritical Gap, Tc                       | Tc=    5 secs (Tab.10.2)
 otential Capacity, Cp                 | Cp4=  878 pcph (Fig.10.3)
% of Cp utilized and Impedance Factor  | (V4/Cp4)x100=  6.7% P4= .96
 ctual Capacity, Cm        (Fig.10.5)  | Cm4=Cp4=  878 pcph
==================================================================================
STEP 3 : LT From Minor Street          |             <-\ V7
==================================================================================
 onflicting Flows, Vc                  | 1/2 V3+V2+V5+V4=
                                       | 32 + 245 + 138 + 54 = 469 vph(Vc7)
Critical Gap, Tc                       | Tc=  6.5 secs (Tab.10.2)
 otential Capacity, Cp                 | Cp7=  512 pcph (Fig.10.3)
 ctual Capacity, Cm                    | Cm7=Cp7xP4= 512 x .96 = 492 pcph
==================================================================================
 HARED LANE CAPACITY    SH = (V7+V9)/((V7/Cm7)+(V9/Cm9)) if lane is shared

                                                   CR        CR      LOS   LOS
MOVEMENT   V(PCPH)   CM(PCPH)   CSH(PCPH)       (CM-V)   (CSH-V)    CM    CSH
==================================================================================
    7         92        492                       400                 A
              112       809                       697                 A
    4         59        878                       819                 A
```

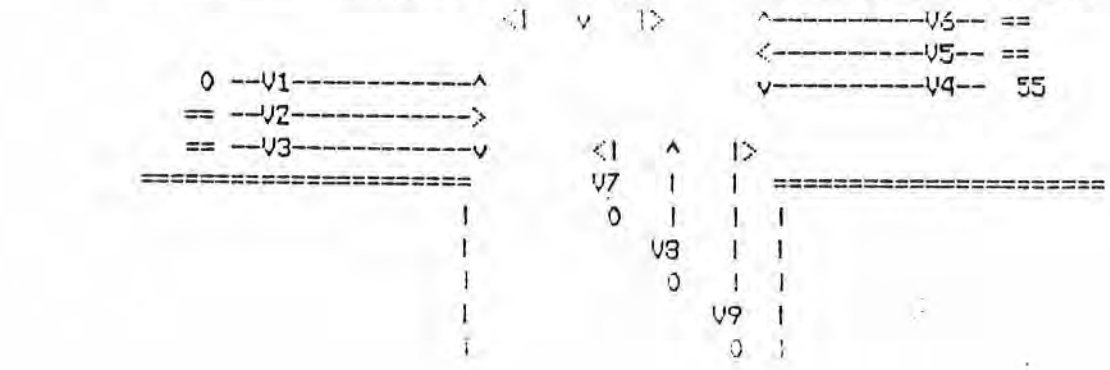
HOURLY VOLUMES



VOLUME ADJUSTMENTS

Movement no.	1	2	3	4	5	6	7	8	9	10	11	12
Volume (vph)	0	726	193	50	328	0	0	0	0	297	0	851
Vol(pcph),Tab.10.11	0	XXXX	XXXX	55	XXXX	XXXX	0	0	0	327	0	936

VOLUMES IN PCPH



STEP 1 : RT From Minor Street	/-> V9	<-/ V12
Conflicting Flows, Vc	1/2 V3+V2=Vc9	1/2 V6+V5=Vc12
	0+ 726= 726 vph	0+ 328= 328 vph
Critical Gap, Tc (Tab.10.2)	5.5 (secs.)	5.5 (secs.)
Potential Capacity,Cp(Fig10.3)	Cp9 = 469 pcph	Cp12 = 761 pcph
% of Cp utilized	(V9/Cp9)x100= 0%	(V12/Cp12)x100= 100%
Impedance Factor, P (Fig.10.5)	P9= 1	P12= 0
Actual Capacity, Cm	Cm9=Cp9= 469 pcph	Cm12=Cp12= 761 pcph

STEP 2 : LT From Major Street	v-- V4	--^ V1
Conflicting Flows, Vc	V3+V2=Vc4	V6+V5=Vc1
	0+ 726= 726 vph	0+ 328= 328 vph
Critical Gap, Tc (Tab.10.2)	5 (secs.)	5 (secs.)
Potential Capacity,Cp(Fig10.3)	Cp4 = 549 pcph	Cp1 = 861 pcph
% of Cp utilized	(V4/Cp4)x100= 10%	(V1/Cp1)x100= 0%
Impedance Factor, P (Fig.10.5)	P4= .94	P1= 1
Actual Capacity, Cm	Cm4=Cp4= 549 pcph	Cm1=Cp1= 861 pcph

STEP 3 : TH From Minor Street	^ V8	v V11
Conflicting Flows, Vc	.5V3+V2+V1+V6+V5+V4=Vc8	.5V6+V5+V4+V3+V2+V1=Vc11
	0+ 726+ 0+ 0+	0+ 328+ 50+ 193+
	328+ 50= 1104 vph	726+ 0= 1297 vph
Critical Gap, Tc (Tab.10.2)	6 (secs.)	6 (secs.)
Potential Capacity,Cp(Fig10.3)	Cp8 = 234 pcph	Cp11 = 176 pcph
% of Cp utilized	(V8/Cp8)x100= 0%	(V11/Cp11)x100= 0%
Impedance Factor, P (Fig.10.5)	P8= 1	P11= 1
Actual Capacity, Cm	Cm8=Cp8xP1xP4	Cm11=Cp11xP1xP4
	220= 234x 1x.94pcph	165= 176x 1x.94pcph

STEP 4 : LT From Minor Street	<-\ V7	\-> V10
Conflicting Flows, Vc	Vc8(step3)+V11+V12=Vc7	Vc11(step3)+V8+V9=Vc10
	1104+ 0+ 851= 1700vph	1297+ 0+ 0= 1297vph
Critical Gap, Tc (Tab.10.2)	6.5 (secs.)	6.5 (secs.)
Potential Capacity,Cp(Fig10.3)	Cp7 = 85 pcph	Cp10 = 146 pcph
Actual Capacity, Cm	Cm7=Cp7xP1xP4xP11xP12	Cm10=Cp10xP4xP1xP8xP9
	= 85x 1x.94x 1x 0	= 146x.94x 1x 1x 1
	= 0 pcph	= 137 pcph

SHARED LANE CAPACITY

APPROACH MOVEMENTS 7,8,9

MOVEMENT	V(PCPH)	CM(PCPH)	CSH(PCPH)	CR (CM-V)	CR (CSH-V)	LOS CM	LOS CSH
7	0	0		0		E	
8	0	220		220		C	
9	0	469		469		A	

APPROACH MOVEMENTS 10,11,12

MOVEMENT	V(PCPH)	CM(PCPH)	CSH(PCPH)	CR (CM-V)	CR (CSH-V)	LOS CM	LOS CSH
10	327	137		-190		F	
11	0	165		165		D	
12	936	761		-175		F	

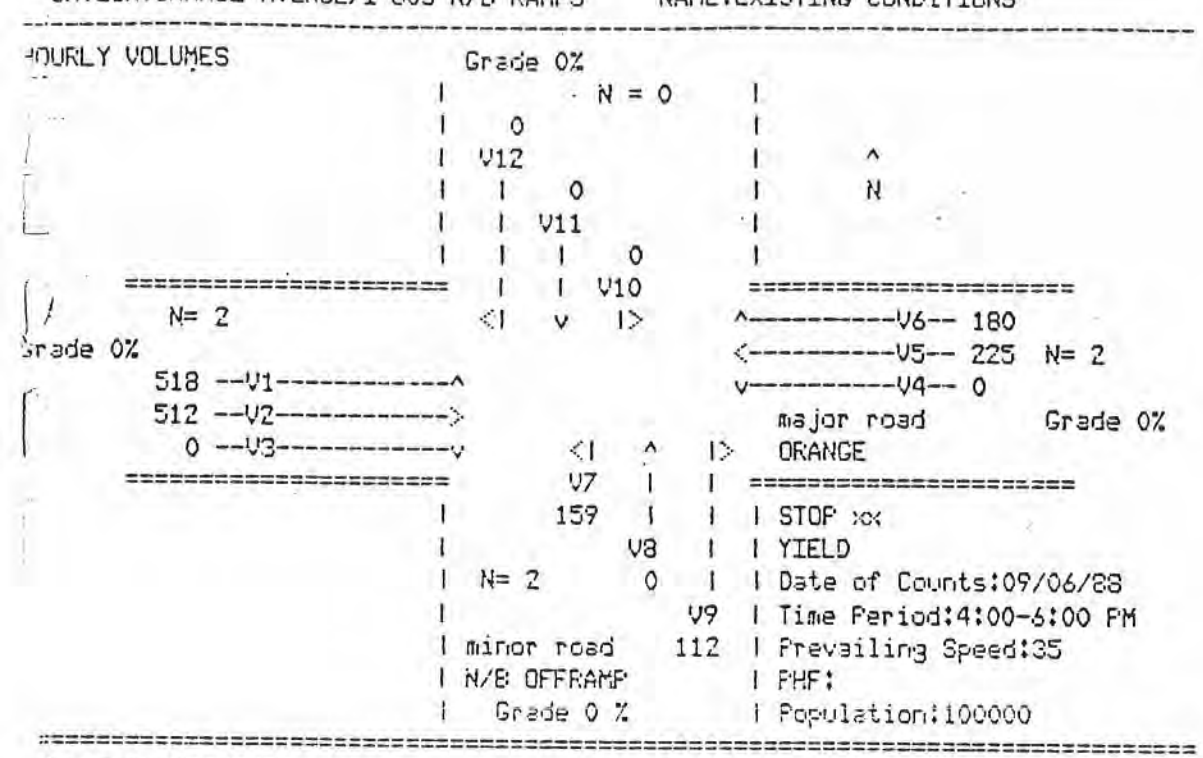
MAJOR STREET LEFT TURNS 1,4

MOVEMENT	V(PCPH)	CM(PCPH)	CR(CM-V)	LOS
1	0	861	861	A
4	55	549	494	A

COMMENTS:

CATION:ORANGE AVENUE/I-805 N/B RAMPS NAME:EXISTING CONDITIONS

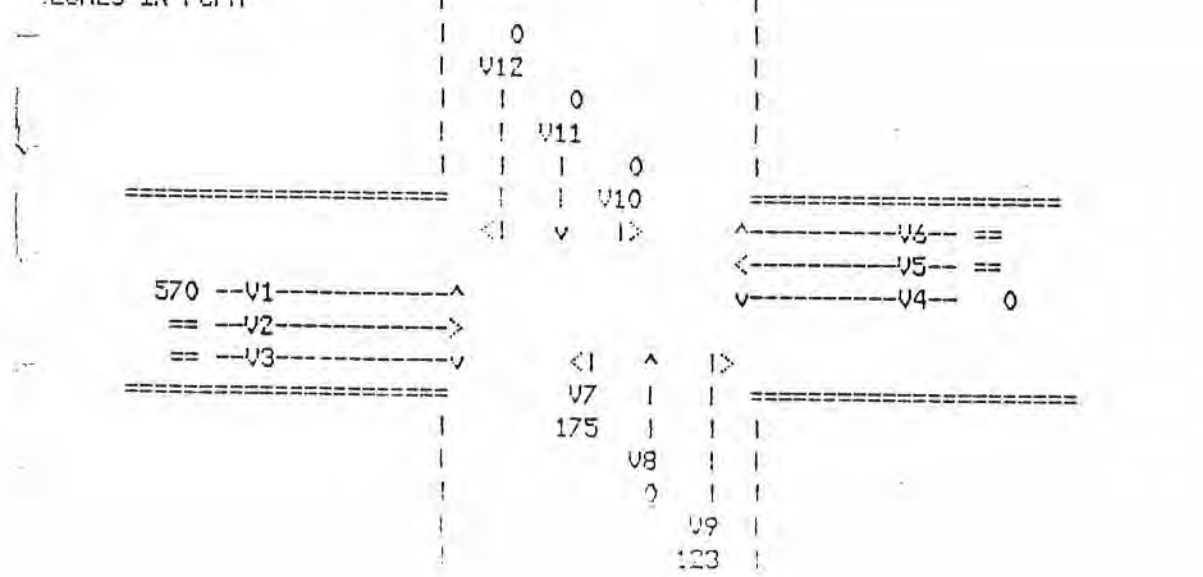
HOURLY VOLUMES



OLUME ADJUSTMENTS

vement no.	1	2	3	4	5	6	7	8	9	10	11	12
Volume (vph)	518	512	0	0	225	180	159	0	112	0	0	0
cph),Tab.10.1	570	XXXX	XXXX	0	XXXX	XXXX	175	0	123	0	0	0

OLUMES IN PCPH



TEP 1 : RT From Minor Street	/-> V9	<-/ V12
onflicting Flows, Vc	1/2 V3+V2=Vc9 0+ 512= 512 vph	1/2 V6+V5=Vc12 0+ 225= 225 vph
ritical Gap, Tc (Tab.10.2)	5.5 (secs.)	5.5 (secs.)
otential Capacity,Cp(Fig10.3)	Cp9 = 616 pcph	Cp12 = 864 pcph
of Cp utilized	(V9/Cp9)x100= 20%	(V12/Cp12)x100= 0%
mpedance Factor, P (Fig.10.5)	P9= .86	P12= 1
ctual Capacity, Cm	Cm9=Cp9= 616 pcph	Cm12=Cp12= 864 pcph

TEP 2 : LT From Major Street	v-- V4	--^ V1
onflicting Flows, Vc	V3+V2=Vc4 0+ 512= 512 vph	V6+V5=Vc1 0+ 225= 225 vph
ritical Gap, Tc (Tab.10.2)	5 (secs.)	5 (secs.)
otential Capacity,Cp(Fig10.3)	Cp4 = 700 pcph	Cp1 = 956 pcph
of Cp utilized	(V4/Cp4)x100= 0%	(V1/Cp1)x100= 59.6%
mpedance Factor, P (Fig.10.5)	P4= 1	P1= .48
ctual Capacity, Cm	Cm4=Cp4= 700 pcph	Cm1=Cp1= 956 pcph

TEP 3 : TH From Minor Street	^ V8	v V11
onflicting Flows, Vc	.5V3+V2+V1+V6+V5+V4=Vc8 0+ 512+ 518+ 180+ 225+ 0= 1435 vph	.5V6+V5+V4+V3+V2+V1=Vc11 0+ 225+ 0+ 0+ 512+ 518= 1255 vph
ritical Gap, Tc (Tab.10.2)	6 (secs.)	6 (secs.)
otential Capacity,Cp(Fig10.3)	Cp8 = 148 pcph	Cp11 = 189 pcph
of Cp utilized	(V8/Cp8)x100= 0%	(V11/Cp11)x100= 0%
mpedance Factor, P (Fig.10.5)	P8= 1	P11= 1
ctual Capacity, Cm	Cm8=Cp8xP1xP4 71= 148x.48x 1pcph	Cm11=Cp11xP1xP4 91= 189x.48x 1pcph

TEP 4 : LT From Minor Street	<-\ V7	\-> V10
onflicting Flows, Vc	Vc8(step3)+V11+V12=Vc7 1435+ 0+ 0= 1435vph	Vc11(step3)+V8+V9=Vc10 1255+ 0+ 112= 1367vph
ritical Gap, Tc (Tab.10.2)	6.5 (secs.)	6.5 (secs.)
otential Capacity,Cp(Fig10.3)	Cp7 = 120 pcph	Cp10 = 132 pcph
ctual Capacity, Cm	Cm7=Cp7xP1xP4xP11xP12 = 120x.48x 1x 1x 1 = 58 pcph	Cm10=Cp10xP4xP1xP8xP9 = 132x 1x.48x 1x.86 = 54 pcph

LOCATION:ORANGE AVENUE/I-805 N/B RAMPS NAME:EXISTING CONDITIONS

SHARED LANE CAPACITY
APPROACH MOVEMENTS 7,8,9

MENT	V(PCPH)	CM(PCPH)	CSH(PCPH)	CR (CM-V)	CR (CSH-V)	LOS CM	LOS CSH
7	175	58		-117		F	
8	0	71		71		E	
9	123	616		493		A	

APPROACH MOVEMENTS 10,11,12

VEMENT	V(PCPH)	CM(PCPH)	CSH(PCPH)	CR (CM-V)	CR (CSH-V)	LOS CM	LOS CSH
10	0	54		54		E	
11	0	91		91		E	
12	0	864		864		A	

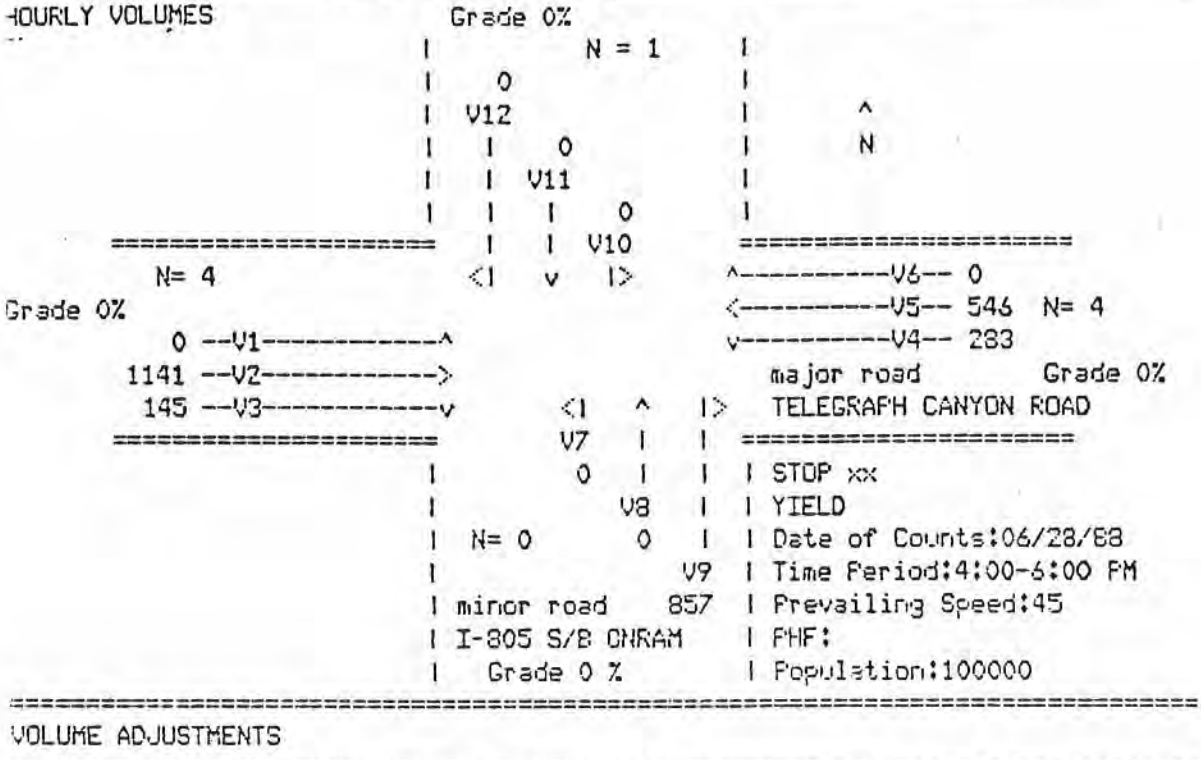
MAJOR STREET LEFT TURNS 1,4

OVEMENT	V(PCPH)	CM(PCPH)	CR(CM-V)	LOS
1	570	956	386	B
4	0	700	700	A

COMMENTS:

LOCATION:TELEGRAPH CANYON ROAD/I-805 S/ NAME:EXISTING CONDITIONS

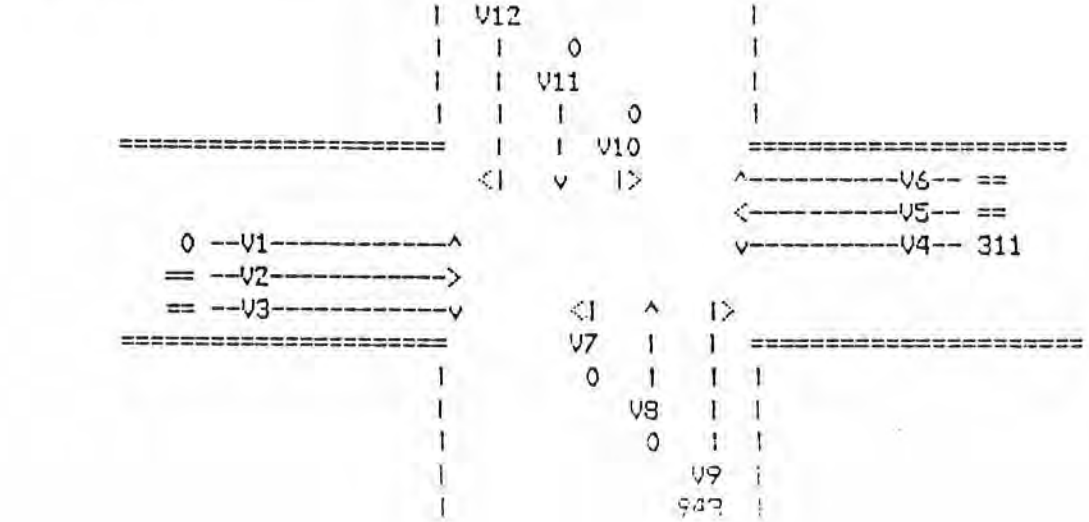
HOURLY VOLUMES



VOLUME ADJUSTMENTS

Movement no.	1	2	3	4	5	6	7	8	9	10	11	12
Volume (vph)	0	1141	145	283	546	0	0	0	857	0	0	0
Vol(pcph),Tab.10.1	0	XXXX	XXXX	311	XXXX	XXXX	0	0	943	0	0	0

VOLUMES IN PCPH



STEP 1 : RT From Minor Street	/-> V9	<-/ V12
nflicting Flows, Vc	1/2 V3+V2=Vc9	1/2 V6+V5=Vc12
	0+ 380= 380 vph	0+ 182= 182 vph
al Gap, Tc (Tab.10.2)	6.5 (secs.)	6.5 (secs.)
itial Capacity,Cp(Fig10.3)	Cp9 = 574 pcph	Cp12 = 738 pcph
of Cp utilized	(V9/Cp9)x100= 100%	(V12/Cp12)x100= 0%
Impedance Factor, P (Fig.10.5)	P9= 0	P12= 1
ctual Capacity, Cm	Cm9=Cp9= 574 pcph	Cm12=Cp12= 738 pcph

STEP 2 : LT From Major Street	v-- V4	--^ V1
onflicting Flows, Vc	V3+V2=Vc4	V6+V5=Vc1
	0+ 1141= 1141 vph	0+ 546= 546 vph
itical Gap, Tc (Tab.10.2)	6 (secs.)	6 (secs.)
otential Capacity,Cp(Fig10.3)	Cp4 = 223 pcph	Cp1 = 518 pcph
% of Cp utilized	(V4/Cp4)x100= 100%	(V1/Cp1)x100= 0%
mpedance Factor, P (Fig.10.5)	P4= 0	P1= 1
ctual Capacity, Cm	Cm4=Cp4= 223 pcph	Cm1=Cp1= 518 pcph

TEP 3 : TH From Minor Street	^ V8	v V11
Conflicting Flows, Vc	.5V3+V2+V1+V6+V5+V4=Vc8	.5V6+V5+V4+V3+V2+V1=Vc11
	0+ 1141+ 0+ 0+	0+ 546+ 283+ 145+
	546+ 283= 1700 vph	1141+ 0= 1700 vph
Critical Gap, Tc (Tab.10.2)	8 (secs.)	8 (secs.)
Potential Capacity,Cp(Fig10.3)	Cp8 = 40 pcph	Cp11 = 40 pcph
Cp utilized	(V8/Cp8)x100= 0%	(V11/Cp11)x100= 0%
Jance Factor, P (Fig.10.5)	P8= 1	P11= 1
Actual Capacity, Cm	Cm8=Cp8xP1xP4	Cm11=Cp11xP1xP4
	0= 40x 1x 0pcph	0= 40x 1x 0pcph

TEP 4 : LT From Minor Street	<-\ V7	\-> V10
Conflicting Flows, Vc	Vc8(step3)+V11+V12=Vc7	Vc11(step3)+V8+V9=Vc10
	1700+ 0+ 0= 1700vph	1555+ 0+ 857= 1700vph
itical Gap, Tc (Tab.10.2)	8.5 (secs.)	8.5 (secs.)
otential Capacity,Cp(Fig10.3)	Cp7 = 35 pcph	Cp10 = 35 pcph
Actual Capacity, Cm	Cm7=Cp7xP1xP4xP11xP12	Cm10=Cp10xP4xP1xP8xP9
	= 35x 1x 0x 1x 1	= 35x 0x 1x 1x 0
	= 0 pcph	= 0 pcph

SHARED LANE CAPACITY

APPROACH MOVEMENTS 7,8,9

MOVEMENT	V(PCPH)	CM(PCPH)	CSH(PCPH)	CR (CM-V)	CR (CSH-V)	LOS CM	LOS CSH
7	0	0		0		E	
8	0	0		0		E	
9	943	574		-369		F	

APPROACH MOVEMENTS 10,11,12

MOVEMENT	V(PCPH)	CM(PCPH)	CSH(PCPH)	CR (CM-V)	CR (CSH-V)	LOS CM	LOS CSH
10	0	0	0	0	0	E	E
11	0	0	0	0	0	E	E
12	0	738	0	738	0	A	E

MAJOR STREET LEFT TURNS 1,4

MOVEMENT	V(PCPH)	CM(PCPH)	CR(CM-V)	LOS
1	0	518	518	A
4	311	223	-88	F

COMMENTS:

Table 1

Descriptions of Conditions for Various Levels of Service

Level of Service	Operating Conditions
A	Free flow; speed controlled by driver's desires, speed limits, or physical roadway conditions.
B	Stable flows; operating speeds beginning to be restricted; little or no restrictions on maneuverability from other vehicles.
C	Stable flow; speeds and maneuverability more closely restricted.
D	Approaches unstable flow; tolerable speeds can be maintained, but temporary restrictions to flow cause substantial drops in speed. Little freedom to maneuver, comfort and convenience low.
E	Volumes near capacity; flow unstable; stoppages of momentary duration. Ability to maneuver severely limited.
F	Forced flow; low operating speeds; volumes below capacity, queues form.

Table A-2

Level of Service Ranges

Maximum Sum of Critical Volumes in VPH

Level of Service	Typical V/C Ratio
A	0.00 - 0.60
B	0.61 - 0.70
C	0.71 - 0.80
D	0.81 - 0.90
E	0.91 - 1.00
	varies

Table A-3

Level of Service and Expected Delay
For Reserve Capacity Ranges

Unsignalized Intersections

Reserve Capacity	Level of Service	Expected Traffic Delay
400 or More	A	Little or No Delay
300 to 399	B	Short Traffic Delays
200 to 299	C	Average Traffic Delays
100 to 199	D	Long Traffic Delays
0 to 99	E	Very Long Traffic Delays
Less than 0	E	Failure - Extreme Congestion
(Any Value)	F	Intersection Blocked by External Causes

Movement	Existing Conditions			Existing + Project				Phase 6 Cumulative with SR 125			
	Volume	Capacity	V/C Ratio	Added Volume	Total Volume	Capacity	V/C Ratio	Added Volume	Total Volume	Capacity	V/C Ratio
NB LT	-	-	-	121	121	1500	.08*	-	126	1500	.08
NB THRU	-	-	-	0	0	1500	.07	-	40	1500	.13*
NB RT	-	-	-	81	81			-	153		
SB LT	17	-	-	0	17	1500	.07	-	22	1500	.07
SB THRU	-	1500	.07*	0	0	1500	.07*	-	57	1500	.10*
SB RT	70	-	-	0	70			-	90		
EB LT	143	1500	.10*	0	143	1500	.10	-	45	1500	.07
EB THRU	666	3400	.20	171	837	3400	.27*	-	883	3400	.29
EB RT	-	-	-	81	81			-	98		
WB LT	-	-	-	181	181	1500	.12*	-	175	1500	.12*
WB THRU	400	3400	.12*	115	515	3400	.16	-	1126	3400	.34
WB RT	18	-	-	0	18			-	18		
Clearance			.05				.05				.05
ICU			.34				.39				.69
Level of Service			A				A				B

* Critical Movement

PM PEAK HOUR

TELEGRAPH CANYON ROAD/PASEO LADERA

Figure A - 1

WILLDAN ASSOCIATES

Movement	Existing Conditions			Existing + Project				Phase 6 Cumulative with SR 125			
	Volume	Capacity	V/C Ratio	Added Volume	Total Volume	Capacity	V/C Ratio	Added Volume	Total Volume	Capacity	V/C Ratio
NB LT	200	1500	.13*	217	417	1500	.28*	–	257	1500	.17
NB THRU	–	–	–	–	–	–	–	–	–	–	–
NB RT	29	1500	.07	133	162	1500	.11	–	483	1500	.32*
SB LT	–	–	–	–	–	–	–	–	–	–	–
SB THRU	–	–	–	–	–	–	–	–	–	–	–
SB RT	–	–	–	–	–	–	–	–	–	–	–
EB LT	–	–	–	–	–	–	–	–	–	–	–
EB THRU	799	3400	.24*	119	918	3400	.27	–	543	3400	.16*
EB RT	70	1500	.07	360	430	1500	.29*	–	149	1500	.10
WB LT	12	1500	.07*	95	107	1500	.07*	–	658		.22*
WB THRU	432	3400	.13	141	573	3400	.17	–	839	3400	.25
WB RT	–	–	–	–	–	–	–	–	–	–	–
Clearance			.05				.05				.05
ICU			.49				.69				.75
Level of Service			A				B				C

* Critical Movement

TELEGRAPH CANYON ROAD/MEDICAL CENTER DRIVE PM PEAK HOUR

Figure A-2

WILLDAN ASSOCIATES

Move-	Existing Conditions			Existing + Project				Phase 6 Cumulative with SR 125			
	Volume	Capa-city	V/C Ratio	Added Volume	Total Volume	Capa-city	V/C Ratio	Added Volume	Total Volume	Capa-city	V/C Ratio
NB LT	9	-		0	9			-	9		
NB THRU	0	1500	.07*	0	0	1500	.07*	-	0	1500	.07*
NB RT	2	-		0	2			-	2		
SB LT	49	1500	.07	0	49	1500	.07	-	66	1500	.07
SB THRU	2	1700	.07	0	2	1700	.07	-	2	1700	.07
SB RT	157	1500	.10*	0	157	1500	.10*	-	114	1500	.08*
EB LT	139	1500	.09	0	139	1500	.09	-	178	1500	.12*
EB THRU	971	3400	.29*	479	1450	3400	.43*	-	598	3400	.18*
EB RT	16	1500	.07	0	16	1500	.07	-	16	1500	
WB LT	1	1500	.07*	0	1	1500	.07*	-	1	1500	.07
WB THRU	644	3400	.20	358	1002	3400	.30	-	1021	3400	.32*
WB RT	24	-	-	0	24			-	75		
Clearance			.05				.05				.05
ICU			.58				.72				.64
Level of Service			A				C				B

* Critical movement
** Improvements required as described above

PM PEAK HOUR

TELEGRAPH CANYON ROAD/PASEO DEL REY

Figure A-3

WILLDAN ASSOCIATES

1. Restripe N/B Oleander Avenue to accommodate one left and one left + through + right

2 Restripe S/B Crest Drive to accoommodate one left + through + right & one exclusive right

Movement	Existing Conditions			Existing + Project				Phase 6 Cumulative with SR 125			
	Volume	Capacity	V/C Ratio	Added Volume	Total Volume	Capacity	V/C Ratio	Added Volume	Total Volume	Capacity	V/C Ratio
NB LT	161	1500	.11*	35	196	1500	.13*	-	362	-	
NB THRU	44	1500	.08	0	44	1500	.09	-	75	3000 [2]	.18*
NB RT	74			11	85			-	57		
SB LT	90	1500	.07	0	90	1500	.07	-	5	-	
SB THRU	75	1500	.08*	0	75	1500	.08*	-	85	3000 [1]	.18*
SB RT	46			0	46			-	464		
EB LT	104	1500	.07	0	104	1500	.07	-	257	1500	.17*
EB THRU	847	3400	.25*	468	1315	3400	.39*	-	720	3400	.21
EB RT	272	1500	.18	39	311	1500	.21	-	206	1500	.14
WB LT	90	1500	.07*	20	110	1500	.07*	-	62	1500	.07
WB THRU	650	5100	.13	338	988	5100	.20	-	1073	5100	.21*
WB RT	28	-		0	28			-	7		
Clearance			.05				.05				.05
ICU			.56				.72				.79
Level of Service			A				C				C**

* Critical Movement

** Improvements required as described above with North/South Split phasing

PM PEAK HOUR

TELEGRAPH CANYON ROAD/OLEANDER AVENUE/CREST DRIVE

Figure A-4

WILLDAN ASSOCIATES

Move-	EXISTING CONDITIONS			EXISTING + PROJECT				Phase 6 Cumulative with SR 125			
	Volume	Capa-city	V/C Ratio	Added Volume	Total Volume	Capa-city	V/C Ratio	Added Volume	Total Volume	Capa-city	V/C Ratio
NB LT	---	---	---								
NB THRU	---	---	---								
NB RT	---	---	---								
SB LT	173	1500	.12*	0	173	1500	.12*	-	173	1500	.12*
SB THRU	---	---	---								
SB RT	32	1500	.07	0	32	1500	.07	-	32	1500	.07
EB LT	293	1500	.07	0	32	1500	.07	-	293	1500	.20*
EB THRU	1520	5100	.30	395	1915	5100	.38	-	1010	5100	.20
EB RT	---	---	---								
WB LT	---	---									
WB THRU	1112	5100	.22*	373	1515	5100	.30*	-	1869	5100	.37*
WB RT	30			0	30			-	30		
Clearance			.05				.05				.05
ICU			.59				.67				.74
Level of Service			A				B				C

* Critical Movement

PM PEAK HOUR

TELEGRAPH CANYON ROAD/HALECREST DRIVE

Figure A-5

WILLDAN ASSOCIATES

1 Widen I-805 N/B Offramp to accommodate dual right turn lanes

2 Improve E/B Telegraph Canyon Road approach to accommodate dual left turn lanes

3 Improve W/B Telegraph Canyon Road approach to accommodate dual right turn lanes

Movement	Existing Conditions			Existing + Project				Phase 6 Cumulative with SR 125			
	Volume	Capacity	V/C Ratio	Added Volume	Total Volume	Capacity	V/C Ratio	Added Volume	Total Volume	Capacity	V/C Ratio
NB LT	178	1500	.12	0	178	1500	.12	-	94	1500	.07
NB THRU	-	-	-	-	-	-	-	-	-	-	-
NB RT	436	1500	.29*	112	548	3000[1]	.18*	-	262	3000[1]	.09*
SB LT	-	-	-	-	-	-	-	-	-	-	-
SB THRU	-	-	-	-	-	-	-	-	-	-	-
SB RT	-	-	-	-	-	-	-	-	-	-	-
EB LT	666	1500	.44*	0	666	3000[2]	.22*	-	697	3000[2]	.23*
EB THRU	1381	3400	.41	395	1776	3400	.52	-	1041	3400	.31
EB RT	-	-	-	-	-	-	-	-	-	-	-
WB LT	-	-	-	-	-	-	-	-	-	-	-
WB THRU	752	3400	.22*	227	979	3400	.29*	-	599	3400	.18
WB RT	503	1500	.34	146	649	1500	.43	-	1302	3000[3]	.43*
Clearance			.05				.05				.05
ICU			1.00				.74				.80
Level of Service			E				C				C**

* Critical Movement

** Improvement required as described above

PM PEAK HOUR

TELEGRAPH CANYON ROAD/I-805 N/B Onramp

Figure A-6

WILLDAN ASSOCIATES

Movement	Existing Conditions			Existing + Project				Phase 6 Cumulative with SR I25			
	Volume	Capacity	V/C Ratio	Added Volume	Total Volume	Capacity	V/C Ratio	Added Volume	Total Volume	Capacity	V/C Ratio
NB LT	-			-	-	-	-	-	-	-	-
NB THRU	-			-	-	-	-	-	-	-	-
NB RT	-			-	-	-	-	-	-	-	-
SB LT	-			-	-	-	-	-	-	-	-
SB THRU											
SB RT	-			-	-	-	-	-	-	-	-
EB LT	-			-	-	-	-	-	-	-	-
EB THRU	1141			196	1337	3400	.39*	-	1194	3400	.35
EB RT	145			0	145	1500	.10	1	148	1500	.10
WB LT	283			83	366	1500	.24*	-	129	1500	.09*
WB THRU	546			144	690	3400	.20	-	338	3400	.10
WB RT	-			-	-	-	-	-	-	-	-
Clearance							.05				.05
ICU							.58				.54
Level of Service			N/S				B				A

* Critical Movement

PM PEAK HOUR

TELEGRAPH CANYON ROAD/I-805 S/B Onramp

Figure A-7

WILLDAN ASSOCIATES

[1] Improve E/B Orange Avenue approach to accommodate four travel lanes which could include two through lanes and one left turn lane. Also widening of the I-805 N/B Onramp to two travel lanes will be necessary with this improvement.

Move-	Existing Conditions			Existing + Project				Phase 6 Cumulative with SR 125			
	Volume	Capa-city	V/C Ratio	Added Volume	Total Volume	Capa-city	V/C Ratio	Added Volume	Total Volume	Capa-city	V/C Ratio
NB LT	159			0	159	1500	.11	-	159	1500	.11
NB THRU	-			-	-	-	-	-	-	-	-
NB RT	112			89	201	1500	.13*	-	251	1500	.17*
SB LT	-			-	-	-	-	-	-	-	-
SB THRU	-			-	-	-	-	-	-	-	-
SB RT	-			-	-	-	-	-	-	-	-
EB LT	518			0	518	1500	.35*	-	518	1500	.35*
EB THRU	512			511	1023	3400'	.30	-	1023	3400'	.30
EB RT	-			-	-	-	-	-	-	-	-
WB LT	-			-	-	-	-	-	-	-	-
WB THRU	225			158	383	3400	.11	-	478	3400[1]	.14*
WB RT	180			314	494	1500	.33	-	494	1500	.33
Clearance							.05				.05
ICU							.64				.71
Level of Service							B**				C**

* Critical Movement

** Improvement required as described above

ORANGE AVENUE/I-805 N/B RAMPS

PM PEAK HOUR

Figure A - 8

WILLDAN ASSOCIATES

[1] Improve E/B and W/B Orange Avenue approaches to accommodate two through lanes

[2] Widen I-805 S/B Offramp to three lanes

Move-	Existing Conditions			Existing + Project				Phase 6 Cumulative with SR 125			
	Volume	Capa-city	V/C Ratio	Added Volume	Total Volume	Capa-city	V/C Ratio	Added Volume	Total Volume	Capa-city	V/C Ratio
NB LT	-			-	-	-	-	-	-	-	-
NB THRU	-			-	-	-	-	-	-	-	-
NB RT	-			-	-	-	-	-	-	-	-
SB LT	297			407	704	-	-	-	764	-	-
SB THRU	-			-	-	4500	.35*	-	-	4500[2]	.36*
SB RT	851			0	851	-	-	-	851	-[1]	-
EB LT	-			-	-	-	-	-	-	-	-
EB THRU	726			104	830	3400[1]	.24*	-	830	3400[1]	.2
EB RT	193			0	193	1500	.13	-	193	1500	.13
WB LT	50			78	128	1500	.09*	-	223	1500	.15*
WB THRU	328			80	408	3400[2]	.12	-	408	3400[1]	.12
WB RT	-			-	-	-	-	-	-	-	-
Clearance							.05				.05
ICU							.73				.80
Level of Service			N.S.				C**				C**

* Critical Movement

** Improvement required as noted above

PM PEAK HOUR

ORANGE AVENUE/I-805 S/B RAMPS

Figure A - 9

WILLDAN ASSOCIATES

Move-ment	Existing Conditions			Existing + Project				Phase 6 Cumulative with SR 125			
	Volume	Capa-city	V/C Ratio	Added Volume	Total Volume	Capa-city	V/C Ratio	Added Volume	Total Volume	Capa-city	V/C Ratio
NB LT	193			0	193	1500	.13*	-	193	1500	.13*
NB THRU	46			5	51	1500	.09	-	51	1500	.09
NB RT	0			82	82			-	82		
SB LT	5			0	5	1500	.07	-	5	1500	.07
SB THRU	53			4	57	1500	.15*	-	57	1500	.15*
SB RT	134			38	172			-	172		
EB LT	244			50	294	1500	.20	-	294	1500	.20
EB THRU	34			550	584	3400	.26*	-	679	3400	.29*
EB RT	303			0	303				302		
WB LT	4			48	52	1500	.07*	-	52	1500	.07*
WB THRU	17			439	456	3400	.13	-	506	3400	.15
WB RT	1			0	1			-	1		
Clearance							.05				.05
ICU							.66				.69
Level of Service			N.S.				B				B

* Critical Movement

PM PEAK HOUR

ORANGE AVENUE/OLEANDER AVENUE

Figure A 10

WILLDAN ASSOCIATES

Movement	Existing Conditions			Existing + Project				Phase 6 Cumulative with SR 125			
	Volume	Capacity	V/C Ratio	Added Volume	Total Volume	Capacity	V/C Ratio	Added Volume	Total Volume	Capacity	V/C Ratio
NB LT	54			17	71	1500	.07*	-	71	1500	.07*
NB THRU	138			5	143	1500	.12	-	143	1500	.12
NB RT	-			32	32			-	32		
SB LT	-			8	8	1500	.07	-	8	1500	.07
SB THRU	245			1	246	1500	.21*	-	246	1500	.21*
SB RT	63			1	64			-	64		
EB LT	84			0	84	1500	.07	-	84	1500	.07
EB THRU	-			59	59	3400	.07*	-	59	3400	.07*
EB RT	102			26	128			-	128		
WB LT	-			15	15	1500	.07*	-	15	1500	.07*
WB THRU	-			111	111	3400	.07	-	111	3400	.07
WB RT	-			3	3			-	3		
Clearance			N.S.				.05				.05
ICU							.47				.47
Level of Service							A				A

* Critical Movement
N.S. - Not signalized

PM PEAK HOUR

EAST PALOMAR STREET/OLEANDER AVENUE

Figure A -11

WILLDAN ASSOCIATES

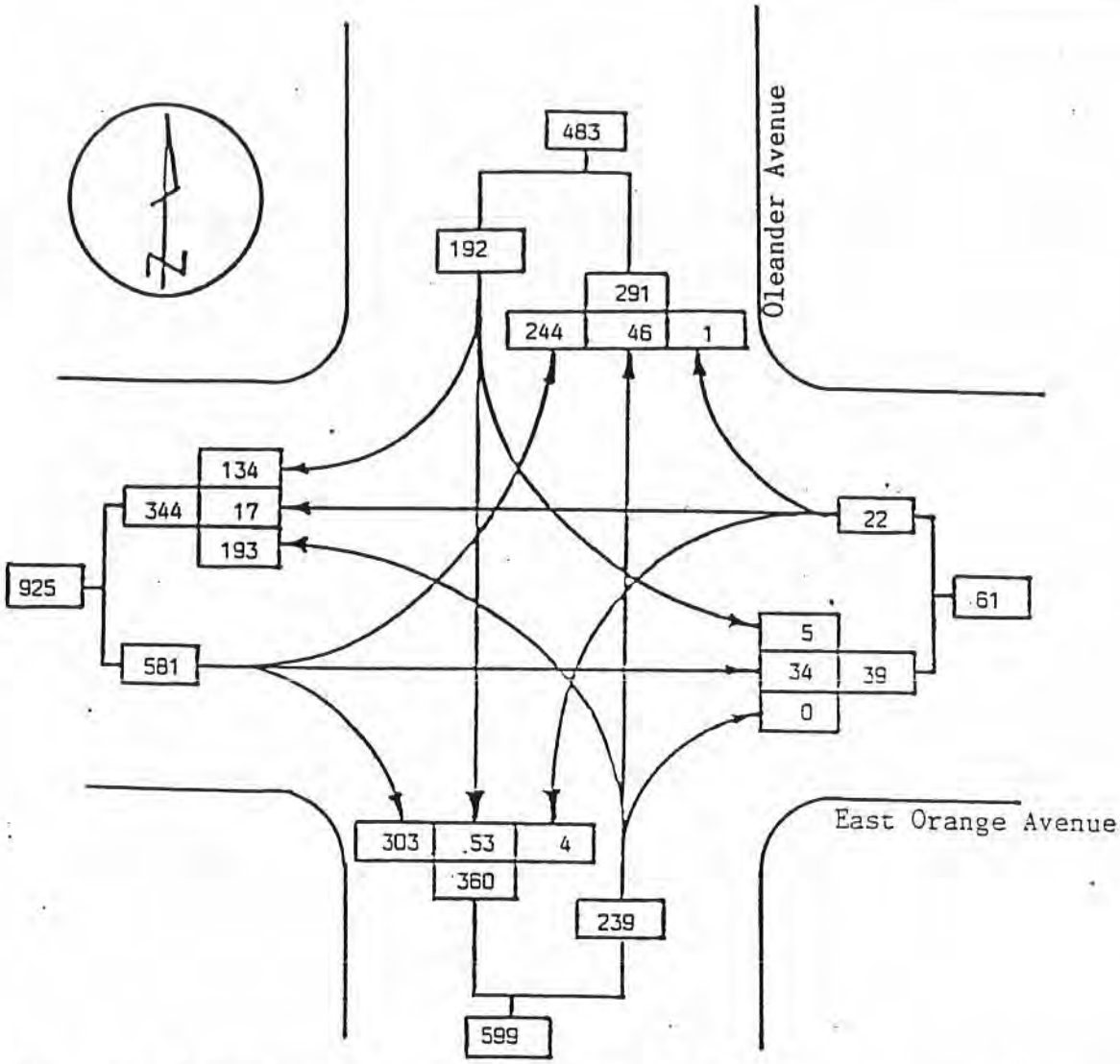


TABLE 10-5. CAPACITY OF A TWO-BY-TWO LANE FOUR-WAY STOP-CONTROLLED INTERSECTION FOR VARIOUS DEMAND SPLITS

DEMAND SPLIT	CAPACITY* (VPH)
50/50	1,900
55/45	1,800
60/40	1,700
65/35	1,600
70/30	1,500

* Total capacity, all legs.
SOURCE: Ref. 9

TABLE 10-7. APPROXIMATE LEVEL-OF-SERVICE C SERVICE VOLUMES FOR FOUR-WAY STOP-CONTROLLED INTERSECTIONS

DEMAND SPLIT	LOS C SERVICE VOLUME, VPH		
	NUMBER OF LANES		
	2 BY 2	2 BY 4	4 BY 4
50/50	1,200	1,800	2,200
55/45	1,140	1,720	2,070
60/40	1,080	1,660	1,970
65/35	1,010	1,630	1,880
70/30	960	1,610	1,820

SOURCE: Ref. 10

239 + 22 + 192 + 581 = 1034----LOS A

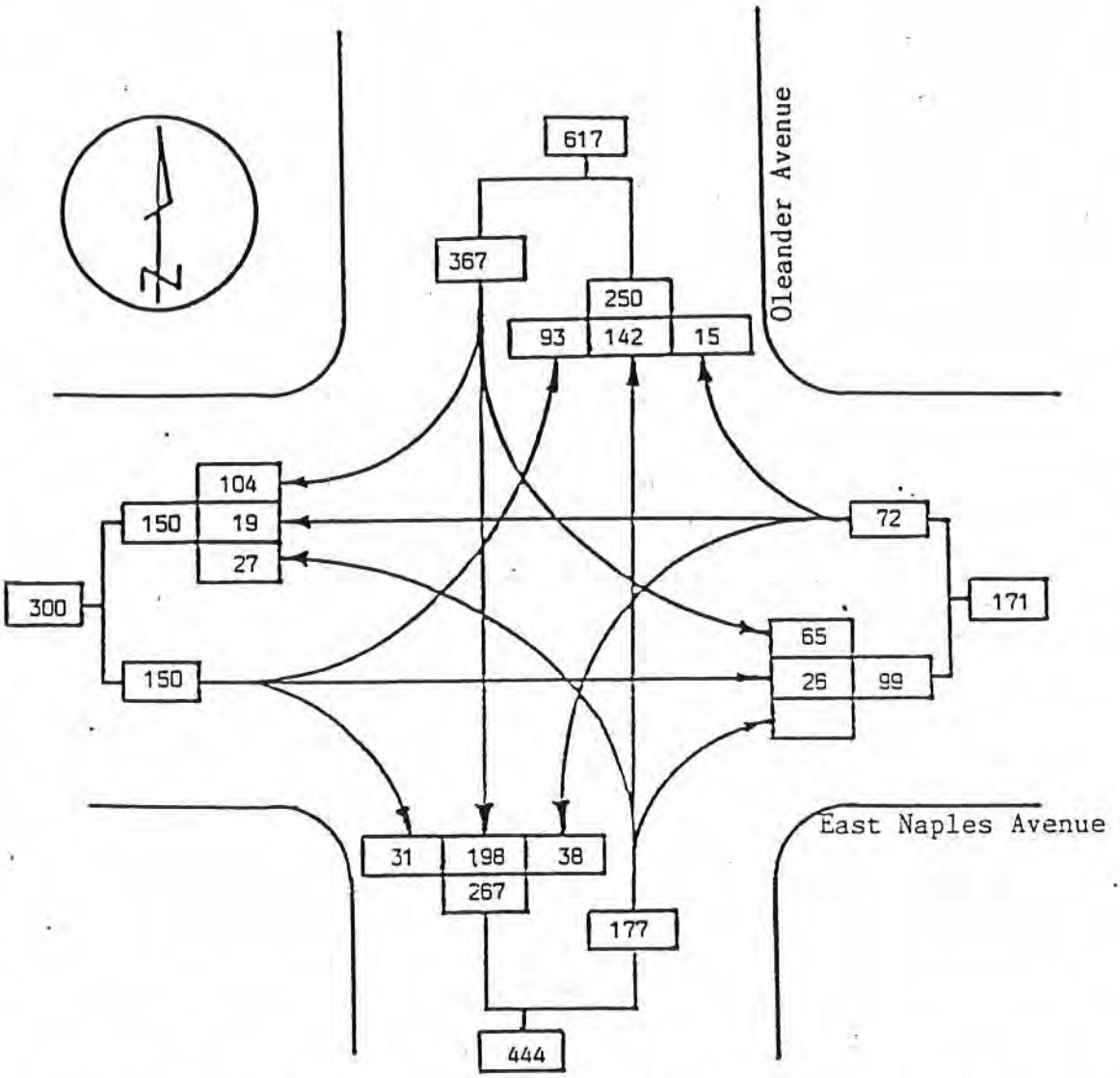
PM PEAK HOUR

EAST ORANGE AVENUE/OLEANDER AVENUE

EXISTING CONDITIONS

Figure A - 13

WILLDAN ASSOCIATES



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* Total capacity, all legs.
SOURCE: Ref. 9

TABLE 10-7. APPROXIMATE LEVEL-OF-SERVICE C SERVICE VOLUMES FOR FOUR-WAY STOP-CONTROLLED INTERSECTIONS

DEMAND SPLIT	LOS C SERVICE VOLUME, VPH		
	NUMBER OF LANES		
	2 BY 2	2 BY 4	4 BY 4
50/50	1,200	1,800	2,200
55/45	1,140	1,720	2,070
60/40	1,080	1,660	1,970
65/35	1,010	1,630	1,880
70/30	960	1,610	1,820

SOURCE: Ref. 10

177 + 72 + 367 + 150 = 766----LOS B

PM PEAK HOUR

OLEANDER AVENUE/EAST NAPLES AVENUE

EXISTING CONDITIONS

Figure A - 14

WILLDAN ASSOCIATE

Movement	Existing Conditions			Existing + Project				Phase 6 Cumulative with SR 125			
	Volume	Capacity	V/C Ratio	Added Volume	Total Volume	Capacity	V/C Ratio	Added Volume	Total Volume	Capacity	V/C Ratio
NB LT	27			0	27	1500	.07*	-	27	1500	.07*
NB THRU	42			1	43	1500	.07	-	43	1500	.07
NB RT	8			7	15			-	15		
SB LT	65			55	130	1500	.09	-	177	1500	.12
SB THRU	198			4	202	1500	.21*	-	202	1500	.21*
SB RT	104			2	106			-	106		
EB LT	93			0	93	1500	.07*	-	93	1500	.07*
EB THRU	26			3	29	1500	.07	-	58	1500	.07
EB RT	31			5	36			-	36		
WB LT	38			5	43	1500	.07	-	43	1500	.07
WB THRU	19			10	29	1500	.07*	-	41	1500	.07*
WB RT	15			50	65			-	65		
Clearance							.05				.05
ICU							.47				.47
Level of Service			N.S.				A				A

* Critical Movement
N.S. - Not signalized

PM PEAK HOUR

EAST NAPLES/OLEANDER AVENUE

Figure A - 12

WILLDAN ASSOCIATES

REPORT OF A BIOLOGICAL SURVEY OF THE SOUTHERN MAJORITY OF THE RANCHO DEL SUR PROJECT AREA POGGI CANYON AREA, CITY OF CHULA VISTA

Prepared for

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National City, CA 92050
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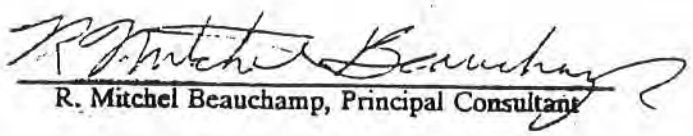
FAX: 619/474-7213

22 March 1989



R. Mitchel Beauchamp, Principal Consultant

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TABLES AND FIGURES

SUMMARY

An on going biological survey was conducted on Rancho del Sur property from August 1986 to October 1988. The area does not include that phase north of the Fox Run project. Nine plants considered sensitive by the California Native Plant Society (CNPS) were observed on the property. Of these, two have legal endangered status by the California Department of Fish and Game (CDFG) and are candidates for Threatened status by the U. S. Fish and Wildlife Service (USFWS). Four others are candidates for Threatened status by the USFWS. The remaining four sensitive species observed on the property are of a lower variety status and have no state or federal listing.

Sensitive bird species occurring on-site include 10 pairs of California Black-tailed Gnatcatchers inhabiting Diegan Sage Scrub, 10 pairs of Cactus Wrens largely restricted to stands of Cholla Cactus, and a single Grasshopper Sparrow in grasslands on the southern boundaries of the property. Sensitive predatory species sighted foraging included a Golden Eagle, Cooper's Hawk, Northern Harrier, and Black-shouldered Kite. Three raptors nests were located on site. A number of Orange-throated Whiptails were the only sensitive reptiles found during the surveys.

INTRODUCTION

A biological survey of the 600 acre Sunbow/Rancho del Sur property was performed by Pacific Southwest Biological Services, Inc. at the request of the Rancho del Sur joint venture. The purpose of the survey was to identify sensitive biological resources and constraints in the preliminary phases of development design.

METHODS

The botanical portion of the survey was conducted by Fred T. Sproul and R. Mitchel Beauchamp, botanists, in August 1986 and spring and October 1988, and by Craig H. Reiser, botanist, on 7 and 8 May 1987. The on-foot survey covered all slope aspects, soil types, and drainages. Sensitive plant locations (their extent and populations) and vegetation were mapped on a 1" = 200' topographic map (see Figures 2 & 3).

The zoological portion of the survey was conducted by Keith W. Merkel, Stephen J. Montgomery, and Eric R. Lichtwardt according to the following schedule and under the conditions listed:

12 August/86	1130-1530 hours clear, sunny skies; air temperature 82 degrees F. at 1530; no wind -- Keith W. Merkel.
24 September	1300-1800 hours clear, sunny skies; air temperature 76 degrees F. at 1300; west wind, 5-10 mph--Keith W. Merkel.

29 September	0700-1000 hours morning haze, clearing by 0830; air temperature 68 degrees F. at 0700; no wind--Keith W. Merkel and Stephen J. Montgomery.
8 July/87	0945-1430 hours overcast (100%); air temperature 66 degrees F. at 1000; light to moderately gusty winds 5-15 mph--Stephen J. Montgomery.
31 July	1200-1700 hours clear, sunny skies; air temperature 78 degrees at 1200; light winds 2-5 mph--Eric R. Lichtwardt.

Additionally, several additional days of observation were expended during the summer of 1988 by Eric Lichtwardt to determine more closely the location of California Black-tailed Gnatcatchers.

Vast portions of the subject property are disturbed Annual Grasslands. These areas were examined only briefly while more important habitat areas were the primary focus of the zoological survey.

Wildlife identifications were aided by binoculars (7 x 35 power). Unobserved species were identified through indirect signs (i.e. scat, tracks, calls, nests and burrows). Significant zoological resources were plotted on field maps and are identified in Figure 3.

Nomenclature in this report is from the following standard references: vegetation, Holland (1986); flora, Beauchamp (1986) and Munz (1974); plant distributions, Wiggins (1980); wildlife, Laudenslayer and Grenfell (1983).

GENERAL PHYSIOGRAPHY

The 600 acre site includes both northern and southern slopes in Poggi Canyon. A formerly substantial drainage in Poggi Canyon has apparently had runoff from its watershed diminished this century owing to agricultural activities upstream and on site. North of Poggi Canyon and east of Greg Rogers Elementary School, are a series of westward draining mesas and mild slopes. Extensive, heavily disturbed, annual grasslands dominate the northeastern portion of the site, and include the property's high elevation of 511 feet. Low elevation is 200 feet at the mouth of Poggi Canyon.

Soils are derived from marine sandstone, shales, and alluvium. They include Reiff Sandy Loam in valley bottoms, Gaviota series on slopes near Telegraph Canyon, Olivenhain series on level and gently sloping areas, Linne Clay Loam series north, and Diablo Clay south of Poggi Canyon (Bowman, 1973).

BOTANY

VEGETATION

A large proportion (about 45%) of the property has been used for agriculture or cleared for other purposes; retaining relatively little native vegetation. The entire area is subjected to extensive off-road vehicle activity which has caused serious erosion - especially on ridge tops and valleys. Approximately 55% of the property retains its original plant cover in a mature, relatively intact, condition (Figure 2).

Annual Grassland

Several large sections of the property are dominated by ruderal vegetation which has been disturbed or previously used for agriculture. One of these areas covers approximately 130 acres and is situated in the northeastern corner of the property. The remaining agricultural land includes about 140 acres located in the southeastern corner of the site. In addition, 30 acres surrounding the Medical Center has been disturbed due to past construction and is maintained by discing to reduce fire hazard.

The non-native weeds that dominate these areas are collectively described as Annual Grassland habitat. Some of the most common plants include Soft Chess (*Bromus mollis*), Ripgut Grass (*Bromus diandrus*), Foxtail (*Hordeum leporinum*), Wild Oat (*Avena barbata*), Field Mustard (*Brassica geniculata*), Filaree (*Erodium cicutarium*), and Wild Radish (*Raphanus sativus*). Some native plants that invade such disturbed habitats are Broom Baccharis (*Baccharis sarothroides*), Matchweed (*Gutierrezia sarothrae*), Tarweed (*Hemizonia fasciculata*), and Telegraph Weed (*Heterotheca grandiflora*).

Diegan Sage Scrub - Low Phase

Most of the undisturbed portions of the property, except for valley bottoms, are covered by plants of the Diegan Sage Scrub plant community. This plant community occurs especially on thin soils, high in clay content, and occupies dry sites on south-facing exposures and level areas. Roughly 170 acres of this vegetation type occur on the property.

The dominant plants of this community are mostly subshrubs such as Coastal Sagebrush (*Artemisia californica*, Flat-topped Buckwheat (*Eriogonum fasciculanum*), Jojoba (*Simmondsia chinensis*), California Encelia (*Encelia californica*), San Diego Sunflower (*Viguiera laciniata*), Deerweed (*Lotus scoparius*), and Matchweed (*Gutierrezia sarothrae*). Scattered tree-like shrubs of Laurel Sumac (*Malosma laurina*) and Lemonade Berry (*Rhus integrifolia*) also occur within this community.

In valley bottoms, and other disturbed sites with sandy soils, Broom Baccharis forms scattered shrublands. This vegetation type is not a traditional plant community and probably reflects past disturbance followed by an early successional plant cover that is a precursor of the Diegan Sage Scrub.

Diegan Sage Scrub - Sumac Phase

In more mesic areas such as undisturbed canyon bottoms and north-facing slopes Lemonade Berry shrubs form a dense canopy in nearly pure stands. Included with Lemonade Berry are Laurel Sumac, Toyon (*Heteromeles arbutifolia*), and Elderberry (*Sambucus mexicana*).

Clay Lenses - Olivenhain and Diablo Series

On slopes otherwise vegetated with Diegan Sage Scrub are some areas of expansive clay soils, where annual herbs and bulb plants are the dominant form of vegetation. Plants of these clay lenses include: Purple Needlegrass (*Stipa pulchra*), Blue-eyed Grass (*Sisyrinchium bellum*), Otay Tarweed (*Hemizonia conjugens*), Golden-star (*Bloomeria crocea*), Chocolate Lily (*Fritillaria biflora*), and Onion (*Allium haematochiton*). Such clay habitats are adverse to the growth of many of the more dominant shrubs and subshrubs and present a specialized, uncommon habitat. Several of the plants on these clay lenses are discussed under the sensitive plants section of this report. Plants showing some characteristics of the sensitive San Diego Aster (*Corethrogyne filaginifolia* var. *incana*) occur in Poggi Canyon; however, the status of this taxon is questionable, and these individuals also exhibit similarities to the more common var. *filaginifolia*.

Clay Lenses - Linne Series (Bentonite)

Diegan Sage Scrub is also the dominant plant community in the Linne soils on the slopes of Poggi Canyon. A stratum of bentonite clay occurs at about 350 feet elevation along this canyon (Cleveland, 1960). These clay deposits are devoid of large shrubs and other plants of the dominant plant community much like the clay lenses on Olivehain soils. The common plants on these bentonite clays include Coastal Goldenbush (*Isocoma veneta*), Tarweed (*Hemizonia fasciculata*), Brome grasses (*Bromus* ssp.), Wild Oat, and Lowland Cudweed (*Gnaphalium palustre*). The native needle-grasses, bulbous plants, and annuals usually associated with Olivenhain clay lenses do not occur on the bentonite clay. One extensive lens with very loose, friable clay includes a population of San Diego Thorn Mint (*Acanthomintha ilicifolia*). The plants are surrounded by stunted Star-Thistle (*Centaurea melitensis*), a superficially similar plant which tends to mask this occurrence when the Thorn Mint is not in flower.

Mima Mounds

Three sites on the property have mesa formations with subtle depressions interspersed with low "Mima Mound" topography. These depressions harbor incipient vernal pool elements such as Bigelow's Plantain (*Plantago bigelovii*), Water Tillaea (*Crassula aquatica*), and Woolly Marbles (*Psilocarphus brevissimus*). The edge of these mesas support a small population of Coast Barrel Cactus (*Ferocactus viridescens*). The depressions do not retain sufficient moisture beyond that of the adjacent non-depression areas soils to generate the typical vernal pool flora. The presence of Pygmy Spike-Moss further counter-indicates the vernal pool syndrome of these low areas.

Cholla Cactus Stands

The steep, south-facing slopes north of Poggi Canyon have dense stands of Coastal Cholla Cactus (*Opuntia prolifera*). Although mapped here within the Diegan Sage Scrub category, this vegetation resembles a plant community known as Maritime Succulent Scrub. Other plants in the Diegan Sage Scrub that conform to the characteristics of Maritime Succulent Scrub are California Encelia, Lady Fingers (*Dudleya edulis*), San Diego Coast Barrel Cactus, and Waterjacket (*Lycium andersonii*). This community is not well developed, however, and supports only a few individuals of these plants. The existence of this vestige of Maritime Succulent Scrub does, however, have some important wildlife resource values as detailed in the zoological section of this report.

FLORA

One hundred twenty-six taxa were identified on the 600 acre parcel (Table 1). Of this total, 29 are non-native weedy species, common in disturbed soils. The native taxa are dominant on original soil surfaces where erosion, clearing of original plant cover, or discing has never occurred. The floristic character of this property is representative of the original vegetation in many areas of coastal southwestern San Diego County and adjacent Baja California Norte, Mexico. Several plants constitute particularly noteworthy discoveries known from few other sites. These include *Stipa diegoensis, Cordylanthus orcuttianus, Hemizonia conjugens, Opuntia parryi* var. *serpentina* and *Acanthomintha ilicifolia*.

The succulent component of the site flora is noteworthy in its abundance. Southwestern San Diego County has a rich flora of cacti and other succulents. On site the presence of *Opuntia prolifera, Opuntia parryi, Mammillaria dioica*, and *Ferocactus viridescens* comprise the cacti component, while *Dudleya edulis*, *Dudleya* lanceolata, and *Dudleya pulverulenta* contribute as succulents allied to this group. Only the rare *Bergerocactus emoryi* is lacking.

ZOOLOGY

WILDLIFE HABITAT

Three major wildlife habitats occur on the subject property. These are: Annual Grasslands, Sage Scrub, and Cholla Cactus Stands.

Annual Grasslands

Annual Grassland occupies a major portion of the project site and has been previously described in the vegetation section. These areas are of minimal importance to most native wildlife taxa, however, the abundance of seeds and insects within these grasslands increases the density of small rodents. Species observed in this habitat include Brown-headed Cowbird (*Molothrus ater*), House Finch (*Carpodacus mexicanus*), Mourning Doves (*Zenaida macroura*), Western Meadowlarks (*Sturnella neglecta*), and Horned Larks (*Eremophila alpestris*).

The abundant rodent populations, combined with the open nature of the site, greatly enhances the value of the vegetation as raptor foraging habitat. Numerous raptors, particularly American Kestrels (*Falco sparverius*), Black-shouldered Kites (*Elanus caeruleus*), Golden Eagles (*Aquila chrysaetos*) and Northern Harriers (*Circus cyaneus*) forage in these areas.

Sage Scrub

Sage Scrub communities on the site are characterized by an open phase and a more dense sumac woodland phase. These different phases are, for the most part, spatially identifiable and support differing wildlife communities. Many portions of the sage scrub have been severely disturbed by off-road vehicle activity and illegal dumping. In the sumac woodlands most larger stands have been impacted to some extent by illegal alien camps. These areas support a more or less common wildlife assemblage.

Some Scrub communities located within the small side canyons along the northern slope of Poggi are much less disturbed than are other areas on site. The isolated nature of these canyons greatly enhances their wildlife value.

Common species in the open sage include Brown Towhees (*Pipilo fuscus*), Say's Phoebe (*Sayornis saya*), Song Sparrows (*Melospiza melodia*), Desert Cottontails (*Sylvilagus audubonii*), Botta's Pocket Gophers (*Thomomys bottae*), and Pacific Kangaroo Rats (*Dipodon... agilis*). Open sage scrub areas dominated by California Sagebrush and Flat-topped Buckwheat further support a large population of the sensitive Black-tailed Gnatcatcher (*Polioptila melanura californica*).

The sumac woodland areas are generally located in the more mesic canyon bottoms. Species found in these areas include the Rufous-sided Towhee (*Pipilo erythrophthalmus*), Lesser Goldfinches (*Carduelis psaltria*), California Thrashers (*Toxostoma redivivum*), Bushtits (*Psaltriparus minimus*), and Black Phoebes (*Sayornis nigricans*). Also found in these areas are Pacific Treefrogs (*Hyla regilla*) and Garden Slender Salamanders (*Batrachoseps pacificus major*) which are present in the northwestern corner of the property and within Poggi Canyon.

Cholla Cactus Stands

Cholla Cactus Stands occur in several areas along the north slopes of Poggi Canyon and within the canyon immediately north of Poggi Canyon. These habitats are well defined within sage scrub habitats and are considered separately due to their unique habitat qualities. These areas are refuges for many small mammals and a few avian species. Notable species of this habitat are the sensitive Cactus Wren (*Campylorhynchus brunneicapillus*) and Blue-gray Gnatcatchers (*Polioptila caerulea*). On site, Cactus Wrens are found in numerous cholla stands within the northern side canyons of Poggi Canyon.

AMPHIBIANS AND REPTILES

Two amphibian species were detected on the Rancho del Sur property. These are the Pacific Treefrog and the Garden Slender Salamander (Table 2). Other species expected to occur on the site include the Western Toad (*Bufo boreas*). These amphibians are limited to the more mesic canyon bottoms found at the lower end of Poggi Canyon and in the northwestern corner of the property.

Eleven reptilian species were detected on the site (Table 2). Included among these species is the sensitive Orange-throated Whiptail lizard (*Cnemidophorus hyperythrus*). Common on the site, are both, the Western Rattlesnake (*Crotalus viridis*) and the Red Diamond Rattlesnake (*Crotalus ruber*). Sensitive reptiles will be discussed in the Sensitive Biological Resources section of this project.

BIRDS

Fifty-seven avian species were observed on the subject property (Table 2). In general, these birds are common to the county. There is a notably large number of raptors on the property. As previously indicated, Black-shouldered Kites and American Kestrels hunt over much of the grassland on the site. Additionally, a number of Red-tailed Hawks (*Buteo jamaicensis*) and Northern Harriers (*Circus cyaneus*), as well as a single Golden Eagle (*Aquila chrysaetos*) frequent the property and hunt the grasslands and open sage scrub habitat. Raptor perches and nesting sites were observed in Eucalyptus trees

located on the south side of Poggi Canyon (Figure 3). Additionally, it is possible that Northern Harriers nest on the property; however, no nests were observed and the high level of off-road vehicle traffic and alien activity may preclude, or at least minimize, on-site nesting in most areas. Sensitive birds will be discussed in a later section.

MAMMALS

Thirteen mammals were observed or detected on the property (Table 2). All species are common to the area. Mule Deer (*Odocoileus hemionus*) were detected by tracks along the northern ridgeline of Poggi Canyon. These deer undoubtedly are vagrants and do not permanently reside on the site. No Bobcats (*Lynx rufus*) were detected; however, it is highly likely that these cats occasionally hunt on the property. Sensitive mammals will be discussed in the next section of this report.

SENSITIVE BIOLOGICAL RESOURCES

FLORA

Acanthomintha ilicifolia
San Diego Thorn Mint
CNPS R-E-D 3-3-2

San Diego Thorn Mint occurs in friable clay soil on a bluff northeast of Poggi Canyon. Several dozen plants were noted late in the season, well after flowering. Undoubtedly, the population is larger, particularly following a rainy winter. The Thorn Mint is a listed California Endangered species and is currently under review as a candidate for Federally Endangered. Extensive populations of this species are unknown in San Diego County, most sites are under ten yards across. Associated plant species are typically small herbs and few in number.

Dichondra occidentalis
Western Dichondra
CNPS R-E-D 1-2-1

Western Dichondra is usually found on dry sandy banks or camouflaged beneath heavy chaparral. This species often shows up on burns when the shielding chaparral has been removed. On the property it is found adjacent to Mima Mounds on a shallow drainage east of Greg Rogers Elementary School. The area covers approximately 8 square meters, a substantial population considering the small isolated clumps typically found for this species.

Hemizonia conjugens
Otay Tarweed
CNPS R-E-D 3-3-2

Otay Tarweed occurs on clay soils of southwestern San Diego County. The plant is an annual and closely resembles the more abundant Common Tarweed (*Hemizonia fasciculata*) and may often be overlooked. The plant was observed in clay soils at five sites on the project.

One site was immediately south of the Medical Center complex on the north-facing slope. Several thousand plants comprise this population. It occurs on a clay lens near disturbed Annual Grasslands dominated by Field Mustard. The Annual Grassland does not appear to be on the same soil type, nor is it encroaching on the Otay Tarweed site. Other plants associated with the Otay Tarweed are Blue-eyed Grass, Purple Needlegrass, Coastal Goldenbush, and annual grasses.

A third site in the southeast occurs on a mesa in a transitional area between grasslands and Diegan Sage Scrub. Approximately one to two hundred plants grow on a drier locale than the clay slopes in the southwest - stature of this population was decidedly stunted following a year of poor rainfall.

The other site where the Otay Tarweed was particularly abundant was at the base of the north-facing slope, south of the dry creek bed in Poggi Canyon. Approximately two thousand plants occur at this site. Associated with Otay Tarweed here are Purple Needlegrass, Chocolate Lily, Blue-eyed Grass, and annual grasses.

On the final two sites, near the center of the property, the Otay Tarweed was less abundant with no more than 50 plants per site during the time of the survey. It did appear to occur consistently on clay lenses. Only one other extensive population of Otay Tarweed - in Rice Canyon - is known to exist; therefore, these populations are extremely important in maintaining the viability of this state listed Endangered species.

Ophioglossum californicum
Adder's Tongue
1-2-2

A small colony of this plant was encountered during a tour of the site by the California Native Plant Society in spring of 1988. The population was collected by several members since development of this otherwise disturbed northern portion of the site was presumed.

Cordylanthus orcuttianus
Orcutt's Bird's Beak
3-3-1

Orcutt's Bird's Beak occurs south of the Foxhill project and to the north, in Rice Canyon. On this project Orcutt's Bird's Beak is found primarily in the northwestern corner of the property. Plants have few to many stems so the population of individual plants is difficult to estimate accurately. The habitat is scattered over

an area of 3-5 acres. Approximately 200-500 plants grow along the edge of the canyon bottom and mesa edge. Most of the population occurs on Olivehain soils. A few small clumps were also seen at the mesa edges and on the ridge below the northern rim of Poggi Canyon on Linne soils.

The plants associated with the habitat of Orcutt's Bird's Beak are Needlegrass (*Stipa* spp.), Coastal Goldenbush (*Isocoma veneta* var. *furfuracea*), Star-Thistle (*Centaurea melitensis*), and introduced annual grasses.

Stipa diegoensis
San Diego Needlegrass
3-1-1

San Diego Needlegrass is known locally from Otay formation clay lenses in the Otay Mesa and Poggi Canyon areas as well as at the classic sites in Proctor Valley and on McGinty Peak. It is an occasional element in openings of the Inland Sage Scrub in the northwestern quadrant of the property.

Three species of *Stipa* could be identified on the property, although it was late in the season and many plants lacked diagnostic culm features and may be either *S. pulchra* or *S. diegoensis*. The population size could not, therefore, be accurately determined. It is estimated that not less than 300-1000 plants occur on the property, mostly on the slopes of the three mesa formations on Olivehain soils. The habitat is more widespread on site than Orcutt's Bird's Beak, though it resembles and coincides somewhat.

Ambrosia chenopodiifolia
San Diego Burbush
2-2-1

San Diego Burbush was previously observed north of this property but appears to have been eliminated from the site by fire. There is still a possibility of the plant's occurrence on site, but the population would be very low in numbers.

Opuntia parryi var. serpentina
Snake Cholla
2-3-2

This cactus is largely confined to southwestern San Diego County and northwestern Baja California Norte and is not widely distributed within that range. It occurs chiefly in the Chula Vista area.

The Snake Cholla is sympatric with the common and more robust Coast Cholla (*Opuntia prolifera*). The two chollas do hybridize. The few stands of Snake Cholla occur in the Inland Sage Scrub area at several locations on the property, particularly the eastern area.

Most chollas on the property are *Opuntia prolifera*. Individuals or small colonies of Snake Cholla occur within the Diegan Sage Scrub vegetation referred to in the vegetation section of this report.

Viguiera laciniata
San Diego Sunflower
1-2-1

The San Diego Sunflower is a frequent component of Diegan Sage Scrub and occurs throughout the site. This low shrub is a common plant of dry slopes in the coastal, southwestern portion of San Diego County. Its distribution is inland, however, of another sunflower-like shrub, the coastal *Encelia californica*. Both species are sympatric on the property, suggesting an overlapping of environmental preferences of these plants.

Selaginella cinerascens
Pygmy Spike-Moss
1-2-1

This low ground cover occurs in undisturbed, otherwise open areas throughout the property. The plant is particularly dominant on the more level ridges and mesa tops. It does not survive discing or plowing and is, therefore, eliminated from portions of the property that now are dominated by Annual Grassland.

The plant ranges as far north as Gabino Canyon in Orange County but appears to enjoy its most optimal distribution in southwestern San Diego County on sedimentary formations.

Ferocactus viridescens
Coast Barrel Cactus
1-3-1

The Coast Barrel Cactus is known from Oceanside to northwestern Baja California Norte. It ranges inland to Santee and Escondido and appears to be found on soils derived from marine sediment deposits. The cacti are rather cryptic due to their low stature and habitat of growth among shrubs. On site they occur on slopes above the mesas and on bluffs north of Poggi Canyon. The densities on site are low relative to other occurrences in the vicinity. This may be due to the northern exposure of the majority of the slopes.

Some San Diego Coast Barrel Cactus appear to have been dug for collections near the center of the property, although only a few of the specimens were taken and many remain at that location.

Sensitive Wildlife

Sensitive wildlife known or expected to occur on the Rancho del Sur property are listed in Table 3. The table gives the official listing agency, the listing, and the status of the species on the property. Species warranting additional consideration are discussed in more detail below.

California Black-tailed Gnatcatchers

These birds were observed over much of the project site, but were concentrated in the northern side canyons of Poggi Canyon and the parallel canyon north of Poggi Canyon. (Figure 3). A total of 10 singing male gnatcatchers were observed on the site. Observation in late 1988 indicate 10 pairs are the more probable population site on the property. Their distribution on-site tends to follow the distribution of Coastal Sage Scrub with high topographic diversity. Surveys during early July were ambiguous in gnatcatcher counts due to the presence of abundant young on the site. Earlier surveys were also ambiguous due to low vocalizations and poorly formed pair bonds. For this reason, the 10 pair count reflects a composite of six counts relying most heavily upon the late December counts when birds were juveniles had dispersed.

Orange-throated Whiptails

These small lizards are listed as sensitive by seven different agencies and authorities. Several individuals were observed within the Diegan Sage Scrub habitat on site (Figure 3). The open sage scrub on the site is high quality potential habitat for this species.

Cactus Wren

This large wren is currently in the process of being recommended as a federal candidate species. Its numbers in San Diego County, and Southern California in general, have seriously dwindled. The recent indications that the coastal race is a unique subspecies have increased the significance of any impacts to this bird (A. Rea, per. comm.). Ten pairs were observed on the site where areas of prime cacti habitat occur. In general, these populations are located in northern side canyons to Poggi Canyon (Figure 3). Substantial populations, over 10 pairs (A. Rea, pers. comm.), also occur in an area immediately to the east of the site.

Grasshopper Sparrow

A single Grasshopper Sparrow was observed in Annual Grasslands near the southern boundary of the site (Figure 3). This migrant species is declining in numbers due to loss of habitat. It is unlikely that this bird will return to utilize the same area next year.

BIOLOGICAL RECOMMENDATIONS

The 600 acre site possesses a wide variety of sensitive biological resources. These resources vary in their sensitivity levels and thus it is important that some ranking be placed on the following recommendations. For this reason, the most important resources will be discussed first followed by those of progressively less sensitivity.

Limited impacts to lower ranking resources may not be considered significant. However, planning should be directed at minimizing all impacts.

Endangeredand Extremely Rare Plants

Three plants on the project site are of primary concern. *Hemizonia conjugens*, *Cordylanthus orcuttianus*, and *Acanthomintha ilicifolia* are severely endangered by development and are very rare. The preservation of these populations is important in the regional context. Both *Hemizonia conjugens* and *Acanthomintha ilicifolia* are listed by California Department of Fish and Game as Endangered plant species.

North Slope and Side Canyons of Poggi Canyon

Nine small side canyons occur along the north slope of Poggi Canyon. These canyons support many large stands of Cholla Cactus which are an important limited habitat for many species including sensitive Cactus Wrens. Additionally, these canyons are relatively undisturbed and thus support a high level of Diegan Sage Scrub associated species, including Black-tailed Gnatcatchers and Orange-throated Whiptails. It is important to preserve as much of this habitat as possible.

California Black-tailed Gnatcatchers

Black-tailed Gnatcatcher habitat should be put into open space. It is preferable to plan large open spaces which encompass several pairs of birds than to plan smaller areas which only encompass one pair in a "postage stamp" preserve. Area increases tend to markedly increase habitat values.

Lower Sensitivity Plants

Other plants on the site are of lesser importance, but efforts should be made in the preservation of some portion of the on-site populations of *Dichondra occidentalis*, *Ophioglossum californicum*, *Stipa diegoensis*, and *Opuntia parryi* var. *serpentina*. The Coast Barrel Cactus (*Ferocactus viridescens*) should be salvaged from areas to be developed and transplanted to suitable open space areas prior to brush removal. Such salvage, however, does not constitute biological mitigation.

Two of the rare plants that have been identified on the project pose little concern from a development standpoint due to their abundance on site and elsewhere in the county. The low sensitivity of *Selaginella cinerascens* and *Viguiera laciniata*, combined with the low numbers of individuals for the area that would be encumbered, decreases the level of significance.

VERNAL POOLS - MIMA MOUND COMPLEX

The mima mound and vernal pool complex located in the northwestern portion of the property is relatively undisturbed. No indigenous vernal pool plants were observed in this area. Prior disturbance by discing, as well as sedimentation, have reduced these probable pools areas to non-hydric, shallow depressions. The presence of Pygmy Spike-Moss indicates that soil saturation in the depression is not substantially greater than in adjacent soils.

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TABLE 1. FLORAL CHECKLIST OF RANCHO DEL SUR

CRYPTOGAMS

Pteridaceae - Terrestrial Ferns
Pteridium aquilinum var. *pubescens* Underw. Bracken Fern

Ophioglossaceae
Ophioglossum californicum Prantl. Adder's Tongue Fern

Selaginellaceae
Selaginella cinerascens A.A. Eat. Mesa Spike-Moss

DICOTYLEDONS

Adoxaceae - Adoxus Family
Sambucus mexicana Presl ex D.C. Desert Elderberry

Anacardiaceae
Malosma laurina (Nutt.)Nutt. ex Abrams. Laurel Sumac
Rhus integrifolia (Nutt.)Benth.& Hook. Lemonade Berry
**Schinus molle* L. Pepper-tree
Toxicodendron radicans (L.)Kuntze ssp. *diversilobum* (T.& G.)Thorne.

Apiaceae
Apiastrum angustifolium Nutt. in T. & G. Wild-celery
**Foeniculum vulgare* Mill. Sweet Fennel

Asteraceae
Ambrosia acanthicarpa Hook.
Ambrosia confertiflora DC. Weak Leaf Burbush
Artemisia californica Less. California Sagebrush
Artemisia dracunculus L. Dragon Sagewort
Baccharis salicifolia Pers. Mule-fat
Baccharis sarothroides Gray. Broom Baccharis
Brickellia californica (T.& G.)Gray.
Calycadenia tenella (Nutt.)T.& G. Rosinweed
**Centaurea melitensis* L. Tocalote
**Chrysanthemum coronarium* L. Garland Chrysanthemum
Cirsium californicum Gray. California Thistle
**Cirsium vulgare* (Savi)Ten. Bull Thistle
**Conyza canadensis* (L.)Cronq. Horseweed
Conyza coulteri Gray.
Corethrogyne filaginifolia Sand-Aster
Encelia californica Nutt. California Encelia
Encelia farinosa Gray ex Torr. Brittle-Bush
Eriophyllum confertiflorum (D.C.)Gray. var.*confertiflorum* Golden-Yarrow
Gnaphalium bicolor Bioletti. Bicolor Cudweed
Gnaphalium californicum D.C. California Everlasting
Gnaphalium palustre Nutt.
Gutierrezia sarothrae (Pursh)Britt. & Rusby
Hazardia squarrosa (H. & A.)Greene ssp. *grindelioides* (D.C.)Clark
Hemizonia conjugens Keck. Otay Tarweed
Hemizonia fasciculata (D.C.)T.& G. Tarweed
Heterotheca grandiflora Nutt. Telegraph Weed
**Hypochoeris glabra* L. Smooth Cat's-ears

TABLE 1. FLORAL CHECKLIST OF RANCHO DEL SUR (continued)

Asteraceae (continued)
Isocoma veneta (H.K.B.)Greene var. *furfuracea* (Greene)Beauchamp
Psilocarphus brevissimus Nutt. Wooly Marbles
**Sonchus asper* Sow-Thistle
Stephanomeria diegensis Gottlieb. San Diego Wreath-Plant
Viguiera laciniata Gray. San Diego Sunflower
Xanthium spinosum L. Spiny Clotbur
**Xanthium strumarium* var. *canadense* (Mill.)T.& G. Cocklebur

Boraginaceae
Cryptantha intermedia (Gray)Greene. Nievitas
Harpagonella palmerii Gray Palmer's Grappling Hook
Heliotropium curvassavicum var. *oculatum* (Heller)Jtn. Salt Heliotrope

Brassicaceae
**Brassica geniculata* (Desf.)J. Ball. Short-pod Mustard
**Raphanus sativus* L. Wild Radish

Buxaceae
Simmondsia chinensis (Link)C.K.Schneid. Jojoba

Cactaceae
Ferocactus viridescens (Nutt.)Britton & Rose. Coast Barrel Cactus
Mammillaria dioica K. Bdg. Fish-hook Cactus
Opuntia littoralis (Engelm.)Ckll.var. *littoralis* Coast Prickly-Pear
Opuntia parryi var. *serpentina* (Engelm.)Benson.
Opuntia prolifera Engelm. Coast Cholla

Capparaceae - Caper Family
Cleome isomeris Greene. Bladderpod

Caryophyllaceae
Stellaria media L. Chickweed

Chenopodiaceae
Atriplex canescens (Pursh)Nutt. ssp. *canescens* Four-wing Saltbush
**Atriplex semibaccata* R. Br. Australian Saltbush
**Salsola australis* R. Br. Russian-thistle

Cistaceae
**Cistus ladanifer* L.
Helianthemum scoparium var. *aldersonii* (Greene)Munz. Rush-Rose

Convolvulaceae
Dichondra occidentalis House. Western Ponyfoot

Crassulaceae
Crassula aquatica (L.)Schoeni. in Engl. & Prantl.
Crassula connata (Ruiz & Pav.)Berger in Engl. & Prantl. Dwarf Stonecrop
Dudleya edulis (Nutt.)Moran. Ladies-Fingers
Dudleya pulverulenta (Nutt.)Britt.& Rose. Chalk-lettuce

TABLE 1. FLORAL CHECKLIST OF RANCHO DEL SUR (continued)

Cucurbitaceae
Marah macrocarpus (Greene)Greene. Manroot

Euphorbiaceae
Eremocarpus setigerus (Hook.)Benth. Doveweed
Chamaesyce polycarpa (Benth.) Millsp. in Parish

Fabaceae
**Acacia longifolia* (Andrews)Willd. Golden Wattle
Astragalus trichopodus ssp. *leucopsis* (T.& G.)Thorne. Locoweed
Lotus scoparius ssp. *brevialatus* (Ottley)Munz. Deerweed
**Melilotus indicus* (L.)All. Yellow Sweet-Clover

Fagaceae
Quercus dumosa Nutt. Scrub Oak

Geraniaceae
**Erodium botrys* (Cav.)Bertol.
**Erodium cicutarium* (L.)L'Her. Filaree

Lamiaceae
Acanthomintha ilicifolia Gray. San Diego Thorn Mint
Marrubium vulgare L. Horehound
Salvia apiana Jeps. White Sage

Malvaceae
Malacothamnus fasciculatus (Nutt.)Greene var. *fasciculatus* Bush Mallow

Nyctaginaceae
Mirabilis californica Gray. Wishbone Plant

Onagraceae
Camissonia strigulosa (F.& M.)Raven. Strigulose Evening-Primrose

Plantaginaceae
Plantago bigelovii Gray. Plantain
Plantago erecta Morris ssp. *erecta*
Plantago rhodosperma Dcne. Red-seed Plantain

Polemoniaceae - Phlox Family
Linanthus dianthiflorus (Benth.)Greene ssp. *dianthiflorus* Ground Pink
Navarretia hamata Greene. Skunkweed

Polygonaceae
Chorizanthe fimbriata Nutt. Fringed Turkish Rugging
Chorizanthe polygonoides T. & G. ssp. *longispina* (Goodman)Munz
Eriogonum fasciculatum Benth. ssp. *fasciculatum* Flat-top Buckwheat
**Rumex crispus* L. Curly Dock

Primulaceae
**Anagallis arvensis* L. Scarlet Pimpernel
Dodecatheon clevelandii Greene ssp. *clevelandii*

TABLE 1. FLORAL CHECKLIST OF RANCHO DEL SUR (continued)

Rosaceae
Heteromeles arbutifolia M. Roem. Hollywood

Rubiaceae
Galium angustifolium Nutt. ex T. & G. ssp. *angustifolium* Narrow-leaf Bedstraw

Salicaceae
Salix gooddingii var. *variabilis* Ball. Black Willow

Scrophulariaceae
Cordylanthus orcuttianus Gray. Orcutt's Bird's Beak
Cordylanthus filifolius Nutt. ex. Benth. in DC Dark Tip Bird's Beak

Solanaceae
Datura wrightii Regel. Western Jimsonweed
Lycium andersonii Gray.

Verbenaceae - Verbena Family
Verbena lasiostachys Link.

MONOCOTYLEDONS

Agavaceae
Yucca schidigera Roezl ex Ortgies. Mojave Yucca

Alliaceae - Onion Family
Bloomeria crocea (Torr.)Cov. ssp. *crocea* Common Golden-Stars

Iridaceae
Sisyrinchium bellum Wats. Blue-eyed-Grass

Juncaceae
Juncus mexicanus Willd. Mexican Rush

Liliaceae
Allium haematochiton Wats. Red Skin Onion
Calochortus splendens Dougl. ex Benth.
Fritillaria biflora Lindl. California Chocolate-Lily

Poaceae
Agrostis diegoensis Vasey.
**Arundo donax* L. Giant Cane
**Avena barbata* L.
**Bromus mollis* L. Soft Chess
**Bromus rubens* L. Red Brome
**Cynodon dactylon* (L.)Pers. Bermuda Grass
Distichlis spicata (L.)Greene. Salt Grass
**Gastridium ventricosum* (Gouan)Schinz & Theil. Nitgrass
**Hordeum leporinum* Link.
Koeleria pyramidata (Lam.)Beauv.
**Lamarckia aurea* (L.)Moench. Goldentop

TABLE 1. FLORAL CHECKLIST OF RANCHO DEL SUR (continued)

Poaceae (continued)
Melica imperfecta Trin.
**Polypogon monspeliensis* (L.)Desf. Annual Beard Grass
Stipa diegoensis Swall. San Diego Stipa
Stipa lepida Hitchc. Foothill Needlegrass
Stipa pulchra Hitchc. Purple Needlegrass
Vulpia myuros var. *hirsuta* Hack. Foxtail Fescue

* - Denotes non-native plant taxa

TABLE 2. ANIMALS OBSERVED OR DETECTED ON RANCHO DEL SUR

COMMON NAME	SCIENTIFIC NAME
Plethodontidae (Lungless Salamanders)	
Pacific Slender Salamander	*Batrachoseps pacificus*
Hylidae (Treefrogs and Relatives)	
Pacific Treefrog	*Hyla regilla*
Iguanidae (Iguanids)	
Western Fence Lizard	*Sceloporus occidentalis*
Side-blotched Lizard	*Uta stansburiana*
Scincidae (Skinks)	
Western Skink	*Eumeces skiltonianus*
Teiidae (Whiptails and Relatives)	
Orange-throated Whiptail	*Cnemidophorus hyperythrus*
Western Whiptail	*Cnemidophorus tigris*
Anguidae (Alligator Lizards and Relatives)	
Southern Alligator Lizard	*Gerrhonotus multicarinatus*
Colubridae (Colubrids)	
Striped Whipsnake	*Masticophis taeniatus*
Gopher Snake	*Pituophis melanoleucus*
Common Kingsnake	*Lampropeltis getulus*
Viperidae (Vipers)	
Red Diamond Rattlesnake	*Crotalus ruber*
Western Rattlesnake	*Crotalus viridis*
BIRDS	
Cathartidae (American Vultures)	
Turkey Vulture	*Cathartes aura*
Accipitridae (Hawks, Old World Vultures, and Harriers)	
Black-shouldered Kite	*Elanus caeruleus*
Northern Harrier	*Circus cyaneus*
Cooper's Hawk	*Accipiter cooperii*
Red-tailed Hawk	*Buteo jamaicensis*
Golden Eagle	*Aquila chrysaetos*
Falconidae (Caracaras and Falcons)	
American Kestrel	*Falco sparverius*
Phasianidae (Quails, Pheasants, and Relatives)	
California Quail	*Callipepla californica*

TABLE 2. ANIMALS OBSERVED OR DETECTED ON RANCHO DEL SUR

COMMON NAME	SCIENTIFIC NAME
Charadriidae (Plovers and Relatives)	
Killdeer	*Charadrius vociferus*
Columbidae (Pigeons and Doves)	
Mourning Dove	*Zenaida macroura*
Cuculidae (Typical Cuckoos)	
Greater Roadrunner	*Geococcyx californianus*
Tytonidae (Barn Owls)	
Common Barn-Owl	*Tyto alba*
Trochilidae (Hummingbirds)	
Anna's Hummingbird	*Calypte anna*
Costa's Hummingbird	*Calypte costae*
Rufous Hummingbird	*Selasphorus rufus*
Picidae (Woodpeckers and Wrynecks)	
Nuttall's Woodpecker	*Picoides nuttallii*
Tyrannidae (Tyrant Flycatchers)	
Western Flycatcher	*Empidonax difficilis*
Black Phoebe	*Sayornis nigricans*
Say's Phoebe	*Sayornis saya*
Ash-throated flycatcher	*Myiarchus cinerascens*
Cassin's Kingbird	*Tyrannus vociferans*
Western Kingbird	*Tyrannus verticalis*
Alaudidae (Larks)	
Horned Lark	*Eremophila alpestris*
Hirundinidae (Swallows)	
Northern Rough-winged Swallow	*Stelgidopteryx serripennis*
Cliff Swallow	*Hirundo pyrrhonota*
Corvidae (Jays, Magpies, and Crows)	
Scrub Jay	*Aphelocoma coerulescens*
Common Raven	*Corvus corax*
Aegithalidae (Bushtit)	
Bushtit	*Psaltriparus minimus*
Troglodytidae (Wrens)	
Cactus Wren	*Campylorhynchus brunneicapillus*
Bewick's Wren	*Thryomanes bewickii*

TABLE 2. ANIMALS OBSERVED OR DETECTED ON RANCHO DEL SUR

COMMON NAME	SCIENTIFIC NAME
Muscicapidae (Old World Warblers, Gnatcatchers, Kinglets, Thrushes, Bluebirds, and Wrentit)	
Ruby-crowned Kinglet	*Regulus calendula*
Blue-gray Gnatcatcher	*Polioptila caerulea*
California Black-tailed Gnatcatcher	*Polioptila melanura californica*
Wrentit	*Chamaea fasciata*
Mimidae (Mockingbirds and Thrashers)	
Northern Mockingbird	*Mimus polyglottos*
California Thrasher	*Toxostoma redivivum*
Laniidae (Shrikes)	
Loggerhead Shrike	*Lanius ludovicianus*
Emberizidae (Warblers, Sparrows, Blackbirds and Relatives)	
Orange-crowned Warbler	*Vermivora celata*
Yellow-rumped Warbler	*Dendroica coronata*
Blue Grosbeak	*Guiraca caerulea*
Green-tailed Towhee	*Pipilo chlorurus*
Rufous-sided Towhee	*Pipilo erythrophthalmus*
Brown Towhee	*Pipilo fuscus*
Rufous-crowned Sparrow	*Aimophila ruficeps*
Chipping Sparrow	*Spizella passerina*
Sage Sparrow	*Amphispiza belli*
Grasshopper Sparrow	*Ammodramus savannarum*
Song Sparrow	*Melospiza melodia*
White-crowned Sparrow	*Zonotrichia leucophrys*
Red-winged Blackbird	*Agelaius phoeniceus*
Western Meadowlark	*Sturnella neglecta*
Brewer's Blackbird	*Euphagus cyanocephalus*
Brown-headed Cowbird	*Molothrus ater*
Fringillidae (Finches)	
House Finch	*Carpodacus mexicanus*
Lesser Goldfinch	*Carduelis psaltria*
American Goldfinch	*Carduelis tristis*
MAMMALS	
Soricidae (Shrews)	
Desert Shrew	*Notiosorex crawfordi*
Leporidae (Rabbits and Hares)	
Desert Cottontail	*Sylvilagus audubonii*
Black-tailed Hare	*Lepus californicus*
Sciuridae (Squirrels, Chipmunks, and Marmots)	
California Ground Squirrel	*Spermophilus beecheyi*
Geomyidae (Pocket Gophers)	
Botta's Pocket Gopher	*Thomomys bottae*

TABLE 2. ANIMALS OBSERVED OR DETECTED ON RANCHO DEL SUR

COMMON NAME	SCIENTIFIC NAME
Heteromyidae (Pocket Mice and Kangaroo Rats)	
Pocket Mouse	*Perognathus* sp.
Pacific Kangaroo Rat	*Dipodomys agilis*
Cricetidae (Deer Mice, Voles, and Relatives)	
Dusky-footed Woodrat	*Neotoma fuscipes*
White-footed Mouse	*Peromyscus* sp.
Canidae (Foxes, Wolves, and Relatives)	
Coyote	*Canis latrans*
Gray Fox	*Urocyon cinereoargenteus*
Mustelidae (Weasels, Badgers, and Relatives)	
Striped Skunk	*Mephitis mephitis*
Cervidae (Deer, Elk, and Relatives)	
Mule Deer	*Odocoileus hemionus*

TABLE 3. SENSITIVE WILDLIFE KNOWN OR POTENTIALLY OCCURRING ON SITE

COMMON NAME (SCIENTIFIC NAME)	OFFICIAL STATUS*	STATUS ON SITE
REPTILES		
Orange-throated Whiptail (*Cnemidophorus hyperythrus*)	IUCN - Rare, depleted USFWS - Category 2 SDHS - Threatened Stewart - Depleted CDFG-2 - Protected Reptile, should be declared rare SDNGWS - Needing protection and study Ashton - Threatened	Limited distribution, found only in western San Diego County and Baja California.
San Diego Horned Lizard (*Phrynosoma coronatum*) *blainvillei*)	IUCN - Depleted SDHS - Endangered USFWS - Category 2 CDFG - Threatened CDFG-2 - Protected Reptile Stewart- Depleted SSAR - Threatened	Habitat sparse on-site; potential resident in low numbers
BIRDS		
Turkey Vulture (*Cathartes aura*)	Everett - Declining Special Concern	
Black-shouldered Kite (*Elanus caeruleus*)	CDFG - Fully Protected	
Northern Harrier (*Circus cyaneus*)	Blue List SDNGWS Everett - Declining Remsen - 2nd priority	Uncommon breeding species, has suffered serious population decline due to loss of forage and nesting habitat. Two individuals observed foraging in the east end of Poggi Canyon.
Sharp-shinned Hawk (*Accipiter striatus*)	Remsen - 2nd priority Blue List SDNGWS	Could occur. Uncommon not identified on subject property.
Cooper's Hawk (*Accipiter cooperii*)	Blue List Everett - Declining Remsen - 2nd priority	Observed foraging

TABLE 3. SENSITIVE WILDLIFE KNOWN OR POTENTIALLY OCCURRING ON SITE

COMMON NAME (SCIENTIFIC NAME)	OFFICIAL STATUS*	STATUS ON SITE
Golden Eagle (*Aquila chrysaetos*	Protected under Bald Eagle Act CDFG - Fully Protected SDNGWS Remsen - 3rd priority	Population declining in nearly all areas of county, once a common breeding bird. A single Golden Eagle was observed foraging on-site.
American Kestrel (*Falco sparverius*)	Common breeding species, relatively resistant to disturbance.	
Prairie Falcon (*Falco mexicanus*)	SDNGWS Remsen - 3rd USFS - Sensitive	Uncommon breeding species in county; coastal populations nearly extirpated.
Common Barn Owl (*Tyto alba*)	Audubon - Species of Special Concern	Common resident of woodland areas.
Scrub Jay (*Aphelocoma coerulescens*)	Blue List	Common breeding species.
Cactus Wren (*Campylorhynchus brunneicapillus*)	Everett - Declining	Coastal population (may be distinct subspecies) rapidly declining due to loss of habitat. Resident.
Bewick's Wren (*Thryomanes bewickii*)	Blue List	Common breeding species. Resident.
California Black-tailed Gnatcatcher (*Polioptila melanura californica*)	Remsen - 2nd priority Everett - Declining USFWS - Category 2	Coastal subspecies seriously declining due to loss of habitat. Permanent resident. U.S. population estimated 1200 pairs (Atwood 1980). San Diego County most important U.S. region.
Loggerhead Shrike (*Lanius ludovicianus*)	Blue List	Relative common breeding species.
Blue Grosbeak (*Guiraca caerulea*)		
Rufous-crowned Sparrow (*Aimophila ruficeps*)		
Grasshopper Sparrow	Blue List	Uncommon breeding species with highly localized population.
Brown Pelican	Everett - Sensitive	

TABLE 3. SENSITIVE WILDLIFE KNOWN OR POTENTIALLY OCCURRING ON SITE

COMMON NAME (SCIENTIFIC)	OFFICIAL STATUS*	STATUS ON SITE
MAMMALS		
Mountain Lion (*Felis*	Current moratorium on hunting.	Currently ca. 15-50 animals in county.
Bobcat (*Lynx rufus*)	Currently under study by CDFG, may receive	Increased trapping may cause decline. protected status.

*LEGEND

USFWS - U.S. Fish and Wildlife Service (1986)

CDFG - California Department of Fish and Game

IUCN - International Union for the Conservation of Nature and Natural Resources (1979).

CITES - Convention on International Trade in Endangered Species of Wild Fauna and Flora (1976). Appendix I = Threatened Species; Appendix II = Could become threatened.

BL - Audubon Blue List for 1986 (Tate, 1986).

Remsen (1978) - Species of Special Concern - Priority I, II or III, in decreasing order of sensitivity.

Everett (1979) - Threatened, Declining and Sensitive Bird Species in San Diego County.

SDHS - San Diego Herpetological Society (1980)

Ashton (1976) - Endangered and Threatened Amphibians and Reptiles in the United States.

Bury (1971) - Status Report on California's Threatened Amphibians and Reptiles.

Stewart (1971) - Rare, Endangered and Depleted Amphibians and Reptiles in California.

SDNGWS - San Diego Non-Game Wildlife Subcommittee (1976)