THE PRESERVE

CHINO SPHERE OF INFLUENCE - SUBAREA 2

APPENDICES TO
FINAL ENVIRONMENTAL IMPACT REPORT - VOLUME 2
SCH # 2000121036

CITY OF CHINO

CERTIFIED MARCH 25, 2003

TABLE OF CONTENTS
VOLUME 2

Appendices

A. Notice of Preparation and Correspondence
B. Biological Assessment
C. Traffic Impact Study
D. Noise Assessment
E. Air Quality Evaluation
F. Cultural Resources
G. Geology and Soils/Hazards
H. Land Use/Agriculture
I. Water Supply

APPENDIX A
NOTICE OF PREPARATION AND CORRESPONDENCE

NOTICE OF PREPARATION (*AMENDED 1/05/01*)

TO: Distribution
(Responsible and Trustee Agencies)

From: City of Chino
Community Development Department
13220 Central Avenue
Chino, California 91710
Contact: Brent Arnold, Principal Planner
(909) 591-9812

SUBJECT: AMENDED NOTICE OF PREPARATION OF A DRAFT ENVIRONMENTAL IMPACT REPORT

The City of Chino Community Development Department is issuing this amended Notice of Preparation (NOP) to update and modify the NOP sent 12/05/00 for The Preserve project with respect to the total number of proposed dwelling units. The project now proposes to allow up to **9,780 dwelling units**, reflecting an approximate 21% increase in dwelling units as compared with the previously identified total of 8,064. All other aspects of the project remain essentially the same as described in the prior NOP, and as summarized below (Project Description). A Program Environmental Impact Report (per CEQA Guidelines Section 15168) will be prepared for the project.

The City of Chino is extending the period for response to the NOP an additional 30 days from your receipt of this notice. We request the review of your agency as to the scope and content of the environmental information relevant to your agency's statutory responsibilities in connection with the proposed project. Your agency may need to use the EIR prepared by the City of Chino when considering permits that your agency may issue. **Please send your response to Brent Arnold at the address shown above. We will need the name of a contact person in your agency.**

PROJECT TITLE: THE CHINO PRESERVE SPECIFIC PLAN/ANNEXATION/GENERAL PLAN AMENDMENT EIR

PROJECT LOCATION: The 5,435-acre Chino Preserve, formerly known as Chino Sphere of Influence Subarea 2, is located in the extreme southwestern corner of San Bernardino County, approximately 37 miles east of Los Angeles and 20 miles southwest of San Bernardino. The Preserve is located in the vicinity of the cities of Chino, Chino Hills, Ontario, Norco, and Corona, as well as the unincorporated community of Eastvale in Riverside County, and the Prado Flood Control Basin. State Route 71 is located to the west of the site, State Route 91 to the south, Interstate 15 to the east, and State Route 60 to the north. The Santa Ana River is located to the south and Chino Hills State Park is located to the west.

PROJECT DESCRIPTION: The proposed project includes the annexation of the largest remaining portion of the Chino Valley Dairy Preserve within the City of Chino's Sphere of Influence to allow for development of a portion of approximately 5,435 acres currently within the Preserve. The City of Chino is preparing a master plan to guide the future development and annexation of the Preserve. The master plan will consist of a comprehensive, policy-level specific plan/land use plan. An 'umbrella' General Plan Amendment, which will link the specific plan to the City's existing General Plan and satisfy the requirement for consistency with the General Plan, will also be prepared. The General Plan Amendment will be an Area Plan, as authorized by Government Code Sections 65301(b) and 65303.

The Preserve is proposed to allow up to 9,780 dwelling units on 1,236 acres; 627 acres of business uses (Community Core, Light Industrial, Airport Related, Regional Commercial, Neighborhood Commercial); 584 acres of Public Facilities and Rights-of ways; and approximately 2,988 acres in Open Space (Recreation, Agricultural and Natural Open Space). Proposed development will be concentrated in the northern portion of the Preserve, above the Prado Basin high water inundation line (elevation 566'), which is a significant development constraint on the planning area. Lands generally south of the 566' elevation are planned for low intensity uses, such as Recreation, Agriculture and Natural Open Space. Significant facilities either within or adjacent to the planning area include Chino Municipal Airport, the California Institution for Women (CIW-Chino), and Inland Empire Utility Agency's Co-Composting Facility. Issues to be addressed include regional transportation linkages, ties to the rural heritage of Chino, sensitive habitats and recreational opportunities within the Prado Basin, agricultural lands conversion, dairy waste management and water quality, and financing major infrastructure.

Date: 1/05/2001

Signature:
Title: Principal Planner
Telephone: (909) 591-9890

THE PRESERVE
PROJECT DESCRIPTION
AND NOTICE OF PREPARATION

Prepared for:

City of Chino
Community Development Department
13220 Central Avenue
Chino, California 91710
(909) 591-9812

Contact: Brent Arnold, Principal Planner

Prepared by:

Michael Brandman Associates
15901 Red Hill Avenue, Suite 200
Tustin, California 92780-7318
(714) 258-8100

Contact: Thomas Holm, Director of Environmental Services

December 5, 2000

TABLE OF CONTENTS

Section		Page
1	Introduction	1-1
1.1	Project Information	1-1
1.2	Background and History	1-2
1.3	Type of Environmental Impact Report	1-2
2	Environmental Setting	2-1
2.1	Regional Setting	2-1
2.2	Local Setting	2-2
3	Project Description	3-1
3.1	Project Characteristics	3-1
3.2	Project Objectives	3-7
3.3	Agencies With Discretionary Approval or Permit Authority	3-7
4	Environmental Evaluation	4-1
4.1	Probable Environmental Effects	4-1
4.2	Cumulative Effects	4-3
5	Alternatives to the Proposed Project	5-1
5.1	No Project Alternative	5-1
5.2	Environmental Land Use Alternative	5-1
5.3	Metropolitan Land Use Alternative	5-1

LIST OF EXHIBITS

Exhibit		Follows Page
1	Regional Location Map	1-1
2	Project Location Map	1-1
3	Opportunities and Constraints	2-2
4	Land Use Plan	2-2

LIST OF TABLES

Table **Page**

1 The Preserve-Preferred Land Use Plan Statistical Summary 3-2

2 Specific Plan Preliminary Outline 3-6

SECTION 1
INTRODUCTION

This section summarizes basic information concerning the proposed project, the project background and history, and the type of environmental impact report to be prepared by the City of Chino.

1.1 Project Information

Project Title: The Preserve

Lead Agency Name and Address: City of Chino
Community Development Department
13220 Central Avenue
Chino, California 91710

Contact Person and Phone Number: Brent Arnold, Principal Planner
(909) 591-9812

Project Location: The 5,435-acre planning area known as "The Preserve", formerly called Chino Sphere of Influence Subarea 2, is located in the extreme southwestern corner of San Bernardino County, approximately 37 miles east of Los Angeles and 20 miles southwest of San Bernardino (see Exhibit 1). The Preserve is located in the vicinity of the cities of Chino, Chino Hills, Ontario, Norco, and Corona, as well as the unincorporated community of Eastvale in Riverside County, and the Prado Flood Control Basin (see Exhibit 2). Euclid Avenue (SR 83) is the western boundary of the planning area. Pine Avenue traverses east-west through the planning area. State Route 71 is located to the west of the site, State Route 91 to the south, Interstate 15 to the east, and State Route 60 to the north. The Santa Ana River is located to the south and Chino Hills State Park is located to the west.

Project Sponsor's Name and Address: City of Chino (same as Lead Agency above)

Description of Project: The proposed project includes the annexation of the largest remaining portion of the Chino Valley Dairy Preserve within the City of Chino's Sphere of Influence to allow for development of a portion of the approximate 5,435 acres currently within the Preserve. The City of Chino is preparing a master plan to guide the future development and annexation of the Preserve. The master plan will consist of a comprehensive, policy-level specific plan/land use plan. An 'umbrella' General Plan Amendment, which will link the specific plan to the City's existing General Plan and satisfy the requirement for consistency with the General Plan, will also be prepared. The General Plan Amendment will be an Area Plan, as authorized by Government Code Sections 65301(b) and 65303.

The Preserve is proposed to allow up to 8,064 dwelling units on 1,223 acres; 640 acres of business uses (Community Core, Light Industrial, Airport Related, Regional Commercial, Neighborhood Commercial); 584 acres of Public Facilities and Rights-of-Way; and approximately 2,988 acres in Open Space (Recreation, Agricultural and Natural Open Space). Proposed developed uses are concentrated in the northern portion of the Preserve, above the Prado Basin high water inundation line (elevation 566'), which is a significant influence on the planning area. Lands generally south of the 566' elevation are planned for Recreation, Agriculture and Natural Open Space. Other significant influences include Chino Municipal Airport, the California Women's Institution, and Co-Composting Facility.

Significant issues to be addressed in The Preserve planning program and EIR include regional transportation linkages, ties to the rural heritage of Chino, sensitive habitats and recreational opportunities within the Prado Basin, agricultural lands conversion, dairy waste management and water quality, and financing major infrastructure.

1.2 Background and History

The Preserve is currently located within the San Bernardino County Dairy Preserve. In 1994, the Local Agency Formation Commission (LAFCO) placed the portion of the Dairy Preserve north of Merrill Avenue within the City of Ontario's Sphere of Influence and the area south of Merrill Avenue to the San Bernardino County line in the City of Chino's Sphere of Influence. This expansion increased the City of Chino's planning area by more than 50 percent, or approximately 7,200 acres. The City of Chino addressed the portion of the Dairy Preserve within their Sphere of Influence in two parts, a western and eastern part. The western part, Subarea 1, consists of 1,810 acres and was planned and annexed into the City in 1998. The eastern part, The Preserve, consists of the remaining portion of the San Bernardino County Dairy Preserve within the City of Chino's Sphere of Influence.

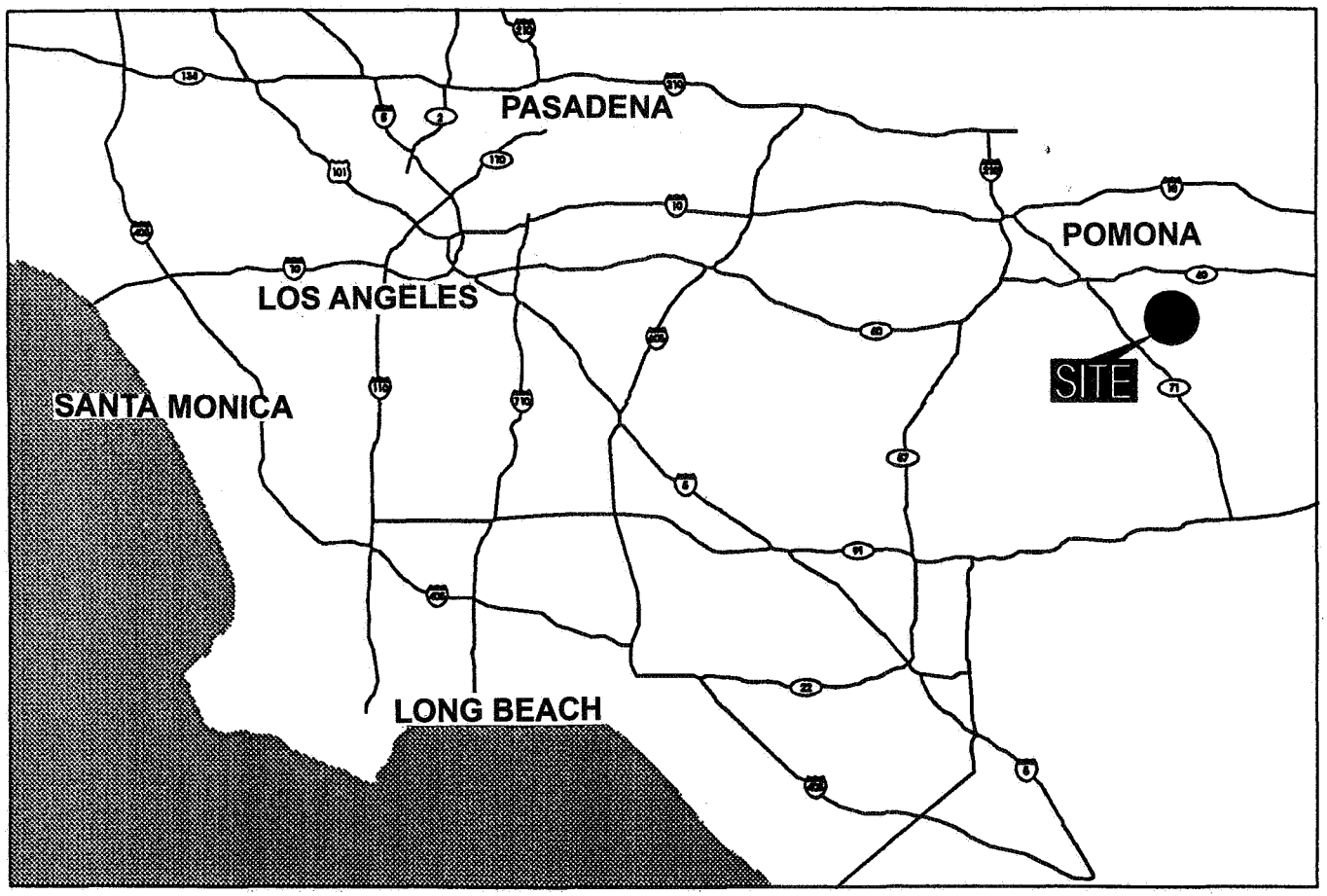
The Preserve is currently under the jurisdiction of the County of San Bernardino. The County will retain authority over the land use decisions until annexation occurs. The existing San Bernardino County General Plan designates The Preserve as Agriculture – Agriculture Preserve (AG-AP), which allows agricultural and dairy uses.

1.3 Type of Environmental Impact Report

The City of Chino has determined that an Environmental Impact Report (EIR) will need to be prepared for the proposed project. The EIR to be prepared will be a *Program EIR* consistent with CEQA Guidelines Section 15168, which reads in part:

> "(a) General. A program EIR is an EIR which may be prepared on a series of actions that can be characterized as one large project and are related either:
> (1) Geographically,
> (2) As logical parts in the chain of contemplated actions,
> (3) In connection with issuance of rules, regulations, plans, or other general criteria to govern the conduct of a continuing program, or
> (4) As individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar environmental effects which can be mitigated in similar ways. "

Various advantages of use of a program EIR and its use with later activities are detailed in Guidelines 15168 (b)(c). These include the ability to: 1) provide for a more exhaustive consideration of effects and alternatives than would be practical in an EIR on an individual action; 2) ensure full consideration of cumulative effects and avoid duplicative reconsideration of basic policy considerations; and 3) allow consideration of broad



SOURCE: Terry A. Hayes Associates

Michael Brandman Associates

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SCALE IN MILES

Exhibit **1**
Regional Location Map

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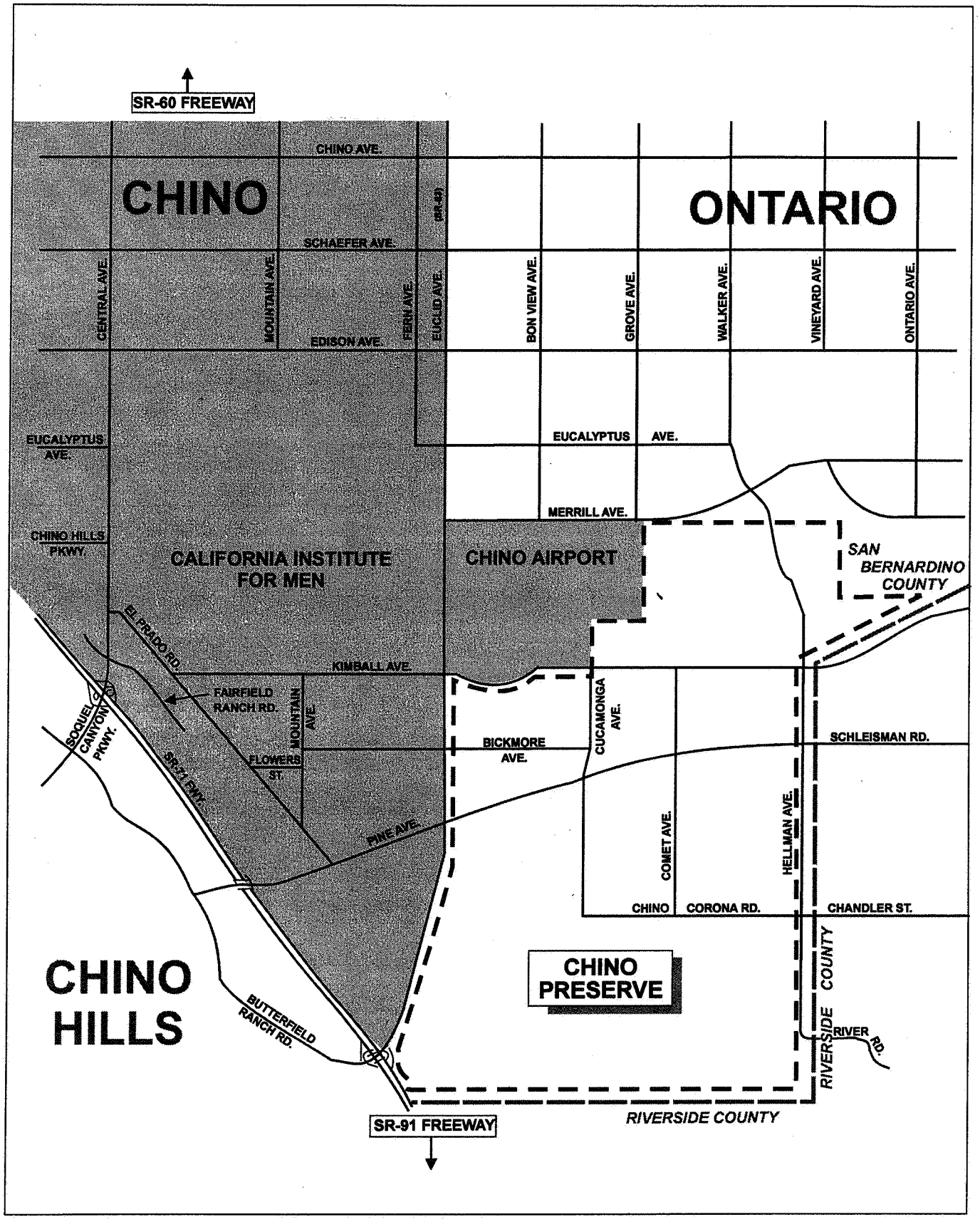
CHINO SUBAREA 2



NORTH

Michael Brandman Associates

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Exhibit **2**

Project Location

CHINO PRESERVE

policy alternatives and programwide mitigation measures at an early stage. To the extent the Program EIR is both comprehensive and specific, it can be readily used to simplify the task of preparing environmental documents on later parts of the program.

Although overall phasing of uses within The Preserve is anticipated to occur over a period of 15-20 years, portions of the planning area may be annexed and developed within 5 years, depending on the availability of infrastructure. The Program EIR is an appropriate foundation environmental document to address the contemplated development program.

SECTION 2
ENVIRONMENTAL SETTING

2.1 Regional Setting

The Preserve is part of the Chino Valley, a large and generally flat sub-portion of the larger San Bernardino Valley. The Chino Valley is influenced by the Santa Ana River drainage, which originates in the slopes of the San Bernardino Mountains to the northeast. Southwest of the study area, the Santa Ana River drains through the narrow Santa Ana Canyon between Chino Hills and the Santa Ana Mountains before eventually emptying into the Pacific Ocean approximately 30 miles to the southwest.

The Preserve is located in a valley that gently slopes south-southwest and is generally covered by deep soils of sandy loam characteristics. The alluvial soils are derived from the eroding highlands surrounding this interior valley area.

2.2 Local Setting

The Preserve is approximately 2 miles in width and three miles in length, encompassing 5,472 acres. Elevations in the planning area range from about 500 to 600 feet above sea level. Adjacent to the planning area at the northwest corner of The Preserve is the California Institution for Men (CIM-Chino). Further west, in Chino Subarea 1 along Kimball Avenue is Inland Empire Utility Agency's (IEUA) Regional Wastewater Treatment Plant No. 5 (RP-5).

Chino Airport, located along a portion of the northerly project boundary, is a significant influence on The Preserve planning area (Exhibit 3). There are currently over 200,000 annual aircraft operations and 940 aircraft based at the airport, making it the 30th busiest airport in the nation. Portions of the FAA restricted use, development and height zones, as well as the adopted 60 dB CNEL noise contour associated with airport operations, all extend into The Preserve.

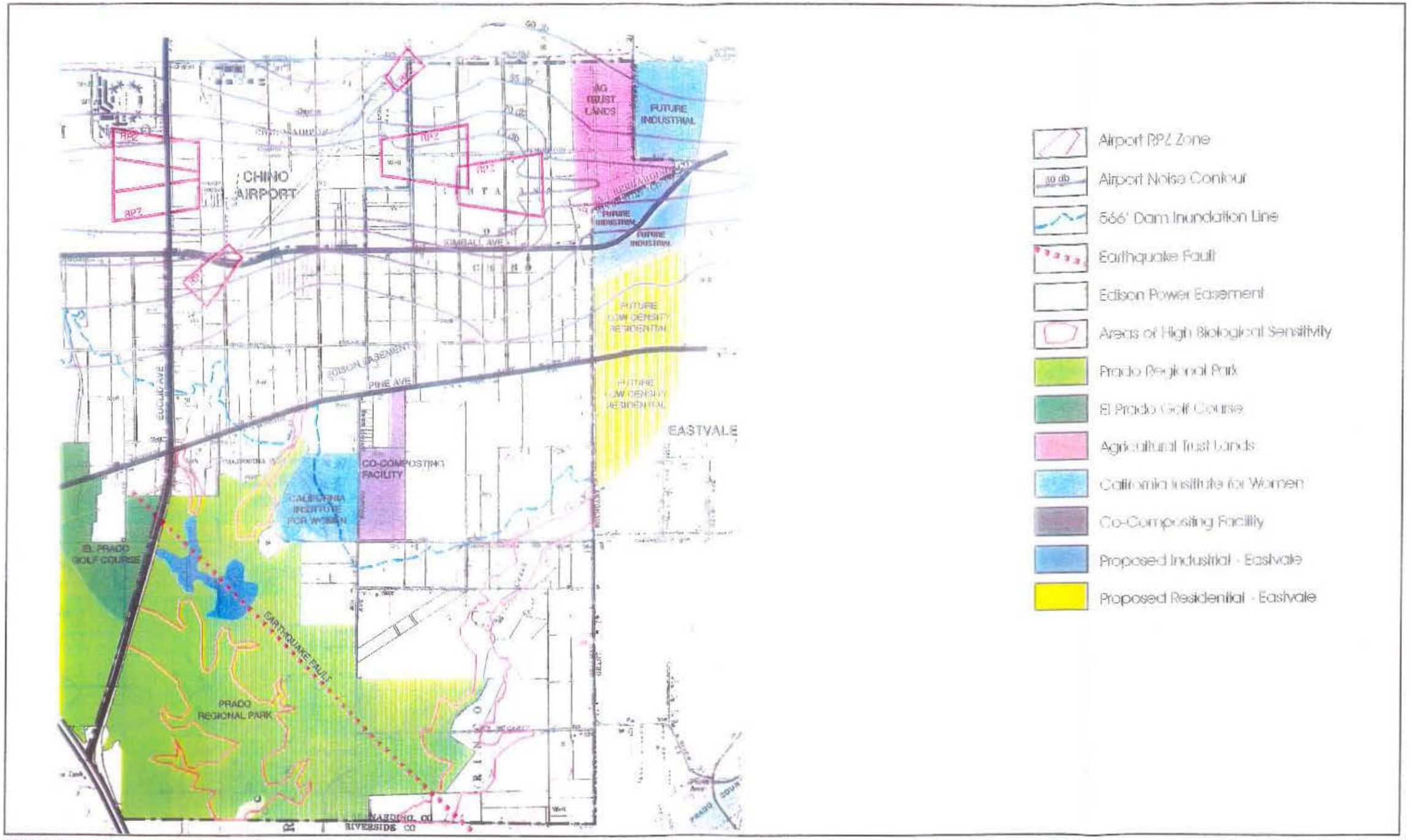
Two major creeks transverse the Preserve: These are 1) Chino Creek, which drains southerly along the base of the Chino Hills, and 2) Cucamonga Creek flood channel, which becomes Mill Creek before draining into the eastern portion of the Prado Basin and eventually into the Santa Ana River. Two other smaller drainages extend south from the Chino Airport through the Preserve, before joining Prado Lake within Prado Regional Park. These drainage courses reflect the general location of the flood hazard areas affecting the project area below the 566-foot dam inundation area, as well as areas of moderate and high biological sensitivity.

Sensitive habitats within The Preserve planning area include riparian woodlands along the major stream channels, various detention basins and open water areas, and freshwater marshes. Fallow agricultural fields and eucalyptus windrows have habitat value for raptor foraging and nesting, respectively. A variety

of sensitive plant and animal species are known to occur in the vicinity of The Preserve and the Prado Basin. Federal or state-listed animal species include the least Bell's vireo, southwestern willow flycatcher, southwestern arroyo toad, California red-legged frog, Santa Ana sucker, and southwestern pond turtle. The burrowing owl is a species of concern.

A significant portion of The Preserve, 2,197 acres, lies within the highwater inundation area created by the proposed raising of the El Prado Dam by 28 feet and the spillway by 8 feet. The raising of the El Prado Dam will increase the minimum area of the potential dam inundation ten feet from its current elevation at 556 feet above sea level to 566 feet above sea level. The raised dam is designed to accommodate a 333-year flood event. The capacity of the inundation area will gradually decrease as siltation occurs.

The area in and around The Preserve contains a number of existing uses that will either remain or transition as new development occurs. The Preserve is a portion of the Chino Basin Dairy Preserve which is home to one of the largest dairy herd populations in the world, with an estimated population of 360,000 cows. A portion of these dairies, covering over a quarter of the project area, are located within The Preserve. An additional 40 percent of the project area is devoted to pasture land and agricultural uses. In the central and western portions of the project area are the Co-Composting Facility operated by the IEUA, the California Institution for Women (CIW-Chino), and Prado Regional Park (including Prado Lake). The Co-Composting Facility receives animal manure and wastewater sludge for recycling from dairies within the Chino Basin Dairy Area.



SOURCE: Psomas, Michael Brandman Associates

NORTH

Michael Brandman Associates

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Exhibit 3

Opportunities And Constraints

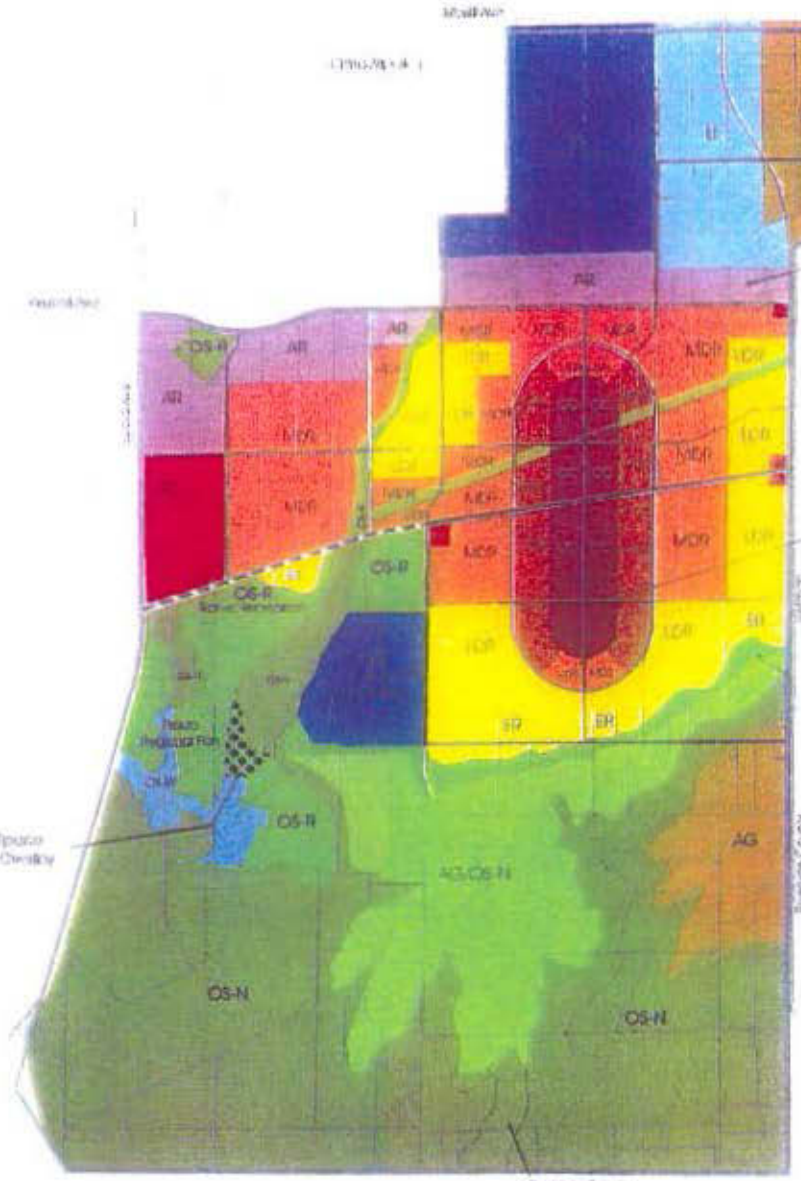
CHINO SUBAREA 2

LEGEND
LAND USE
ER - Estate Residential (2 du/ac)
LDR - Low Density Residential (6.5 du/ac)
MDR - Medium Density Residential (10 du/ac)
HDR - High Density Residential (16 du/ac)

NC - Neighborhood Commercial (.25 FAR)
RC - Regional Commercial (.25 FAR)
CC - Community Core
BP/O - Business Park/Office (.25 FAR)
LI - Light Industrial (.25 FAR)
AR - Airport Related (.35 FAR)

PF - Public Facility
OS-R - Open Space Recreation
OS-N - Open Space Natural
AG - Agriculture
AG/OS-R - Agriculture and Recreation

CIRCULATION



Michael Brandman Associates

Exhibit 4
Preferred Land Use Concept

CHINO SUBAREA 2

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SECTION 3
PROJECT DESCRIPTION

3.1 Project Characteristics

The City of Chino is preparing a master plan to guide the future development and annexation of the Preserve. The master plan will consist of a comprehensive, policy-level specific plan/land use plan. An 'umbrella' General Plan Amendment, which will link the specific plan to the City's existing General Plan and satisfy the requirement for consistency with the General Plan, will also be prepared. The General Plan Amendment will be an Area Plan, as authorized by Government Code Sections 65301(b) and 65303.

The Land Use Concept

The proposed Land Use Concept for The Preserve is depicted in Exhibit 4. The Land Use Concept is composed of the following primary features:

- A community of residential neighborhoods.
- A Community Core area, envisioned as an idyllic "main street" with a mix of commercial retail and office uses, entertainment areas, residential uses, and public and religious uses.
- A regional commercial center.
- An employment center focusing upon the Chino Airport.
- An open space preserve, including multi-purpose recreational, agricultural, and natural open space uses.

Table 1 provides a preliminary breakdown of proposed Concept Plan land uses. The Land Use Plan contains 15 specific land use categories that are grouped under broad land use topics. Calculation of development potential is based on adjusted gross acreage; net residential units include park requirements.

TABLE 1
PREFERRED LAND USE PLAN
STATISTICAL ANALYSIS

Land Use Designation	Adjusted Gross Acres	Net Dwelling Units	Net Square Feet
Residential Designations			
Estate Residential	121	190	
Low Density Residential	320	1,343	
Medium Density Residential	576	4,235	
High Density Residential	151	1,680	
Residential Subtotal	1,168	7,447	
Business Designations			
Neighborhood Commercial	9		69,669
Regional Commercial	86		
Regional Commercial (70%)	60		492,084
Office (15%)	13		105,447
Open-Space-Rec. (15%)	13		
Airport Related	263		
Light Industrial (55%)	145		2,131,181
Business Park (20%)	53		602,758
Office (10%)	26		301,379
Commercial (10%)	26		215,271
Hotel (5%)	13		150,690
Light Industrial	212		3,117,747
Community Core 4	125		
MU Res (55%)	55	616	
MU Comm (20%)	20		197,412
MU Office (15%)	15		197,412
MU Public Facilities (10%)	10		
Business Subtotal	*695*	*616*	*7,581,048*
Open Space Designations			
Agricultural	345		
Open Space-Water	62		
Ag/Open Space-Natural	518		
Open Space Recreation	423		
Open Space-Natural	1,640		
Open Space Subtotal	*2,988*		
Other Designations			
Public Facilities	398		
Rights-of-Way	186		
Other Subtotal	*584*		
Total	5,435	8,064	7,581,048

The Preserve is proposed to allow up to 8,064 dwelling units on 1,223 acres; 640 acres of business uses (Community Core, Light Industrial, Airport Related, Regional Commercial, Neighborhood Commercial); 584 acres of Rights-of-Way and Public Facilities; and approximately 2,988 acres in Open Space (Recreation, Agricultural and Natural Open Space). Proposed developed uses are concentrated in the northern portion of the Preserve, above the Prado Basin high water inundation line (elevation 566'), which is a significant influence on the planning area. Lands generally south of the 566' elevation are planned for Recreation, Agriculture and Natural Open Space.

Components of the Land Use and Circulation Concept

The principal components of the land use concept are described below.

Residential Community

A diverse range of residential neighborhoods are proposed that offer a variety of housing densities, types, and price ranges. The various residential categories provide density ranges between two (2) and 16 units per acre.

Community Core

The Community Core area is proposed in the northerly portion of the project area bisected by Pine Avenue, and is intended as the focus of the higher density residential areas within the project area. The Community Core is envisioned as an idyllic "main street" with a mix of uses, themed landscaping, street furniture, textured paving and tasteful signage. The types of land uses envisioned include a mix of commercial, retail, office, entertainment and residential uses. In addition, the Community Core area is designed to include a public school, library, community center, fire station, recreational facilities, and religious facilities.

Euclid Regional Commercial Center

This area is located south of Bickmore Avenue and east of Euclid Avenue and is envisioned as an area of intensive business and entertainment uses that provide an employment and commercial base for the area. The Center would contain regional commercial uses, office uses, and entertainment uses. The Euclid Regional Commercial Center would partially extend below the 566 foot dam inundation area. Due to anticipated high land values of the commercial center and the minimal depth of the inundation area it is probable that adequate financing could occur to replace the lost flood capacity caused by this development.

Chino Airport-Related Uses

Portions of Chino Airport extend into the northerly portion of The Preserve. This airport influence area is intended to provide land uses that draw upon proximity to airport operations and the Euclid Regional Commercial Center. The types of land use proposed include those that would complement airport operations, including light industrial, auto rental, airplane sales and service, hotels, business park, and office uses. Adjacent to the Chino Airport is a Light Industrial designation that would also provide airport compatible uses.

Educational Facilities

A variety of educational facilities can be accommodated within the residential and Community Core land use designations within the project area. Such facilities include community college, public schools and learning centers that consist of shared schools, day care, library, and satellite civic uses.

Community Paseo and Open Space System

The purpose of the paseo system is to connect the urban community with the open space and recreational features located primarily below the 566-foot elevation. The Community Paseo and Open Space System envisions the use of existing streams, drainage ways, pathways, and the electric transmission line traversing the project area to link the urban community with the regional recreational amenity to the south. The paseo system will provide a network of trails as a recreational opportunity and an alternative form of transportation. The paseo system is also proposed to buffer or separate potentially incompatible uses, such as the California Women's Institution, from proposed residential uses.

Regional Open Space and Recreation

This area would be located primarily below the 566-foot elevation and emphasizes the existing open space attributes of the area. The open space and recreation land uses proposed will provide an amenity for future residents and employees of the project area, as well as act as an attraction to draw people from the region. Proposed uses would include active and passive recreation, habitat for various plant and animal species, and agricultural uses. Active recreation uses would include uses such as golf courses, soccer and baseball fields, and picnic and barbecue areas. Passive areas would allow for an urban wilderness or nature park, including an interpretive center. Agricultural uses would allow grazing and 'metro-farming' uses. The Community Paseo system would link the regional open space and recreational amenity with the urban community within The Preserve.

Circulation

The project area is located near the 60, 91, 15 and 71 Freeways that provide regional access. North-south circulation is limited in the project area due to a number of existing facilities, including the Chino Airport, California Institution for Men, and Prado Dam Flood Basin. Euclid Avenue and a planned extension of Walker Avenue to connect with Hellman Avenue will provide north-south access to regional circulation. The primary east-west linkage is the Pine Avenue/Schleisman Road corridor. This corridor is anticipated to carry substantial future traffic volumes, and will be the subject of special design consideration in the Specific Plan to adequately separate and buffer through-traffic from adjacent uses. The Preserve will also be designed to anticipate and accommodate future transit applications to serve and link the community with regional systems.

Contents of Specific Plan Document

The proposed Specific Plan includes the entire 5,435-acre project area. The development concept is a collection of objectives that are derived from the vision for the Preserve. The Specific Plan will serve a wide-variety of public and private interests, each with their own set of needs and long-range objectives. The Specific Plan will be comprised of the Land Use Plan, development standards, overlay districts, infrastructure plans, and design guidelines. The key components of the Specific Plan are outlined below.

TABLE 2
SPECIFIC PLAN PRELIMINARY OUTLINE

Executive Summary

I. Introduction and Background

Purpose and Authority
Location and Description
Opportunities and Constraints
Relationship to the General Plan
Relationship to the Zoning Ordinance
Public Participation

II. Development Plan

Development Concept
Planning Sub-Areas
Land Use Plan
Residential Development Standards
Commercial Development Standards
Industrial Development Standards
Agricultural and Open Space Development Standards
Overlay Districts
General Development Regulations (includes right-to-farm)
Circulation Plan
Infrastructure Plans
Open Space Management Plan
Public Facilities (schools, community facilities)

III. Design Guidelines

Landscape Architecture Guidelines
Residential Design Guidelines
Commercial Design Guidelines
Industrial Design Guidelines
Signage Guidelines
Lighting Guidelines

IV. Administration

General Provisions
Responsibility
Development Processing
Enforcement

V. Implementation

General Provisions
Phasing Plan
Financing
Plan Monitoring

VI. Appendices

3.2 Project Objectives

The goals and objectives that are critical to the development and future use of The Preserve are identified in a 'Critical Issues, Goals and Objectives Report' (3/2000), which builds upon an earlier 'vision' statement by the Chino City Council. The report is divided by the following major topics: Vision, Land Use, Circulation, Housing, Conservation and Open Space, Safety, Noise, Air Quality, Economic Development, Plan Administration and Implementation. Goals and objectives that will be reflected in the General Plan Amendment (Area Plan), the Policy-Level Specific Plan, and Program EIR include the following:

- To achieve a quality environment designed to fit into and incorporate regional surroundings by integrating local environmental features and existing land uses into a cohesive and logical pattern of land uses that provides a broad range of living, working, and recreational opportunities.
- Create an efficient and safe circulation and transportation system, which accommodates the community's traffic demands, provides local connections to public services, and facilitates regional movement.
- Offer a variety of housing opportunities and types within unique, livable neighborhoods.
- Provide a network of habitat and recreational opportunities as well as provide separation between neighborhoods.
- Respect and accommodate natural hazards, such as flooding and seismic hazards.
- Account for and buffer noise generating uses from noise sensitive uses.
- Integrate design patterns that would assist in reducing air quality impacts.
- Accommodate a broad range of uses that capitalize on adjacent land uses and enhance the City of Chino's fiscal outlook.
- Implement and administer the development and operation of The Preserve in a manner that is consistent with the Specific Plan.

3.3 Agencies with Discretionary Approval or Permit Authority

Pursuant to California Environmental Quality Act (CEQA) Guidelines 15367, the City of Chino is the Lead Agency for the project and has principal discretionary authority over the project and project approvals. A number of other agencies will serve as Responsible or Trustee Agencies, pursuant to CEQA Guidelines 15381 and 15386, respectively. Agencies with discretionary approval and/or permit authority over some aspect of the project that may use information in the Program EIR include, but are not limited to, the following:

- City of Chino
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- California Department of Transportation
- Regional Water Quality Control Board
- California Department of Fish and Game
- South Coast Air Quality Management District
- San Bernardino County Health Department
- San Bernardino County Flood Control Department
- San Bernardino County Division of Airports
- San Bernardino County Association of Governments
- Local Agency Formation Commission (LAFCO)
- Water Agencies (multiple)

SECTION 4
ENVIRONMENTAL EVALUATION

4.1 Probable Environmental Effects

The probable environmental effects of the proposed project fall into the following categories that will be included in the Program EIR:

- Land Use/Agriculture
- Water Resources (Hydrology/Flood/Groundwater/Water Quality)
- Biological Resources
- Geology and Soils (Geologic Hazards/Soils/Mineral Resources)
- Hazards (including Airport Safety and Hazardous Materials)
- Transportation and Circulation
- Noise
- Air Quality
- Population and Housing
- Public Services (Schools, Police, Fire, Libraries, Parks/Recreation)
- Utilities (Water, Wastewater, Solid Waste, Public Facilities)
- Cultural Resources (Historical, Archaeological, Paleontological)
- Aesthetics (Scenic Resources, Visual Character, Light/Glare)

A summary of the potential effects corresponding with these categories is provided below.

- Land Use/Agriculture. The proposed project will accelerate the cancellation of Williamson Act agricultural preserve contracts, and will convert existing dairies and other agricultural lands to a variety of urban uses consistent with the land use plan. This is likely to be a significant, unavoidable adverse impact of the project. Adoption of the plan will likely accelerate the departure of dairies from the area, though right-to-farm provisions and measures to minimize conflicts between incompatible uses (e.g. buffers, setbacks) will be included. Potential land use incompatibilities are likely to occur as new residential, commercial, industrial/business park, and airport-related uses develop near or adjacent to existing dairies, the Co-Composting facility, or the California Institution for Women. The project will place urban uses and a sizeable population in close proximity to the extensive natural resources of the Prado Flood Control Basin. Without careful placement, design and buffering of urban uses, conflicts with resources in the Prado Basin could occur.

- Water Resources (Hydrology/Flood/Groundwater/Water Quality). The proposed project will substantially alter the existing drainage pattern of the area, as new development, structures and roadways modify the existing sheet flow pattern of storm runoff through the area. The project will potentially increase and redirect the amount of storm water runoff, due to the increase in the amount of impervious surfaces utilized by new development. The potential for increases in pollutant laden storm runoff into natural areas downstream is a significant concern. Without proper controls and best management practices, new development will have the potential to violate water quality standards and degrade downstream receiving waters. Potential beneficial impacts include the reduction in the amount of dairy waste runoff and related leaching into the groundwater basin as dairies relocate from the area.

- Biological Resources. The proposed project will remove agricultural lands, including fallow fields and open ponds, that provide habitat and foraging opportunities for a variety of wildlife species. Eucalyptus windrows that provide nesting habitat and perches for foraging raptors may be disturbed or removed. The project has the potential to disrupt wildlife movement through the area, particularly in areas planned for urban development above the Prado high water inundation line (566' elevation). Federal or state-listed sensitive species known to occur within or near the Prado Basin may be impacted by the planned development or by increased human activity. Such federal or state-listed species include the least Bell's vireo, southwestern willow flycatcher, southwestern arroyo toad, California red-legged frog, Santa Ana sucker, and southwestern pond turtle. Other species of concern, such as the burrowing owl, may be disturbed or displaced by urban development. The proposed project is expected to result in significant adverse impacts to biological resources.

- Geology and Soils (Geologic Hazards/Soils/Mineral Resources). The project area is susceptible to liquefaction due to the presence of poorly consolidated soils and ground water. Proposed structures within liquefaction areas may be required to provide mitigation measures such as excavation, removal or recompaction of soils, the provision of deep foundations, or structural reinforcement. Structural mitigation will be required to address potential liquefaction hazards for critical or high occupancy facilities, such as hospitals and churches. Many of the soils in the project area are susceptible to expansion and settlement, indicating the presence of clay in the soils. Structural hazards associated with expansive soils can be addressed through soils engineering and building practices. Development will be subject to peak horizontal ground acceleration at the site for the Maximum Probable Earthquake of approximately 0.5 to 0.6g. The potentially active Central Avenue fault traverses the project area open space south of Pine Avenue. Relatively shallow groundwater tables through the southern portions of the planning area contribute to potential development hazards. Although the history of subsidence is unknown within the planning area, the potential does appear to exist for subsidence induced ground fissures.

- Dairy Waste Management. The proposed project will accelerate the need for clean-up and removal of soils contaminated by decades of dairy wastes deposition, including manure, urine and other organic materials. These wastes have contributed to excess salts and nutrient loading within the Lower Chino Basin--more specifically total dissolved solids (TDS) and nitrate, present in both the groundwater and surface water systems. Both Chino Creek and Mill Creek within The Preserve are listed by the Regional Water Quality Control Board (RWQCB) as impaired waters. The RWQCB has adopted requirements for dairy operators designed to prevent continued surface and groundwater contamination. Requirements for the project area include: containment of all wash water and storm water runoff from dairy operations; protection of each dairy from inundation by 100-year storm flows; prohibition of the discharge of manure and its application as fertilizer; and removal of all stockpiled manure by 2002. The proposed project, in conjunction with these RWQCB requirements, will hasten the conversion of agricultural lands to urban uses. Without proper removal of dairy waste contaminated soils and recompaction with clean fill material, urban uses proposed on former dairy sites, or on former manure spreading and stockpile locations, will be subject to potential soils and foundation hazards, settlement and subsidence. The proposed project's relationship to dairy waste management and clean-up issues will be examined in the EIR.

- Hazards and Hazardous Materials (including Airport Safety). Portions of the project area are impacted by FAA restricted use, development and height zones associated with Chino Airport. The proposed project will be affected by the potential easterly expansion of the Chino Airport and the resulting increase in the safety zones necessary for public protection.

Development around the Airport will need to meet the requirements of the Airport Comprehensive Land Use Plan and associated referral areas adopted for the Chino Airport. Water features that attract concentrations of birds and areas of human assembly are both recommended or required to be located a safe distance from the Airport runways. The project area includes known hazardous waste sites associated with underground storage tanks and small generators of hazardous wastes. The potential for residual pesticides or herbicides exists on agricultural lands or dairies planned for development. Without proper removal and/or remediation, potential methane accumulations in dairy soils laden with manure and organic materials present a potential hazard to building foundations and new urban development. Without proper development design and setbacks, development may be exposed to electromagnetic fields associated with major power transmission lines that traverse the area.

- Transportation and Circulation. The proposed project will substantially increase the number of vehicle trips in the area, and will place a potential burden on the existing underdeveloped area roadway network. The proposed project will contribute to cumulative adverse traffic congestion on the regional circulation system, including but not limited to future conditions on State Routes 71 and 91. Circulation into and through the project area is available through a limited number of roadways. Impediments that constrain the establishment of new access routes into the project area include the Chino Airport, the California Institute for Men, Chino Creek and Mill Creek, and the Prado Basin. As mitigation, area roads will need to be expanded and funding mechanisms established to meet the needs of projected development and to account for the location of existing uses.

- Noise. The proposed project will create new traffic-related and operational noise sources that may result in a potentially significant and unavoidable adverse increase in ambient noise levels. Sensitive receptors including new residential development, schools and parks may be impacted by existing Chino Airport operations, or a possible future expansion of the airport. Some roadways within the project area have existing noise levels in the mid-60 dB range at the edge of the roadway. Future residential development along these roadways, particularly Euclid Avenue, Pine Avenue, and State Route 71 may be constrained without appropriate noise mitigation measures.

- Air Quality. The proposed project development may be impacted by existing dairy operations that create localized odors and air emissions. The development of urban uses will contribute to elevated levels of ozone, carbon monoxide and other air pollutants within the area. The increase in emissions associated with urban development will be offset to some extent by the reduction in dairies, which are a significant source of PM-10 (suspended particulates), methane and ROG (reactive organic gases). However, the net effect on air quality is anticipated to be significant and unavoidably adverse.

- Population and Housing. The proposed project will substantially increase population and housing within the project area and City of Chino. The proposed project will provide a range of housing types and densities, as well as employment opportunities, to meet the needs of residents with varying incomes. Consistency with regional plans and goals, including jobs/housing balance objectives, will be addressed in the EIR.

- Public Services (Schools, Police, Fire, Libraries, Parks/Recreation). The proposed project will place significant new demands on public services, and create the need for new public facilities including police and fire facilities, schools, parks and libraries. New development

will also generate additional revenues, which the City can use to help offset the costs of these new services/facilities. Sources include property and sales taxes, general fund revenues, Community Facilities Districts, school fees, other development impact fees and other sources.

- Utilities (Water, Wastewater, Solid Waste, Public Facilities). The project area is largely dairyland and open space, with little or no infrastructure to support urban development. The project will result in the need for major new public infrastructure systems to support planned development.

- Cultural Resources (Historical, Archeological, Paleontological). The proposed project area has significant history as an agricultural area, with the associated potential for historical, archaeological, and paleontological resources. As many as 52 archaeological sites have been recorded within the project area, primarily below the Prado high water inundation line (566' elevation). Without proper development planning and mitigation, the project has the potential to disrupt or destroy significant cultural resources.

- Aesthetics (Scenic Resources, Visual Character, Light/Glare). Over time, the proposed project would transform the existing setting from rural dairies, small commercial businesses, other agricultural lands and open space, to a high quality new planned community. Associated with this change will be a reduction in open fields and pasture land and an increase in structures, outside lighting, and lighting sources common to urban areas. The proposed project will maintain the scenic resources in portions of the project area for a variety of open space uses, including passive and active recreational uses, and environmentally sensitive areas.

4.2 Cumulative Effects

Section 15130 of the CEQA Guidelines requires the consideration of cumulative impacts within an EIR. Cumulative impacts are defined as two or more individual effects which, when considered together, are considerable or which compound or increase other environmental effects. The individual effects may be changes resulting from a single project or a number of separate projects. The cumulative impact from several projects is the change in the environment which results from the project when added to other related future projects.

The cumulative analysis to be discussed with the EIR will be based upon related projects or those reasonably anticipated to occur, including development pursuant to the adopted General Plan amendment for City of Chino Subarea 1, development plans for properties within the California Institution for Men (CIM-Chino), potential expansion plans for the Chino Airport, the adopted City of Ontario Sphere of Influence/General Plan Amendment north of the project site, development of the nearby Eastvale community in Riverside County, and other related plans and projects as may be identified by the City of Chino and other agencies in response to this Notice of Preparation.

SECTION 5
ALTERNATIVES TO THE PROPOSED PROJECT

Alternatives to the proposed project that will be evaluated in the EIR include, but are not limited to the following:

- No Project Alternative
- Environmental Land Use Alternative
- Metropolitan Center Land Use Alternative

All alternatives will be evaluated with respect to each key impact category reviewed for the proposed project. Other alternatives that may be raised during the Public Participation Program or EIR scoping may be briefly discussed in the EIR. The three (3) primary alternatives are briefly discussed below.

5.1 No Project Alternative

The No Project Alternative assumes that the Preserve project area will continue to be governed by the current plans and regulations of the County of San Bernardino without annexation or adoption of the proposed Specific Plan and General Plan Amendment by the City of Chino. Existing dairies would continue to operate as long as they are viable; dairy lands which recycle to other uses would still be subject to the agricultural zoning of the San Bernardino Development Code. The current County of San Bernardino General Plan and Development Code will continue to be the primary land use tools affecting the expansion or use of development within the project area.

5.2 Environmental Land Use Alternative

A preliminary Environmental Land Use Alternative was formulated during the process of screening various conceptual plans for identification of a preferred Land Use Concept for The Preserve. The alternative included 6,597 dwelling units and approximately 7,840,800 square feet of Business Uses (i.e. commercial, office, business park, light industrial, mixed use). This alternative, or a variation thereof, may be evaluated in the EIR.

This Alternative does not necessarily contain less development potential than the Preferred Land Use Concept, but the constraints are utilized to define edges and uses. Much like the preferred Land Use Concept, this alternative is envisioned as a residential community centered around a core of public facilities and commercial uses. Industrial uses would be located along Kimball and Euclid Avenues, and a commercial center would be located on Euclid Avenue. A feature of this alternative is that Pine Avenue is utilized to separate higher intensity commercial, industrial and residential uses to the north, from lower intensity residential and open space uses to the south. In comparison with the preferred Land Use Concept, greater emphasis would be placed on anchoring the community with *passive* open space, habitat

and regional recreation features to the south. Under the Environmental Land Use Alternative, this area below the 566-foot dam inundation elevation would be primarily devoted to natural open space habitat, rather than the combination of active and passive recreation, agriculture and natural open space envisioned by the Preferred Land Use concept. A network of open space, including drainages and community paseos, would connect the community to the regional open spaces and recreation amenity to the south.

5.2 Metropolitan Center Land Use Alternative

A preliminary Metropolitan Center Land Use Alternative was formulated during the process of screening various conceptual plans for identification of a preferred Land Use Concept for The Preserve. The alternative included 4,818 dwelling units and approximately 11,804,000 square feet of Business Uses (i.e. commercial, office, business park, light industrial, mixed use). This alternative, or a variation thereof, may be evaluated in the EIR.

This alternative suggests an intensive regional serving community, intimately integrated with a potential, future expanded Chino Airport, Subarea 1 to the west, and a regional recreational and golf center. The concept for the Metropolitan Center Alternative is that an intense corridor of regional serving business and commercial uses would be located along Euclid Avenue between Pine and Kimball Avenues. Industrial uses would be located along Kimball and Euclid Avenues and a community serving commercial center would be located on Pine Avenue, which would be realigned to the south. In comparison with both the preferred Land Use Concept and the Environmental Land Use Alternative, greater emphasis would be placed on anchoring the community with an *active* regional recreation center to the south. In this alternative, it is also envisioned that some flexibility in the application of environmental constraints (e.g. 566-foot dam inundation elevation) would occur in order to accommodate the expanded growth concept.

NOTICE OF PREPERATION COMMENT LETTERS

No.	Date Received	Agency
1	December 14, 2000	Southern California Association of Governments
2	December 15, 2000	Department of the Army, Corps of Engineers
3	December 18, 2000	Chino Basin Water Conservation District
4	December 20, 2000	Governors Office Of Planning And Research
5	December 22, 2000	Endangered habitat league
6	January 4, 2001	Omnitrans
7	January 4, 2001	San Bernardino County Department of Public Health
8	January 5, 2001	Chino Valley Independent Fire District
9	January 5, 2001	Inland Empire Utilities Agency
10	January 5, 2001	City of Chino Hills
11	January 5, 2001	State of California, Department of Conservation
12	January 8, 2001	California Regional Water Quality Control Board- William B. Rice (Chino Basin Watershed Management Section)
13	January 8, 2001	California Regional Water Quality Control Board- Kelly Schmoker
14	January 10, 2001	San Bernardino County Department of Public Works
15	January 10, 2001	County of San Bernardino, Local Agency Formation Commission
16	January 11, 2001	County of Orange, Planning and Development Services Department
17	January 12, 2001	California Department of Toxic Substances Control
18	January 12, 2001*	Southern California Association of Governments
19	January 16, 2001 *	Endangered habitat league
20	January 18, 2001 *	Governors Office Of Planning And Research, State Clearinghouse
21	January 26, 2001	Native American heritage Commission
22	January 29, 2001	Tom Dodson and Associates
23	January 31, 2001	Untied States Department of the Interior: Fish and Wildlife Services, Ecological Services, Carlsbad Fish and Wildlife Office
24	February 5, 2001	State of California, Department of Fish and Game, Inland Deserts Region
25	February 5, 2001*	California Department of Toxic Substances Control
26	February 9, 2001*	City of Chino Hills
27	February 13, 2001	San Bernardino County, Public Services Group, Land Use Services Department- Planning Division
28	February 14, 2001*	Chino Valley Unified School District
29	February 15, 2001*	County of Orange, Planning and Development Services Department
30	February 20, 2001*	California Department of Transportation, Aeronautics Program
31	February 27, 2001*	City of Ontario

* Indicates response to 1/05/01 Amended Notice of Preparation

SOUTHERN CALIFORNIA

ASSOCIATION of GOVERNMENTS

Main Office

818 West Seventh Street

12th Floor

Los Angeles, California

90017-3435

t (213) 236-1800

f (213) 236-1825

www.scag.ca.gov

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Riverside County: Bob Buster, Riverside County • Ron Loveridge, Riverside • Greg Pettis, Cathedral City • Andrea Puga, Corona • Ron Roberts, Temecula • Charles White, Moreno Valley

San Bernardino County: Bill Alexander, Rancho Cucamonga • Jim Bagley, Twentynine Palms • David Eshleman, Fontana • Lee Ann Garcia, Grand Terrace • Gwenn Norton-Perry, Chino Hills • Judith Valles, San Bernardino

Ventura County: Judy Mikels, Ventura County • Donna De Paola, San Buenaventura • Glen Becerra, Simi Valley • Toni Young, Port Hueneme

Riverside County Transportation Commission: Robin Lowe, Hemet

Ventura County Transportation Commission: Bill Davis, Simi Valley

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December 12, 2000

DEC 14 2000

Mr. Brent Arnold
Principal Planner
Community Development Department
City of Chino
13220 Central Avenue
Chino, CA 91710

RE: **Comments on the Notice of Preparation for a Draft Environmental Impact Report for the Chino Specific Plan / Annexation / General Plan Amendment - SCAG No. I 20000586**

Dear Mr. Arnold:

Thank you for submitting the **Notice of Preparation for a Draft Environmental Impact Report for the Chino Specific Plan / Annexation / General Plan Amendment** to SCAG for review and comment. As areawide clearinghouse for regionally significant projects, SCAG assists cities, counties and other agencies in reviewing projects and plans for consistency with regional plans.

In addition, The California Environmental Quality Act requires that EIRs discuss any inconsistencies between the proposed project and the applicable general plans and **regional plans (Section 15125 [d])**. If there are inconsistencies, an explanation and rationalization for such inconsistencies should be provided.

Policies of SCAG's Regional Comprehensive Plan and Guide and Regional Transportation Plan, which may be applicable to your project, are outlined in the attachment. **We expect the DEIR to specifically cite the appropriate SCAG policies and address the manner in which the Project is consistent with applicable core policies or supportive of applicable ancillary policies. Please use our policy numbers to refer to them in your DEIR. Also, we would encourage you to use a side-by-side comparison of SCAG policies with a discussion of the consistency or support of the policy with the Proposed Project.**

Please provide a minimum of 45 days for SCAG to review the DEIR when this document is available. If you have any questions regarding the attached comments, please contact me at (213) 236-1867. Thank you.

Sincerely,

JEFFREY M. SMITH, AICP
Senior Planner
Intergovernmental Review

COMMENTS ON THE PROPOSAL TO DEVELOP A DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE CHINO PRESERVE SPECIFIC PLAN / ANNEXATION / GENERAL PLAN AMENDMENT SCAG NO. I 20000586

PROJECT DESCRIPTION

The proposed Project considers the annexation of the largest remaining portion of the Chino Valley Dairy preserve with the City of Chino's Sphere of Influence to allow for development of a portion of approximately 5,435 acres currently within the Preserve. The preserve is proposed to allow up to 8,064 dwelling units on 1,223 acres; 640 acres of business uses; 584 acres of Public Facilities and Rights-of-Ways; and approximately 2,988 acres in Open Space.

CONSISTENCY WITH REGIONAL COMPREHENSIVE PLAN AND GUIDE POLICIES

The Growth Management Chapter (GMC) of the Regional Comprehensive Plan and Guide (RCPG) contains the following policies that are particularly applicable and should be addressed in the Draft EIR for the Project.

3.01 The population, housing, and jobs forecasts, which are adopted by SCAG's Regional Council and that reflect local plans and policies, shall be used by SCAG in all phases of implementation and review.

Regional Growth Forecasts

The Draft EIR should reflect the most current SCAG forecasts which are the 1998 RTP (April 1998) Population, Household and Employment forecasts for the San Bernardino Association of Governments (SANBAG) subregion and the City of Chino. These forecasts follow:

SANBAG Subregional Forecasts	**2000**	**2005**	**2010**	**2015**	**2020**
Population	1,772,700	2,005,400	2,239,600	2,512,800	2,829,800
Households	565,000	639,200	716,800	805,700	904,900
Employment	617,000	734,800	860,700	983,400	1,103,600

City of Chino Forecasts	**2000**	**2005**	**2010**	**2015**	**2020**
Population	66,100	69,400	72,900	76,700	80,400
Households	17,500	18,600	19,700	20,900	22,300
Employment	41,700	53,100	66,100	78,200	92,100

3.03 The timing, financing, and location of public facilities, utility systems, and transportation systems shall be used by SCAG to implement the region's growth policies.

The **Regional Transportation Plan (RTP)** also has goals, objectives, policies and actions pertinent to this proposed project. This RTP links the goal of sustaining mobility with the goals of fostering economic development, enhancing the environment, reducing energy consumption, promoting transportation-friendly development patterns, and encouraging fair and equitable access to residents affected by socio-economic, geographic and commercial limitations. Among the relevant goals, objectives, policies and actions of the RTP are the following:

Core Regional Transportation Plan Goals

1. *Meet the need for mobility and access to transportation of an increased employment and population base in the subregions and region, reduce congestion to 1990 or better levels of performance and enhance the movement of goods.*

2. *Ensure that transportation investments are cost-effective, protect the environment, promote energy efficiency and enhance the quality of life.*

3. *Serve everyone's transportation needs in a safe, reliable and economical way, including those who depend on public transit, such as the elderly, handicapped and disadvantaged.*

4. *Develop regional transportation solutions that complement subregional transportation systems and the needs of cities, communities and subregions.*

5. *Promote transportation strategies that are innovative and market-based, encourage new technologies and support the Southern California economy.*

Core Regional Transportation Plan Policies

4.01 Transportation investments shall be based on SCAG's adopted Regional Performance Indicators:

Mobility - Transportation Systems should meet the public need for improved access, and for safe, comfortable, convenient and economical movements of people and goods.

- *Average Work Trip Travel Time in Minutes – 22 minutes*
- *PM Peak Highway Speed – 33 mph*
- *Percent of PM Peak Travel in Delay (All Trips) – 33%*

Accessibility - Transportation Systems should ensure the ease with which opportunities are reached. Transportation and land use measures should be employed to ensure minimal time and cost.

- *Work Opportunities within 25 Minutes – 88%*

Environment - Transportation Systems should sustain development and preservation of the existing system and the environment. (All Trips)

- *Meeting Federal and State Standards – Meet Air Plan Emission Budgets*

Reliability - Reasonable and dependable levels of service by mode. (All Trips)

- *Transit – 63%*
- *Highway – 76%*

Safety - Transportation Systems should provide minimal, risk, accident, death and injury. (All Trips)

- *Fatalities Per Million Passenger Miles – 0.008*
- *Injury Accidents – 0.929*

Livable Communities - Transportation Systems should facilitate Livable Communities in which all residents have access to all opportunities with minimal travel time. (All Trips)

- *Vehicle Trip Reduction – 1.5%*
- *Vehicle Miles Traveled Reduction – 10.0%*

Equity - The benefits of transportation investments should be equitably distributed among all ethnic, age and income groups. (All trips)

- *Low-Income (Household Income $12,000)) Share of Net Benefits – Equitable Distribution of Benefits*

Cost-Effectiveness - Maximize return on transportation investment. (All Trips)

- *Net Present Value – Maximum Return on Transportation Investment*
- *Value of a Dollar Invested -- Maximum Return on Transportation Investment*

4.02 Transportation investments shall mitigate environmental impacts to an acceptable level.

4.04 Transportation Control Measures shall be a priority.

4.06 Implementing transit restructuring, including Smart Shuttles, freight improvements, advanced transportation technologies, airport ground access and traveler information services are RTP priorities.

4.16 Maintaining and operating the existing transportation system will be a priority over expanding capacity.

Core Regional Transportation Plan Actions

Non-Motorized

3. Improve or construct priority bicycle and pedestrian facilities identified in county and subregional Non-Motorized Plans.

Transit Restructuring

18. Work with transit operators and transportation commissions to evaluate restructuring existing services away from least performing lines towards more efficient transit services that meet the regional performance goal by the year 2010.

19. Work with County Transportation Commissions to document and monitor transit restructuring through the Short Range Transit Plan (SRTP) process.

Smart Shuttles

20. Develop a system of demand responsive transit to be implemented at major centers in the Region, providing multi-modal linkages, access within centers, and connections between centers.

Transit Centers/Park-n-Ride Facilities

28. Enhance transit centers, constructing new centers and providing additional park-n-ride facilities to encourage alternatives to single occupant automobiles.

Commuter Rail

29. *Increase Metrolink service on all commuter rail lines.*

Roadways

43. *Improve arterials that serve regional needs for freight movement or provide capacity within commute sheds.*

Vanpooling

61. *Continue to support private provision of vanpool programs.*

Telecommunications

65. *Support policies and programs that facilitate individuals and business employees working at home.*

66. *Support public policies, programs, legislation, ordinance, housing designs and building permits that enables and supports self-employed and other private sector employees working at home.*

Ground Access

73. *Construct improvements on arterials, highway and rail lines to accommodate added freight and passenger movements to and from airports.*

Alternative Fuels and Clean Cities

77. *Support permitting of alternative and zero emission vehicle infrastructure and charging stations.*

GMC POLICIES RELATED TO THE RCPG GOAL TO IMPROVE THE REGIONAL STANDARD OF LIVING

The Growth Management goals to develop urban forms that enable individuals to spend less income on housing cost, that minimize public and private development costs, and that enable firms to be more competitive, strengthen the regional strategic goal to stimulate the regional economy. The evaluation of the proposed project in relation to the

following policies would be intended to guide efforts toward achievement of such goals and does not infer regional interference with local land use powers.

3.04 Encourage local jurisdictions' efforts to achieve a balance between the types of jobs they seek to attract and housing prices.

3.05 Encourage patterns of urban development and land use, which reduce costs on infrastructure construction and make better use of existing facilities.

3.08 Encourage subregions to define an economic strategy to maintain the economic vitality of the subregion, including the development and use of marketing programs, and other economic incentives, which support attainment of subregional goals and policies.

3.09 Support local jurisdictions' efforts to minimize the cost of infrastructure and public service delivery, and efforts to seek new sources of funding for development and the provision of services.

3.10 Support local jurisdictions' actions to minimize red tape and expedite the permitting process to maintain economic vitality and competitiveness.

GMC POLICIES RELATED TO THE RCPG GOAL TO IMPROVE THE REGIONAL QUALITY OF LIFE

The Growth Management goals to attain mobility and clean air goals and to develop urban forms that enhance quality of life, that accommodate a diversity of life styles, that preserve open space and natural resources, and that are aesthetically pleasing and preserve the character of communities, enhance the regional strategic goal of maintaining the regional quality of life. The evaluation of the proposed project in relation to the following policies would be intended to provide direction for plan implementation, and does not allude to regional mandates.

3.11 Support provisions and incentives created by local jurisdictions to attract housing growth in job rich subregions and job growth in housing rich subregions.

3.12 Encourage existing or proposed local jurisdictions' programs aimed at designing land uses which encourage the use of transit and thus reduce the need for roadway expansion, reduce the number of auto trips and vehicle miles traveled, and create opportunities for residents to walk and bike.

3.13 Encourage local jurisdictions' plans that maximize the use of existing urbanized

areas accessible to transit through infill and redevelopment.

3.14 Support local plans to increase density of future development located at strategic points along the regional commuter rail, transit systems, and activity centers.

3.15 Support local jurisdiction's strategies to establish mixed-use clusters and other transit-oriented developments around transit stations and along transit corridors.

3.16 Encourage developments in and around activity centers, transportation corridors, underutilized infrastructure systems, and areas needing recycling and redevelopment.

3.17 Support and encourage settlement patterns, which contain a range of urban densities.

3.18 Encourage planned development in locations least likely to cause environmental impact.

3.19 Support policies and actions that preserve open space areas identified in local, state, and federal plans.

3.20 Support the protection of vital resources such as wetlands, groundwater recharge areas, woodlands, production lands, and land containing unique and endangered plants and animals.

3.21 Encourage the implementation of measures aimed at the preservation and protection of recorded and unrecorded cultural resources and archaeological sites.

3.22 Discourage development, or encourage the use of special design requirements, in areas with steep slopes, high fire, flood, and seismic hazards.

3.23 Encourage mitigation measures that reduce noise in certain locations, measures aimed at preservation of biological and ecological resources, measures that would reduce exposure to seismic hazards, minimize earthquake damage, and to develop emergency response and recovery plans.

GMC POLICIES RELATED TO THE RCPG GOAL TO PROVIDE SOCIAL, POLITICAL, AND CULTURAL EQUITY

The Growth Management Goal to develop urban forms that avoid economic and social polarization promotes the regional strategic goal of minimizing social and geographic

disparities and of reaching equity among all segments of society. The evaluation of the proposed project in relation to the policy stated below is intended guide direction for the accomplishment of this goal, and does not infer regional mandates and interference with local land use powers.

3.24 Encourage efforts of local jurisdictions in the implementation of programs that increase the supply and quality of housing and provide affordable housing as evaluated in the Regional Housing Needs Assessment.

3.27 Support local jurisdictions and other service providers in their efforts to develop sustainable communities and provide, equally to all members of society, accessible and effective services such as: public education, housing, health care, social services, recreational facilities, law enforcement, and fire protection.

AIR QUALITY CHAPTER CORE ACTIONS

The **Air Quality Chapter** core actions related to the proposed project includes:

5.07 Determine specific programs and associated actions needed (e.g., indirect source rules, enhanced use of telecommunications, provision of community based shuttle services, provision of demand management based programs, or vehicle-miles-traveled/emission fees) so that options to command and control regulations can be assessed.

5.11 Through the environmental document review process, ensure that plans at all levels of government (regional, air basin, county, subregional and local) consider air quality, land use, transportation and economic relationships to ensure consistency and minimize conflicts.

WATER QUALITY CHAPTER RECOMMENDATIONS AND POLICY OPTIONS

The **Water Quality Chapter** core recommendations and policy options relate to the two water quality goals: to restore and maintain the chemical, physical and biological integrity of the nation's water; and, to achieve and maintain water quality objectives that are necessary to protect all beneficial uses of all waters.

11.02 Encourage "watershed management" programs and strategies, recognizing the primary role of local governments in such efforts.

11.05 Support regional efforts to identify and cooperatively plan for wetlands to facilitate

both sustaining the amount and quality of wetlands in the region and expediting the process for obtaining wetlands permits.

11.06 Clean up the contamination in the region's major groundwater aquifers since its water supply is critical to the long-term economic and environmental health of the region. The financing of such clean-ups should leverage state and federal resources and minimize significant impacts on the local economy.

11.07 Encourage water reclamation throughout the region where it is cost-effective, feasible, and appropriate to reduce reliance on imported water and wastewater discharges. Current administrative impediments to increased use of wastewater should be addressed.

11.08 Ensure wastewater treatment agency facility planning and facility development be consistent with population projection contained in the RCPG, while taking into account the need to build wastewater treatment facilities in cost-effective increments of capacity, the need to build well enough in advance to reliably meet unanticipated service and storm water demands, and the need to provide standby capacity for public safety and environmental protection objectives.

OPEN SPACE CHAPTER ANCILLARY GOALS

Outdoor Recreation

9.01 Provide adequate land resources to meet the outdoor recreation needs of the present and future residents in the region and to promote tourism in the region.

9.02 Increase the accessibility to open space lands for outdoor recreation.

9.03 Promote self-sustaining regional recreation resources and facilities.

Public Health and Safety

9.04 Maintain open space for adequate protection of lives and properties against natural and man-made hazards.

9.05 Minimize potentially hazardous developments in hillsides, canyons, areas susceptible to flooding, earthquakes, wildfire and other known hazards, and areas with limited access for emergency equipment.

9.06 Minimize public expenditure for infrastructure and facilities to support urban

type uses in areas where public health and safety could not be guaranteed.

Resource Production

9.07 Maintain adequate viable resource production lands, particularly lands devoted to commercial agriculture and mining operations.

Resource Protection

9.08 Develop well-managed viable ecosystems or known habitats of rare, threatened and endangered species, including wetlands.

CONCLUSIONS

All feasible measures needed to mitigate any potentially negative regional impacts associated with the proposed project should be implemented and monitored, as required by CEQA.

ENDNOTE

SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS

Roles and Authorities

SCAG is a ***Joint Powers Agency*** established under California Government Code Section 6502 et seq. Under federal and state law, SCAG is designated as a Council of Governments (COG), a Regional Transportation Planning Agency (RTPA), and a Metropolitan Planning Organization (MPO). SCAG's mandated roles and responsibilities include the following:

SCAG is designated by the federal government as the Region's ***Metropolitan Planning Organization*** and mandated to maintain a continuing, cooperative, and comprehensive transportation planning process resulting in a Regional Transportation Plan and a Regional Transportation Improvement Program pursuant to 23 U.S.C. □134(g)-(h), 49 U.S.C. □1607(f)-(g) et seq., 23 C.F.R. □450, and 49 C.F.R. □613. SCAG is also the designated ***Regional Transportation Planning Agency***, and as such is responsible for both preparation of the Regional Transportation Plan (RTP) and Regional Transportation Improvement Program (RTIP) under California Government Code Section 65080.

SCAG is responsible for developing the demographic projections and the integrated land use, housing, employment, and transportation programs, measures, and strategies portions of the ***South Coast Air Quality Management Plan***, pursuant to California Health and Safety Code Section 40460(b)-(c). SCAG is also designated under 42 U.S.C. □7504(a) as a ***Co-Lead Agency*** for air quality planning for the Central Coast and Southeast Desert Air Basin District.

SCAG is responsible under the Federal Clean Air Act for determining ***Conformity*** of Projects, Plans and Programs to the Air Plan, pursuant to 42 U.S.C. □7506.

Pursuant to California Government Code Section 65089.2, SCAG is responsible for ***reviewing all Congestion Management Plans (CMPs) for consistency with regional transportation plans*** required by Section 65080 of the Government Code. SCAG must also evaluate the consistency and compatibility of such programs within the region.

SCAG is the authorized regional agency for ***Inter-Governmental Review*** of Programs proposed for federal financial assistance and direct development activities, pursuant to Presidential Executive Order 12,372 (replacing A-95 Review).

SCAG reviews, pursuant to Public Resources Code Sections 21083 and 21087, ***Environmental Impact Reports*** of projects of regional significance for consistency with regional plans [California Environmental Quality Act Guidelines Sections 15206 and 15125(b)].

Pursuant to 33 U.S.C. □1288(a)(2) (Section 208 of the Federal Water Pollution Control Act), SCAG is the authorized ***Areawide Waste Treatment Management Planning Agency***.

SCAG is responsible for preparation of the ***Regional Housing Needs Assessment***, pursuant to California Government Code Section 65584(a).

SCAG is responsible (with the San Diego Association of Governments and the Santa Barbara County/Cities Area Planning Council) for preparing the ***Southern California Hazardous Waste Management Plan*** pursuant to California Health and Safety Code Section 25135.3.

DEPARTMENT OF THE ARMY
LOS ANGELES DISTRICT, CORPS OF ENGINEERS
P.O. Box 532711
LOS ANGELES, CALIFORNIA 90053-2325

December 13, 2000

REPLY TO
ATTENTION OF:

Office of the Chief
Operations Branch

DEC 15 2000

Mr. Chuck Coe
City of Chino, Planning Dept.
13220 Central Avenue
P.O. Box 667
Chino, CA 91708

Dear Mr. Coe;

We have received your letter requesting our review of the City's land use plan for that portion of the Chino Preserve within Prado Flood Control Basin which is within your City limits. The Corps appreciates the City's efforts to coordinate their land use for these lands with the Corps' Master Plan. However, we will rely on the our Master Plan, which is being updated, to guide land use at Prado FCB, rather than the appropriate sections of your General Plan. Anticipated long-term land uses at Prado FCB include recreation, open space and agriculture. Since recreation is secondary to our flood management mission, we cannot guarantee these land uses. The Corps will gladly provide you with a copy of our newest Prado Master Plan which will be published in 2001 - 2002.

Any proposed or stated land uses of Corps fee/flowage easement lands in your document *"The Preserve Project Description and Notice of Preparation"* need individual review by the Corps via the National Environmental Policy Act (NEPA). POC for environmental review is Phyllis Träbold, 213.452.3391.

Sincerely,

Charles L. Beams

GEORGE L. BEAMS, P.E.,
Chief, Construction-
Operations Division

Chino Basin Water Conservation District

DIRECTORS
H. ERIC PETERSON
Division 1
KATI OOTEN
Division 2
JOHN T. REDDICK
Division 3
PAUL HOFER
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BARRETT KEHL
Secretary - Manager

DISTRICT COUNSEL
WILLIAM BRUNICK

December 15, 2000

DEC 18 2000

City of Chino
Attn. Mr. Brent Arnold, Principal Planner
Community Development Department
13220 Central Avenue
Chino, CA 91710

Re: The Chino Preserve Specific Plan/Annexation/General Plan Amendment EIR"

Dear Mr. Arnold:

As the City completes its PEIR for the above referenced Project the Conservation District recommends that it consider imposing development standards that provide greater emphases on the use of "water conserving landscaping techniques" when designing and constructing industrial, commercial, recreational, and open space areas. In this regard, the Conservation District recommends that the City's standards provide that the developers of such areas construct mini-recharge basins within each development as a means to not only capture and utilize local rainfall on the premises but to reduce the off-site migration of water borne pollutants and such due to broken irrigation works. Particularly we are recommending that rather than using "mounded" grass and shrubbery plant screens to block the visual impacts of parking and the like facilities that developers be required to utilize "depressed" planted areas bordered by "Xeriscape-type" shrubbery. In this manner each depressed area will retain and temporarily store for plant consumption both applied irrigation water and stormwater falling upon the premises while still providing the desired screening effect.

As you can see, properly designed mini-basins will not only beautify the property, provide screening when desired, and help to offset for the loss of naturally occurring rainwater recharge due to urbanization, but will also reduce the consumption of pumped and treated water and will further assist city in meeting the requirements of its NPDES Permit.

Please feel free to call me at most anytime should you like to discuss this matter in greater detail.

Sincerely yours,

Barrett Kehl

Barrett Kehl,
General Manager

cc. Board of Directors

4594 SAN BERNARDINO STREET
P.O. BOX 2400
MONTCLAIR, CA 91763-0900
(909) 626-2711
FAX (909) 626-5974

1949 CHINO BASIN WATER CONSERVATION DISTRICT 50th ANNIVERSARY 1999

STATE OF CALIFORNIA

Governor's Office of Planning and Research

State Clearinghouse

Gray Davis
GOVERNOR

Steve Nissen
ACTING DIRECTOR

Notice of Preparation

DEC 2 0 2000

December 12, 2000

To: Reviewing Agencies

Re: The Chino Preserve Specific Plan/Annexation/General Plan Amendment
SCH# 2000121036

Attached for your review and comment is the Notice of Preparation (NOP) for the The Chino Preserve Specific Plan/Annexation/General Plan Amendment draft Environmental Impact Report (EIR).

Responsible agencies must transmit their comments on the scope and content of the NOP, focusing on specific information related to their own statutory responsibility, within 30 days of receipt of the NOP from the Lead Agency. This is a courtesy notice provided by the State Clearinghouse with a reminder for you to comment in a timely manner. We encourage other agencies to also respond to this notice and express their concerns early in the environmental review process.

Please direct your comments to:

Brent Arnold
City of Chino
Community Development Department
13220 Central Avenue
Chino, CA 91710

with a copy to the State Clearinghouse in 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 environmental document review process, please call the State Clearinghouse at (916) 445-0613.

Sincerely,

Scott Morgan

Scott Morgan
Project Analyst, State Clearinghouse

Attachments
cc: Lead Agency

1400 TENTH STREET P.O. BOX 3044 SACRAMENTO, CALIFORNIA 95812-3044
916-445-0613 FAX 916-323-3018 WWW.OPR.CA.GOV/CLEARINGHOUSE.HTML

Document Details Report
State Clearinghouse Data Base

SCH# 2000121036
Project Title The Chino Preserve Specific Plan/Annexation/General Plan Amendment
Lead Agency Chino, City of

Type NOP Notice of Preparation

Description The proposed project includes the annexation of the largest remaining portion of the Chino Valley Dairy Preserve within the City of Chino's Sphere of Influence to allow for development of a portion of the approximate 5,435 acres currently within the Preserve. The City of Chino is preparing a master plan to guide the future development and annexation of the Preserve. The master plan will consist of a comprehensive, policy-level specific plan/land use plan.

Lead Agency Contact

Name Brent Arnold
Agency City of Chino
Phone 909 591-9812 **Fax**
email
Address Community Development Department
13220 Central Avenue
City Chino **State** CA **Zip** 91710

Project Location

County San Bernardino
City Chino, Chino Hills, Ontario, Norco, Corona
Region
Cross Streets
Parcel No.
Township **Range** **Section** **Base**

Proximity to:

Highways State Route 71, 91, 60, I-15
Airports Chino
Railways
Waterways Santa Ana River
Schools
Land Use Community of residential neighborhoods.
A Community Core area, envisioned as an idyllic "main street" with a mix of commercial retail and office uses, entertainment areas, residential uses, and public and religious uses.
A regional commercial center.
An employment center focusing upon the Chino Airport.
An open space preserve, including multi-purpose recreational, agricultural, and natural open space uses.

Project Issues Agricultural Land; Landuse; Flood Plain/Flooding; Water Quality; Other Issues; Geologic/Seismic; Soil Erosion/Compaction/Grading; Minerals; Toxic/Hazardous; Traffic/Circulation; Noise; Air Quality; Population/Housing Balance; Public Services; Schools/Universities; Forest Land/Fire Hazard; Recreation/Parks; Solid Waste; Water Supply; Archaeologic-Historic; Aesthetic/Visual

---

Reviewing Agencies Resources Agency; Department of Conservation; Department of Parks and Recreation; Department of Food and Agriculture; Department of Fish and Game, Region 6; Native American Heritage Commission; State Lands Commission; Office of Emergency Services; Caltrans, District 8; Department of Housing and Community Development; California Highway Patrol; Integrated Waste Management Board; State Water Resources Control Board, Division of Water Quality; Department of Toxic Substances Control; Regional Water Quality Control Bd., Region 6 (So Lake Tahoe)

Note: Blanks in data fields result from insufficient information provided by lead agency.

Document Details Report
State Clearinghouse Data Base

Date Received 12/11/2000 ***Start of Review*** 12/11/2000 ***End of Review*** 01/09/2001

Note: Blanks in data fields result from insufficient information provided by lead agency.

NOP Distribution List

County: San Bernardino SCH# 2000121036

Resources Agency

- [x] Resources Agency
  Nadell Gayou
- [ ] Dept. of Boating & Waterways
  Bill Curry
- [ ] California Coastal Commission
  Elizabeth A. Fuchs
- [x] Dept. of Conservation
  Ken Trott
- [ ] Dept. of Forestry & Fire Protection
  Allen Robertson
- [ ] Office of Historic Preservation
  Hans Kreutzberg
- [x] Dept of Parks & Recreation
  Debra Gilbert
  Resource Mgmt. Division
- [ ] Reclamation Board
  Pam Bruner
- [ ] S.F. Bay Conservation & Dev't. Comm.
  Steve McAdam
- [ ] Resources Agency
  Nadell Gayou
  Dept. of Water Resources

Health & Welfare

- [ ] Health & Welfare
  Wayne Hubbard
  Dept. of Health/Drinking Water

Food & Agriculture

- [x] Food & Agriculture
  Tad Bell
  Dept. of Food and Agriculture

Fish and Game

- [ ] Dept. of Fish & Game
  Joe Vincenty
  Environmental Services Division
- [ ] Dept. of Fish & Game
  Donald Koch
  Region 1
- [ ] Dept. of Fish & Game
  Banky Curtis
  Region 2
- [ ] Dept. of Fish & Game
  Brian Hunter
  Region 3
- [ ] Dept. of Fish & Game
  William Laudermilk
  Region 4
- [ ] Dept. of Fish & Game
  Sandy Peterson
  Region 5, Habitat Conservation Program
- [x] Dept. of Fish & Game
  Gabrina Gatchel
  Region 6, Habitat Conservation Program
- [ ] Dept. of Fish & Game
  Tammy Allen
  Region 6, Inyo/Mono, Habitat Conservation Program
- [ ] Dept. of Fish & Game
  DeWayne Johnston
  Marine Region

Independent Commissions

- [ ] California Energy Commission
  Environmental Office
- [x] Native American Heritage Comm.
  Debbie Treadway
- [ ] Public Utilities Commission
  Andrew Barnsdale
- [x] State Lands Commission
  Betty Silva
- [ ] Colorado River Board
  Gerald R. Zimmerman
- [ ] Tahoe Regional Planning Agency (TRPA)
  Lyn Barnett
- [x] Office of Emergency Services
  John Rowden, Manager
- [ ] Delta Protection Commission
  Debby Eddy
- [ ] Santa Monica Mountains Conservancy
  Paul Edelman

Dept. of Transportation

- [ ] Dept. of Transportation
  IGR/Planning
  District 1
- [ ] Dept. of Transportation
  Vicki Roe
  Local, Development Review,
  District 2
- [ ] Dept. of Transportation
  Jeff Pulverman
  District 3
- [ ] Dept. of Transportation
  Jean Finney
  District 4
- [ ] Dept. of Transportation
  Lawrence Newland
  District 5
- [ ] Dept. of Transportation
  Marc Birnbaum
  District 6
- [ ] Dept. of Transportation
  Stephen J. Buswell
  District 7
- [x] Dept. of Transportation
  Mike Sim
  District 8
- [ ] Dept. of Transportation
  Caroline Yee for Kate Walton
  District 9
- [ ] Dept. of Transportation
  Chris Sayre
  District 10
- [ ] Dept. of Transportation
  Lou Salazar
  District 11
- [ ] Dept. of Transportation
  Aileen Kennedy
  District 12

Business, Trans & Housing

- [x] Housing & Community Development
  Cathy Creswell
  Housing Policy Division
- [ ] Caltrans - Division of Aeronautics
  Sandy Hesnard
- [x] California Highway Patrol
  Lt. Dennis Brunette
  Office of Special Projects
- [ ] Dept. of Transportation
  Ron Helgeson
  Caltrans - Planning
- [ ] Dept. of General Services
  Robert Sleppy
  Environmental Services Section

Air Resources Board

- [ ] Airport Projects
  Rob Rogen
- [ ] Transportation Projects
  Ann Geraghty
- [ ] Industrial Projects
  Mike Tollstrup

- [x] California Integrated Waste Management Board
  Sue O'Leary
- [ ] State Water Resources Control Board
  Diane Edwards
  Division of Clean Water Programs
- [x] State Water Resources Control Board
  Greg Frantz
  Division of Water Quality
- [ ] State Water Resouces Control Board
  Mike Falkenstein
  Division of Water Rights
- [x] Dept. of Toxic Substances Cont
  CEQA Tracking Center

Regional Water Quality Control Board (RWQCB)

- [ ] RWQCB
  Cathleen Hudson
  North Coast Region (1)
- [ ] RWQCB
  Environmental Document Coordinator
  San Francisco Bay Region (2)
- [ ] RWQCB
  Central Coast Region (3)
- [ ] RWQCB
  Jonathan Bishop
  Los Angeles Region (4)
- [ ] RWQCB
  Central Valley Region (5)
  - [ ] RWQCB
    Central Valley Region (5)
    Fresno Branch Office
  - [ ] RWQCB
    Central Valley Region (5)
    Redding Branch Office
- [x] RWQCB
  Lahontan Region (6)
  - [ ] RWQCB
    Lahontan Region (6)
    Victorville Branch Office
- [ ] RWQCB
  Colorado River Basin Region (7)
- [ ] RWQCB
  Santa Ana Region (8)
- [ ] RWQCB
  San Diego Region (9)

ENDANGERED HABITATS LEAGUE

Dedicated to Ecosystem Protection and Improved Land Use Planning

Dan Silver • Coordinator
PMB 592
8424-A Santa Monica Blvd.
Los Angeles, CA 90069-4267
TEL 323-654-1456 • FAX 323-654-1931 • dsilver@exo.com

December 19, 2000

DEC 22 2000

Brent Arnold, Principal Planner
Community Development Department
City of Chino
13220 Central Ave.
Chino, CA 91710

RE: Notice of Preparation for the Chino Preserve Specific Plan/Annexation/General Plan Amendment Environmental Impact Report

Dear Mr. Arnold:

The Endangered Habitats League (EHL) appreciates this opportunity to comment on the Notice of Preparation for this regionally significant project. For your reference, EHL is a Southern California organization dedicated to ecosystem protection, improved land use planning, and collaborative conflict resolution. We participate in a wide variety of planning effects in the region, including General Plan Updates in Riverside and San Diego County.

General comments

EHL is generally supportive of the direction the General Plan amendment is taking. We commend the visioning process and stakeholder input. Indeed, the emphasis on more compact, "livable community" features could set a vital precedent for Southern California. While we would have preferred to see more natural open space outside of the inundation area, we acknowledge the responsiveness of the City to many of our concerns and recognize the balance of uses in the Proposed Project as a defendable outcome for meeting an array of planning objectives.

However, we strongly urge the City to retain the *higher* residential densities around the community core. Without them, there really *is* no pedestrian-oriented "community core." Only with a larger number of units nearby is there a sufficient base for the commercial, civic, and entertainment uses. Also, only with sufficient units within a walkable distance can a successful transit element be supported.

It is also essential to ensure that the potential natural and open space values inherent in the Proposed Project are fully realized and then maintained over time.

Specific comments on EIR topics

1. Land use and circulation

The progressive community design features (community center, walkability, etc.) must be supported by fully adequate population densities (as noted above) and by appropriate transportation

improvements. *Transit systems*, which serve both internal and external needs, should be developed. For example, a circulator loop should be incorporated into the Proposed Project. External links, for example to Metrolink, are similarly important. The EIR should show reductions in trip generation and traffic impacts due to transit access, community design, and walkability. Such trip reductions have been empirically validated for the entire SCAG region. This information will be furnished to you via electronic mail.

2. Natural open space

The OS-N, AG OS-N, and AG designations have great potential to add amenity and wildlife values to the community. The purchase of flood easements in the inundation area is an excellent start, but ecosystem protection, restoration, and management over time are all essential in order to create and maintain the benefits. A long-term *resource management plan* (RMP) would be an appropriate vehicle to achieve these objectives. Thus, within the context of an RMP, the EIR should explore opportunities for major ecosystem restoration in conjunction with continued and compatible agricultural operations. Passive recreation, such as trails, should also be included.

3. Mitigation of impacts

The developed areas (residential, commercial, civic, active recreation, etc.) will cause a variety of environmental, hydrological, and biologic impacts. These impacts are not, of course, mitigated by purchase of flood easements by third parties, or by agricultural or open space zoning *per se*, as such zoning is not permanent.

Often, the ecological values in semi-disturbed or agricultural landscapes are minimized in EIRs, such is in failing to appreciate the significance of locally and regionally declining raptor foraging habitat. As part of a rare and unique block of open space in the Southern California metropolitan area, this project site has large ecosystem significance.

As a way of recognizing and mitigating the impacts of development, EHL supports a streamlined mitigation fee system, on a per unit, per acre and square foot, or other basis. If such a system is incorporated at the program EIR level, subsequent projects can use the fee without further costly, time-consuming, and perhaps contentious CEQA analysis. Such a fee also provides a stable and predictable funding source, which facilitates the achievement of meaningful environmental goals.

We request that that EIR explore the use of such a fee, and also explore how it might be directed to support the environmental goals of the resource management plan described above. Potential uses of the fee include voluntary conservation easements purchased from landowners and habitat restoration (upland and wetland) within the OS-N, AG OS-N, and AG designations. Mitigation "off-site" of the annexation area should also be evaluated for its comparative value.

In addition to a mitigation fee for biological impacts, a fee should be collected to compensate for loss of agricultural and general open space resources. This fee could go toward the purchase of easements in the AG designators to ensure continued agricultural uses, compatible with the resource management plan. A single, consolidated fee, administered, for example, by a land trust, would be an efficient way to maximize benefits.

Finally, reducing the impacts of development on adjacent agricultural and natural open space should be evaluated through the use buffer zones within the development area.

• • •

Thank you for considering these comments. We look forward to continued discussions and to working with you as the process advances.

Sincerely,

Dan Silver, MD
Coordinator

cc: Charles Coe
San Gorgonio Chapter Sierra Club
Pomona Valley Audubon Society

OMNITRANS

1995 Outstanding Transit System APTA

December 28, 2000

COMMUNITY DEVELOPMENT
RECEIVED
JAN 2 2001

Mr. Brent Arnold
Principal Planner
City of Chino Community Development
13220 Central Avenue
Chino, CA 91710

SUBJECT: Chino Preserve, Notice of Preparation

Dear Mr. Arnold:

Thank you for giving Omnitrans the opportunity to review the *Notice of Preparation of a Draft Environmental Impact Report* for the Chino Preserve Specific Plan. While Omnitrans does not currently operate service in this area, we anticipate that there will be a community need for transit service as the project matures.

We encourage all developers, within the framework of community standards, to design their projects with transit in mind. Omnitrans currently encourages developers and city planners to review *Designing For Transit: A Manual For Integrating Public Transportation and Land Development* during project planning. A copy of this document is included with this letter.

Omnitrans is developing our own area specific design manual that we anticipate releasing in the spring of 2001. This document will be forwarded to you upon completion. In the meantime, due to the 30-day window for responses to your document, I have included detailed diagrams of the primary stop designs preferred by Omnitrans.

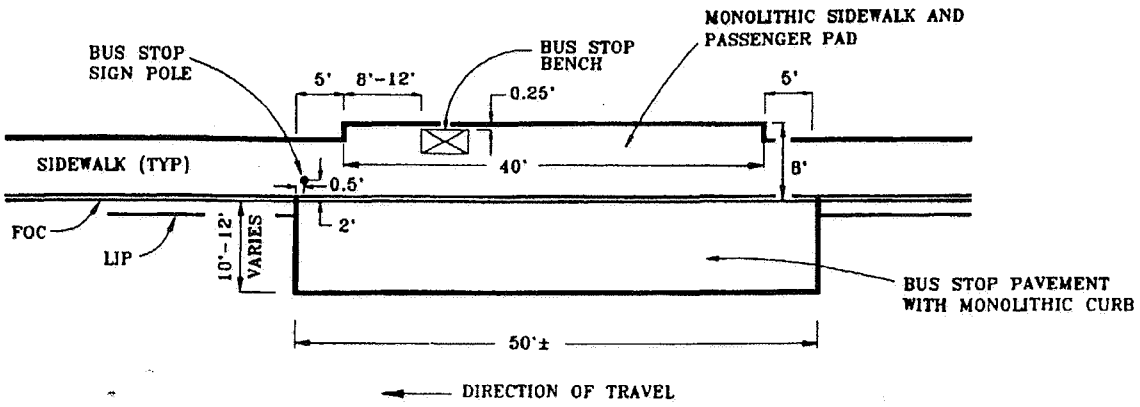
As this project develops, Omnitrans will be in a better position to provide input on transit requirements. Please forward additional information concerning this project to my attention at 909-379-7253 or to Kristy Welchel, Planning Analyst, at Kristy.Welchel@Omnitrans.Org.

Sincerely,

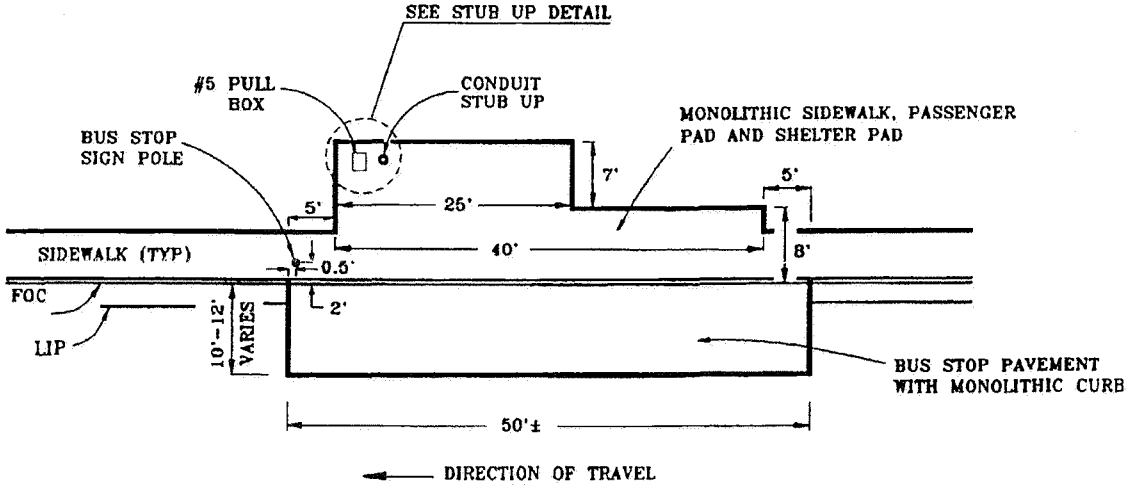
Patrick Merrick
Stops & Stations Supervisor
Patrick.Merrick@Omnitrans.Org

CC: Kristy L. Welchel, Planning Analyst, Omnitrans

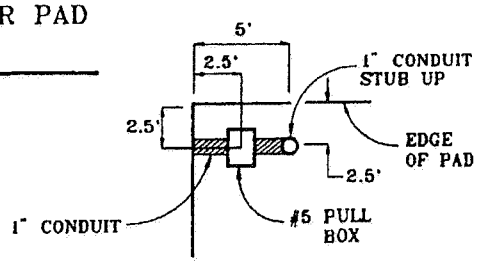
Enclosures



BUS STOP AND PASSENGER PAD
WITHOUT SHELTER



BUS STOP AND PASSENGER PAD
WITH SHELTER

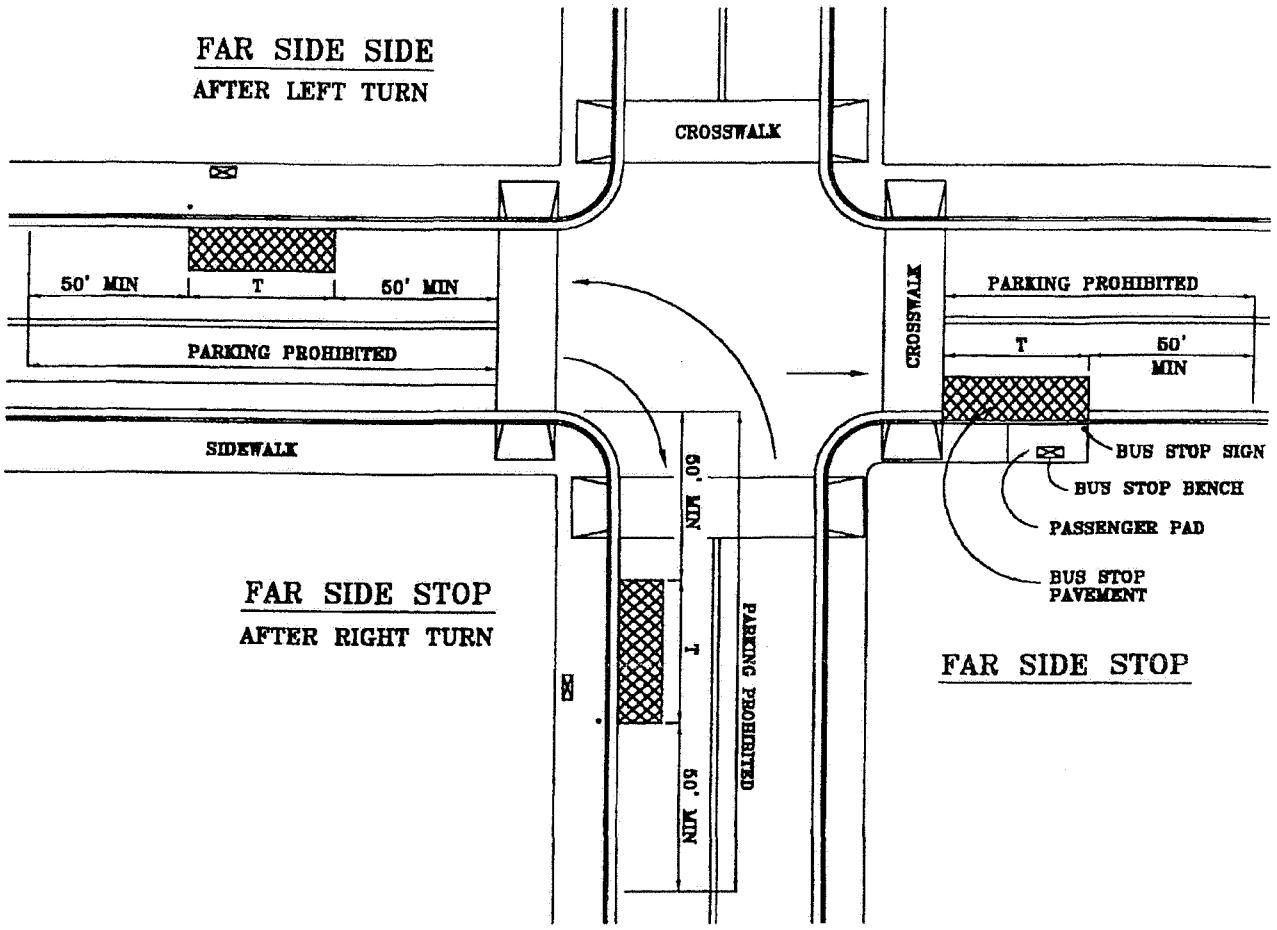


STUB UP DETAIL

OMNITRANS
1700 WEST FIFTH STREET
SAN BERNARDINO
CALIFORNIA 92411

BUS STOP CONFIGURATION

FIGURE 20



T = 50' FOR STANDARD BUS
T = 70' FOR ARTICULATED BUS
T = 110' FOR TRANSFER POINT

OMNITRANS
1700 WEST FIFTH STREET
SAN BERNARDINO
CALIFORNIA 92411

NOTES:

1. FOR BUS STOP PAVEMENT, PASSENGER PAD, BENCH AND SIGN DETAILS, SEE APPROPRIATE DETAILS.

BUS STOP INSTALLATION – FAR SIDE STOPS

FIGURE 8

OMNITRANS
1700 WEST FIFTH STREET
SAN BERNARDINO
CALIFORNIA 92411

TECHNICAL SPECIFICATIONS

1. P.C.C. pavement with monolithic curb and gutter shall conform to the provisions in Section 40, " PORTLAND CEMENT CONCRETE PAVEMENT," and Section 90, " PORTLAND CEMENT CONCRETE" of the State Standard Specifications and these special provisions.

2. P.C.C. pavement shall be class A with a compressive strength of 4000 psi at the age of 28 days. Polypropylene fibers (Fibermesh or approved equal), length 1/2", shall be added to the concrete at a rate of 1 1/2 lbs/cy.

3. After spreading and compacting, P.C.C. shall be given a preliminary finish which shall be smooth and true to grade. In advance of curing operations, the pavement shall be given a final rough broom finish with grooves having a depth of 1/8" perpendicular to the curb and gutter.

4. All newly - placed concrete shall be cured in accordance with the provisions in Section 90-7, "Curing Concrete," of the State Standard Specifications. Curing compound to be used shall be applied to the P.C.C. following the surface finishing operations immediately before the moisture sheen disappears from the surface and before any drying, shrinkage or craze cracks begin to appear. Curing compound shall be applied at a nominal rate of one gallon per 150 square feet. At any point, the application rate shall be within +/- 50 square feet per gallon of the nominal rate specified.

5. Sawcutting of the contraction joints must be performed within 24 hours after concrete has received final surface finish.

6. Contractor shall protect P.C.C. pad as specified in Section 90-8.03, " Protecting Concrete Pavement." Where public traffic will be required to cross over new pavement, and if directed by the Engineer, Type III Portland Cement shall be used in concrete. When Type III Portland Cement is used in concrete, and if permitted in writing by the Engineer, the pavement may be opened to traffic as soon as the concrete has developed a modulus of rupture of 550 pounds per square inch. The modulus of rupture will be determined by California Test Method 523.

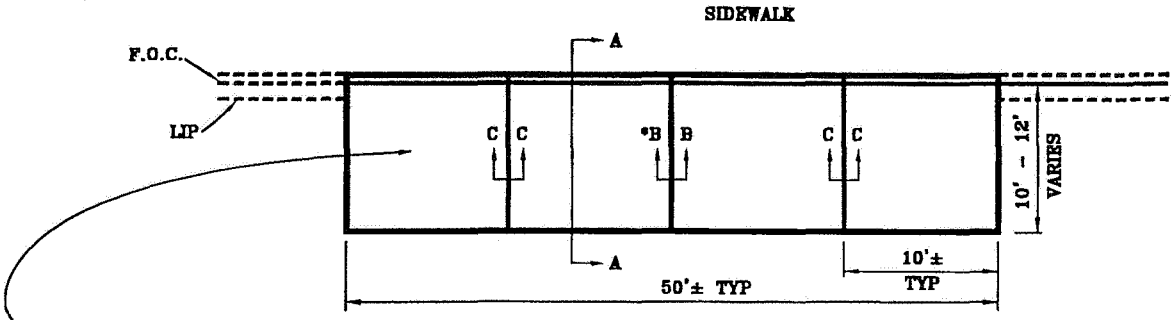
   No traffic or Contractor's equipment, except as hereinafter provided, will be permitted on the pavement before a period of ten (10) calendar days has elapsed after the concrete has been placed, nor before the concrete has developed a modulus of rupture of at least 550 pounds per square inch. Concrete that fails to attain a modulus of rupture of 550 pounds per square inch within 10 days shall not be opened to traffic until directed by the Engineer.

   Equipment for sawing contraction joints (weakened plane joints) will be permitted on the pavement as specified in Section 40-1.08B, "Weakened Plane Joints," of the State Standard Specifications.

7. Contraction joints, expansion joints and gaps between the P.C.C. pad and the existing pavement section shall be cleaned and sealed prior to permitting traffic on the pad. Removable cap joint shall be placed around the perimeter of the concrete pad excluding curb and gutter. Joint sealing compound shall be type "A" joint seal and shall conform to the provisions of Section 51-1.12F of the State Standard Specifications. The 2 component polyurethane sealant shall be State Specification 8030 - 61J - 01 or approved equal.

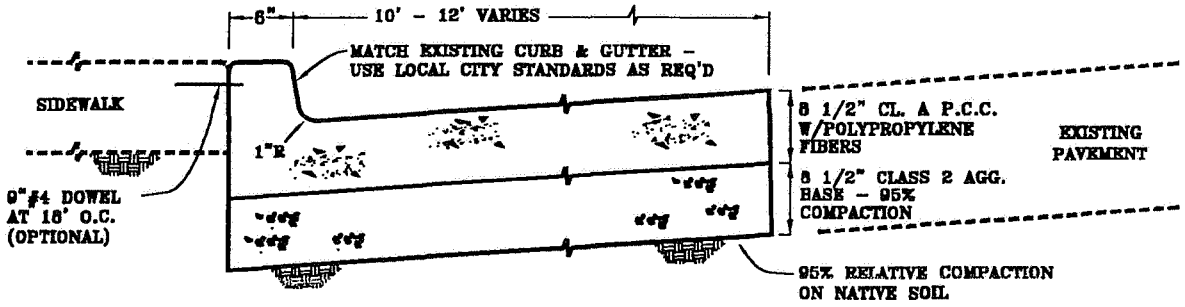
BUS STOP PAVEMENT DETAILS

ATTACHMENT 1 FOR FIGURE 26



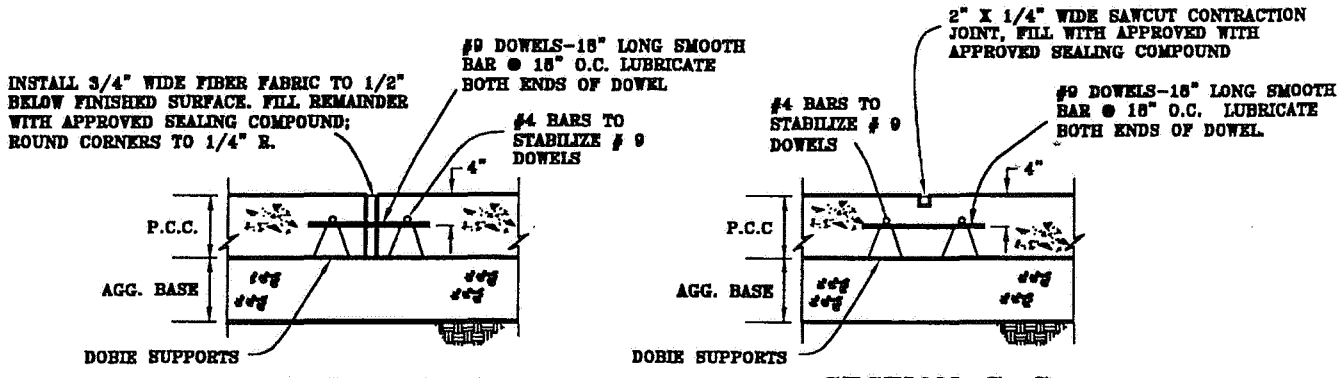
PLAN VIEW

*EXPANSION JOINT IS REQUIRED ONLY IF PAD IS 75' LONG OR LONGER. EXPANSION JOINT SHALL BE PLACED AT 1/2 THE LENGTH OF THE P.C.C. PAD. IN LONG PADS, EXPANSION EXPANSION JOINTS SHALL BE PLACED AT APPROXIMATELY 75-FOOT INTERVALS OR AS SPECIFIED BY THE ENGINEER.



SECTION A-A

PCC PAVEMENT WITH MONOLITHIC CURB



SECTION B-B

EXPANSION JOINT

SECTION C-C

CONTRACTION JOI

NOTE: FOR TECNICAL SPECIFICATIONS REFER TO ATTACHMENT 1.

OMNITRANS
1700 WEST FIFTH STREET
SAN BERNARDINO
CALIFORNIA 92411

BUS STOP PAVEMENT DETAILS

FIGURE 26

DEPARTMENT OF PUBLIC HEALTH

COUNTY OF SAN BERNARDINO
HUMAN SERVICES SYSTEM

ENVIRONMENTAL HEALTH SERVICES
- ☑ 385 North Arrowhead Avenue • San Bernardino, CA 92415-0160 • (909) 884-4056
- ☐ 1647 East Holt Boulevard • Ontario, CA 91764 • (909) 458-9673
- ☐ 15505 Civic Drive • Victorville, CA 92392 • (760) 243-8141
- ☐ 17780 Arrow Boulevard • Fontana, CA 92335 • (909) 356-6444
- ☐ San Bernardino County Vector Control Program
  2355 East Fifth Street • San Bernardino, CA 92415-0064 • (909) 388-4600

THOMAS J. PRENDERGAST, JR., MD, MPH
Director of Public Health

PAMELLA V. BENNETT, REHS, MPA
Chief, Division of Environmental Health

Also serving the cities of:

Adelanto	Montclair
Apple Valley	Needles
Barstow	Ontario
Big Bear Lake	Rancho Cucamonga
Chino	Redlands
Chino Hills	Rialto
Colton	San Bernardino
Fontana	Twentynine Palms
Grand Terrace	Upland
Hesperia	Victorville
Highland	Yucaipa
Loma Linda	Yucca Valley

December 29, 2000

Brent Arnold, Principal Planner
City of Chino
Community Development Department
13220 Central Avenue
Chino, CA 91710

RE: RESPONSE TO THE NOTICE OF PREPARATION OF A PROGRAM EIR FOR THE CHINO SPHERE OF INFLUENCE- SUBAREA 2

Dear Mr. Arnold:

The San Bernardino County Local Enforcement Agency is in receipt of the above-stated Notice of Preparation for a Program EIR. The following categorical subject areas should be included in the scope, and evaluated as part, of the EIR:

1) Solid Waste Disposal
2) Solid Waste projects and facilities
3) Composting activities
4) Composting projects and facilities
5) Transfer/Processing activities
6) Transfer/Processing projects and facilities (including Material Recovery Facilities)
7) Solid Waste Transformation projects
8) Transportation of Solid Waste.

In accordance with Section 21080.4 of CEQA, the LEA is providing the scope and content of the environmental information that is germane (and typical) to our statutory responsibilities regarding the above types of activities:

1) Quantities and types of materials to be generated/accepted/handled/processed
2) Design capacities
3) Permitted area (acreage), facility boundaries, and operations area boundaries
4) Setbacks and buffer zones
5) Traffic Volumes
6) Load-checking/hazardous waste prevention/prohibited wastes
7) Hours of site activities/hours open to the public

COMMUNITY DEVELOPMENT

8) Drainage/erosion control
9) The potential creation of health hazards and/or public nuisances related to:
   i) Noise
   ii) Odors
   iii) Dust
   iv) Vectors
   v) Litter.

Also, please recognize that the intent of AB 1220 was to separate regulatory responsibilities of the LEAs, the Regional Water Boards, and the Regional Air Districts. Although this was achieved to a certain degree, please be aware that some issues and responsibilities remain which overlap among the Santa Ana Regional Waster Quality Control Board, the South Coast Air Quality Management District, and the San Bernardino County LEA.

Sincerely,

Matt Slowik by JCF

Matthew W. Slowik, REHS
Senior Associate Planner
Waste Management/LEA Section

MWS:ar

ce: Dixie Lass, SARWQCB
Bill Thompson, SCAQMD
Tina Twing, San Bernardino County Planning

EPARTMENT OF PUBLIC HEALTH

COUNTY OF SAN BERNARDINO

VIRONMENTAL HEALTH SERVICES
385 North Arrowhead Avenue • San Bernardino, CA 92415-0160 • (909) 884-4056
320 East "D" Street • Ontario, CA 91764 • (909) 391-7570
15505 Civic Drive • Victorville, CA 92392 • (619) 243-8141
17830 Arrow Boulevard • Fontana, CA 92335 • (909) 829-6244
San Bernardino County Vector Control Program
2355 East Fifth Street • San Bernardino, CA 92415-0064 • (909) 383-3200

THOMAS J. PRENDERGAST, JR., MD, M.
Director of Public Health

PAMELLA V. BENNETT, REHS, MPA
Director of Environmental Health

Also serving the cities of:

Adelanto	Montclair
Apple Valley	Needles
Barstow	Ontario
Big Bear Lake	Rancho Cucamonga
Chino	Redlands
Chino Hills	Rialto
Colton	San Bernardino
Fontana	Twentynine Palms
Grand Terrace	Upland
Hesperia	Victorville
Highland	Yucaipa
Loma Linda	Yucca Valley

SAN BERNARDINO COUNTY
ENVIRONMENTAL HEALTH SERVICES
FACSIMILE MESSAGE - COVER SHEET
(FAX # (909) 387-4323)

DATE: DEC. 29, 2000

TIME: 9:00 AM

TO: BRENT ARNOLD
PRINCIPAL PLANNER
DEBRA HARDER
CITY OF CHINO

FAX NO: (909) 590-5535

FROM: MATT SLOWIK
SAN BERNARDINO COUNTY-LEA

SUBJECT: DRAFT EIR FOR CHINO SPHERE OF INFLUENCE SUBAREA 2

Number of pages (including this page) ONE (1)

SPECIAL INSTRUCTIONS: THE LEA REQUESTS A COPY OF THE DRAFT EIR. PLEASE OVERNIGHT MAIL TO:
MATT SLOWIK, SAN BERNARDINO COUNTY LOCAL ENFORCEMENT AGENCY
385 N. ARROWHEAD AVE, 2ND FLOOR, SAN BERNARDINO CA 92415-0160

If you experience any problems in receiving this information, please contact the operator whose name is noted below:

Matthew W Slowik — Transmitting Operator

387-3039 or 387-4655 — Phone Number

12/29/2000 10:14 909 S.B. CO. ENV. HEALTH PAGE 01

DEPARTMENT OF PUBLIC HEALTH

COUNTY OF SAN BERNARDINO

ENVIRONMENTAL HEALTH SERVICES
385 North Arrowhead Avenue • San Bernardino, CA 92415-0160 • (909) 884-4056
320 East "D" Street • Ontario, CA 91764 • (909) 391-7670
15505 Civic Drive • Victorville, CA 92392 • (619) 243-8141
17030 Arrow Boulevard • Fontana, CA 92335 • (909) 829-6244
San Bernardino County Vector Control Program
2355 East Fifth Street • San Bernardino, CA 92415-0064 • (909) 383-3200

THOMAS J. PRENDERGAST, JR., MD, M
Director of Public Health

PAMELLA V. BENNETT, REHS, MPA
Director of Environmental Health

Also serving the cities of:

Adelanto	Montclair
Apple Valley	Needles
Barstow	Ontario
Big Bear Lake	Rancho Cucamonga
Chino	Redlands
Chino Hills	Rialto
Colton	San Bernardino
Fontana	Twentynine Palms
Grand Terrace	Upland
Hesperia	Victorville

SAN BERNARDINO COUNTY
ENVIRONMENTAL HEALTH SERVICES
FACSIMILE MESSAGE - COVER SHEET
(FAX # (909) 387-4323)

DEPARTMENT OF PUBLIC HEALTH
DIVISION OF
ENVIRONMENTAL HEALTH SERVICES

MATTHEW W. SLOWIK, REHS, MURP
Senior Associate Planner
Waste Management/LEA

(909) 387-4655
Fax (909) 387-4323

385 N. Arrowhead Avenue 2nd Floor
San Bernardino, CA 92415-0160
mslowik@ph.co.san-bernardino.ca.us

DATE: 1/11/01

TIME: 11:45 AM

TO: BRENT ARNOLD
COMMUNITY DEV. DEPT.,
CHINO [FAX # (909) 590-5535]

FROM: MATTHEW W. SLOWIK
SAN BERNARDINO COUNTY
LEA

NOTE: I'M AWARE THAT ONE EXISTS DATED AUGUST, 2000. THEREFORE IF THIS IS THE LATEST, THE REQUEST IS FOR THIS REPORT. IF A MORE RECENT VERSION HAS BEEN PRODUCED, THE REQUEST IS FOR THE MORE RECENT VERSION.

SUBJECT: REQUEST FOR A COPY OF "THE LATEST VERSION" OF THE LAND USE PLAN/REPORT ASSOCIATED WITH THE SPECIFIC PLAN/ANNEXATION/GENERAL PLAN AMENDMENT.

Number of pages (including this page) ONE (1)

SPECIAL INSTRUCTIONS: AS THE NOP RESPONSE DEADLINE IS 2/5/01, PLEASE PROVIDE THE ABOVE-STATED "LATEST" LAND USE PLAN/REPORT AS SOON AS POSSIBLE

If you experience any problems in receiving this information, please contact the operator whose name is noted below:

Matthew W Slowik — Transmitting Operator

(909) 387-3039 — Phone Number

Chino Valley Independent Fire District

2005 Grand Avenue
Chino Hills, CA 91709
(909) 902-5260 Administration
(909) 902-5280 Fire Prevention
(909) 902-5250 Fax

Board of Directors
David A. Voigt, President
James S. Espinosa, Vice President
Patti Aguiar
Tina Revane
Bill Stace

Fire Chief
Paul L. Benson

January 2, 2001

Mr. Brent Arnold, Principal Planner
City of Chino
Community Development Department
13220 Central Avenue
Chino, CA 91710

COMMUNITY DEVELOPMENT
2001

RE: CHINO PRESERVE - DRAFT ENVIRONMENTAL IMPACT REPORT (Received December 12, 2000)

Dear Mr. Arnold:

It is the understanding of the Fire District that the City of Chino is preparing to annex approximately 5,435 acres within the Chino Agricultural Preserve (Sub-area 2) and to allow up to 8,064 dwelling units, 640 acres of business and 584 acres of Public Facilities to be developed.

The Fire District is requesting to be involved in the entire planning process for this project. This is especially important in that the proposed development is significantly larger than previously anticipated.

The Fire District's concern is regarding the significant increase in service demand to this area. The cost of fire facilities and equipment for the area needs to be provided for. Additionally, Pine Avenue completion becomes more critical with the large development planned for the area.

The Fire District contact for this project is:

Tom Maxham, Division Chief
2005 Grand Avenue
Chino Hills, CA 91709
(909) 902-5260

We look forward to assisting with the development of the Chino Agricultural Preserve.

Sincerely,

Paul L. Benson
Fire Chief

PLB:ms

Inland Empire
UTILITIES AGENCY

9400 Cherry Ave., Bldg. A • Fontana, CA 92335
P.O. Box 697 • Rancho Cucamonga, CA 91729
TEL (909) 357-0241 • FAX (909) 357-3884
www.ieua.org
A Municipal Water District

Richard W. Atwater
Chief Executive Officer
General Manager

Board of Directors

John L. Anderson
President

Terry Catlin
Vice President

Anne W. Dunihue
Secretary/Treasurer

Wyatt L. Troxel
Director

Gene Koopman
Director

January 4, 2001

COMMUNITY DEVELOPMENT

Brent Arnold, Principal Planner
City of Chino
Community Development Department
13220 Central Avenue
Chino, CA 91710

Subject: Notice of Preparation of a Draft Environmental Impact Report for the Chino Preserve Specific Plan/Annexation/General Plan Amendment

Dear Mr. Arnold:

Thank you for the opportunity to review and comment on the Notice of Preparation for the Draft Environmental Impact Report (DEIR) for the Chino Preserve Specific Plan/Annexation/General Plan Amendment that was received on December 7, 2000. The Inland Empire Utilities Agency (IEUA) is a service provider for the southwestern portion of San Bernardino County, which includes the cities of Fontana, Rancho Cucamonga, Ontario, Upland, Montclair, Chino, and Chino Hills. The Agency is involved in four primary service programs that may be affected by this project. These programs include regional domestic wastewater treatment and disposal, non-reclaimable wastewater collection and disposal, importation of supplemental water supplies, and water resources management within the Chino Groundwater Basin.

As noted on page 2-2 of the Notice of Preparation, IEUA's Co-Composting Facility is located within the project area. Medium density, low density, and estate residential zoning are proposed for and adjacent to its location. Although a study is currently being performed which evaluates the feasibility of relocating the facility, the possibility remains that it will continue "as is" or that a new enclosed facility will be built on the same site. The DEIR will hopefully address the provisions necessary to make the Co-Composting Facility compatible with the project plans for the area.

At the present time, the project area is serviced by Regional Plant No. 2 (RP-2). Regional Plant No. 5 (RP-5) is currently under construction and will eventually replace RP-2. RP-5 is scheduled to be complete in early 2003. It is assumed that wastewater flows from this project will be conveyed to

RP-2/RP-5 for treatment and disposal. As the project progresses, the Kimball Interceptor will be available for conveying wastewater to RP-5. To better assess the project's impacts on the Agency's facilities, it would be helpful if the DEIR presents a flow routing plan identifying the estimated wastewater flows and anticipated connection point(s) to the regional system.

The non-reclaimable waste (NRW) system in the project area is the Santa Ana Regional Interceptor (SARI). The SARI line runs through the project area up Euclid Avenue (starting just south of Pomona-Rincon Road) and along Pine Avenue (continuing east of the project area). Industries, especially those near the airport, may have a need to dispose of non-reclaimable wastes. The DEIR should present a flow routing plan identifying the estimated flows and anticipated connection point(s) to the SARI line.

The DEIR should discuss any existing facilities that are within the project area. The Regional Plant No. 1 outfall line / recycled water line is routed along Carpenter Street, Remington Street, Walker Avenue, Pine Avenue, Johnson Avenue, Comet Avenue, and Chino-Corona Road (East-West). The Kimball Interceptor runs along Kimball Avenue, between Mountain Avenue (west of the project area) and Baker Avenue. The CIW / Prado Park Interceptor runs in an easement between Pine Avenue and Chino-Corona Road (East-West) from west of the project area past Johnson Avenue to the California Institution for Women (CIW). Please contact Taghi Monzavi in IEUA's Engineering and Construction Management Department for any questions you may have regarding the Agency's encroachment requirements. Also, please be aware that the Santa Ana Watershed Project Authority (SAWPA) desalter line runs along Hellman Avenue and Kimball Avenue. Also, as stated above, the SARI line, owned by SAWPA, runs up a portion of Euclid Avenue and across Pine Avenue. You may contact SAWPA at (909) 785-5411.

Finally, please consider that reclaimed water can be made available for irrigation or other purposes. Given the growing need for a limited supply of potable water, the Agency and its member agencies are pursuing reclamation to extend this supply. In recognition of the potential availability of reclaimed water supplies, consideration should be given to the design and installation of landscape irrigation systems that utilize reclaimed water. For more specific information concerning the availability and supply of this water source, please contact Garth Morgan in IEUA's Water Resources Department.

We would appreciate it if you keep us apprised as your project moves forward. We look forward to reviewing the DEIR. If you have any questions concerning our comments, please feel free to contact me at your convenience.

Sincerely,

Danielle D. Maurizio

Danielle D. Maurizio
Senior Associate Engineer

DDM
c: Garth R. Morgan
Taghi Monzavi

G:\Group\Pp\Danni\Ceqa\response to chino DEIR NOP for preserve annexation.doc

CITY OF CHINO HILLS
INCORPORATED 1991

CITY OF CHINO HILLS

2001 GRAND AVENUE
CHINO HILLS, CALIFORNIA 91709-4869
(909) 590-1511 ♦ (909) 590-5646 FAX

OFFICE OF THE CITY MANAGER
JAN 0 5 2001
CITY OF CHINO

CITY COUNCIL:
ED M. GRAHAM
GARY G. LARSON
GWENN E. NORTON-PERRY
JAMES S. THALMAN
MICHAEL G. WICKMAN

January 4, 2001

Glen Rojas, City Manager
City of Chino
P.O. Box 667
Chino, CA 91708—667

SUBJECT: NOTICE OF PREPARATION OF AN ENVIRONMENTAL IMPACT REPORT FOR THE CHINO PRESERVE GENERAL PLAN AMENDMENT, ANNEXATION, AND SPECIFIC PLAN

Dear Glen:

This letter has been prepared to provide you with our comments on Notice of Preparation of an Environmental Impact Report (EIR) for "The Preserve" project providing for urbanization of the 5,435 acre Chino Valley Dairy Preserve. The Preserve project proposes to annex those properties located in the County of San Bernardino into the corporate limits of the City of Chino. It encompasses the area generally bounded by Euclid Avenue on the west, Merrill Avenue on the north, Hellman Avenue on the east, and the San Bernardino/Riverside County boundary on the south in the vicinity of the southeastern border of the City of Chino Hills.

We are interested in actively participating in the plan development and review process for this project located at our border. Detailed financing, phasing, infrastructure, and design guidelines should be established so as to direct development of the Preserve in such a way as to guarantee that it will be an asset to the City of Chino and the region. The City of Chino Hills would like to stress the importance of our two cities working together:

- To determine the appropriate land uses to be established in close proximity to our respective city boundaries;
- To ensure that provisions are put in place to upgrade the circulation system serving The Preserve in its entirety (including the properties within the City of Ontario's portion of the Preserve and the properties in the City of Chino's Subarea 1 portion of the Preserve) and the region; and,
- To establish a coordinated and complementary enhancement program for the open space and recreational facilities along both sides of Chino Creek.

The City of Chino Hills believes that the scope of the EIR for The Preserve project should be expanded. It should include a discussion of the various alternatives for avoiding or mitigating any potential adverse effects, especially with regard to land use compatibility, aesthetics, traffic and circulation. These areas of concern to the City of Chino Hills, as well as others are set forth in our letter to you dated August 16, 2000 (attached).

I wanted to thank you in advance for responding to our comments and for your favorable consideration of the City of Chino Hills' concerns. Please call me at (909) 364-2610 so that we may discuss the appropriate process to allow our two cities to cooperatively work together to address development along our borders.

Sincerely,

Douglas N. La Belle, City Manager

cc: Mayor and City Council

Juna

CITY OF CHINO HILLS

2001 Grand Avenue
Chino Hills, California 91709-4869
(909) 590-1511 • (909) 590-5646 Fax

City Council
Ed M. Graham
Gary G. Larson
Gwenn E. Norton-Perry
James S. Thalman
Michael G. Wickman

August 16, 2000

Glen Rojas, City Manager
City of Chino
P.O. Box 667
Chino, California 91708-0667

SUBJECT: Subarea 2 -- City of Chino Sphere of Influence

Dear Glen:

This letter has been prepared to provide you with the City of Chino Hills' comments regarding the development of a Preferred Land Use Plan Concept for Subarea 2. The City of Chino Hills has reviewed the various land use alternatives under consideration. We are generally supportive of the direction being undertaken by the City of Chino and are pleased to see that comments are being solicited at the beginning of the formal land use planning and environmental review process.

Our comments focus on the areas of concern to the City of Chino Hills:

1) ***Land Use Compatibility*** -- Emphasis should be placed on our two (2) cities working together to establish a buffer area with open space, recreational, and agricultural land uses as a significant focal point and boundary between the urban core areas of Chino and Chino Hills. Compatible and complementary land uses should be established adjacent to the Chino Valley Freeway (SR 71) and Chino Creek within the general vicinity of our respective borders;
2) ***Quality of Life*** -- Adequate provisions should be instituted to ensure that the quality of life enjoyed throughout the residential neighborhoods in Chino Hills is protected from any deleterious effects (such as traffic, noise, lights, air pollution, odors, a reduction in available public facilities and services, and the like) that may result from urbanization of the agricultural lands;
3) ***Adequate Infrastructure*** -- Financing plans should be developed and all associated capital improvement projects should be identified in order to ensure that the required infrastructure to support urban land uses is constructed in a timely manner;
4) ***Environmental Remediation*** -- Programs should be put in place to address remediation of any contaminated properties to ensure that they are cleaned up prior to urbanization; and
5) ***Phasing Plan***—A comprehensive approach should be taken for providing a smooth transition from agricultural land to an urban area and for establishing adequate buffers between different land uses.

We look forward to continued involvement in the planning and environmental review process to address conversion of the agricultural preserve lands east of Euclid Avenue and south of Merrill Avenue into an urban area.

While we realize that Subarea 2 is not immediately contiguous to our border, we would like to reiterate the comments previously presented to the City of Chino during the review and processing of plans for Subarea 1. We would like to stress the importance of our two cities working together to determine the appropriate land uses to be established in close proximity to our respective city boundaries. The City's focus on retaining the majority of the agricultural land uses within Subarea 1 should be continued, as appropriate, in the plans being developed for Subarea 2. The provision of a combination of agricultural, open space, and recreational land uses along the western boundary of Subareas 1 and 2 would provide a buffer between the urban core areas of both cities.

We are concerned that the quality of life enjoyed by our existing residents and those who locate here in the future is maintained and enhanced. It is important that both the Environmental Impact Report (EIR) and the Planning Program itself for Subarea 2 address how preservation of the high standards and quality living environment of our communities will be accomplished.

The basic land use pattern to the west of Subarea 1 and 2, exclusive of the Soquel Canyon Parkway/SR 71 quadrant, is residential. There are a significant number of Chino Hills residents who live adjacent to this area. In addition to the existing population, we anticipate that there will be approximately 600 to 800 families moving into the area within the next year, including the 787 unit Fairfield Ranch, the 99 unit Silver Sage community, the 322 unit Pinehurst West, and the 142 unit Griffin Communities Legacy Ranch. Since January of this year, approximately 400 new Chino Hills' families have moved into the area.

In addition, it is critical that financing plans for construction of the necessary public infrastructure are developed. Development should not proceed without first setting aside sufficient funds for the improvements needed to support conversion of this area to urban land uses. We are primarily concerned that provisions are put in place to upgrade the circulation system serving both Subarea 2 and the region. Any financing plan established for infrastructure improvements should also include fair share contributions from the City of Chino to fund the projects identified in the Four Corners Transportation Study Report and any others that may be warranted based on the Traffic Impact Analysis Report prepared specifically for Subarea 2.

The regional traffic and circulation impacts associated with development of the Sphere of Influence area needs to be properly analyzed and mitigated. Additional and/or improved connections to the surrounding freeways (SR 71, SR 60, I-15, and SR 91) must be provided. Particular emphasis should be placed on establishing an additional east/west transportation corridor directly connecting SR 71 and I-15. Further, improvements should be made to the SR 71/Pine Avenue interchange and the SR 71/Euclid Avenue interchange to accommodate the planned urbanization. Easy access to the Chino Valley Freeway (SR 71) is critical.

We look forward to being included as part of the EIR preparation and the review process for Subarea 2 and the Planning Program itself. We would appreciate your assurance that development of Subarea 2 will not proceed without enactment of a comprehensive approach for mitigating and addressing our concerns regarding land use compatibility, maintenance of the quality of life, provision of adequate infrastructure, environmental remediation, and development phasing. Recognition should be given to the current agricultural land uses and related support facilities that may remain for some time. Further, the planning of the mixture of land uses for Subarea 2 and the subsequent implementation of the planning programs needs to address how compliance with the existing peace agreement and OBMP mandate that manure must not be stored above the basin will be achieved.

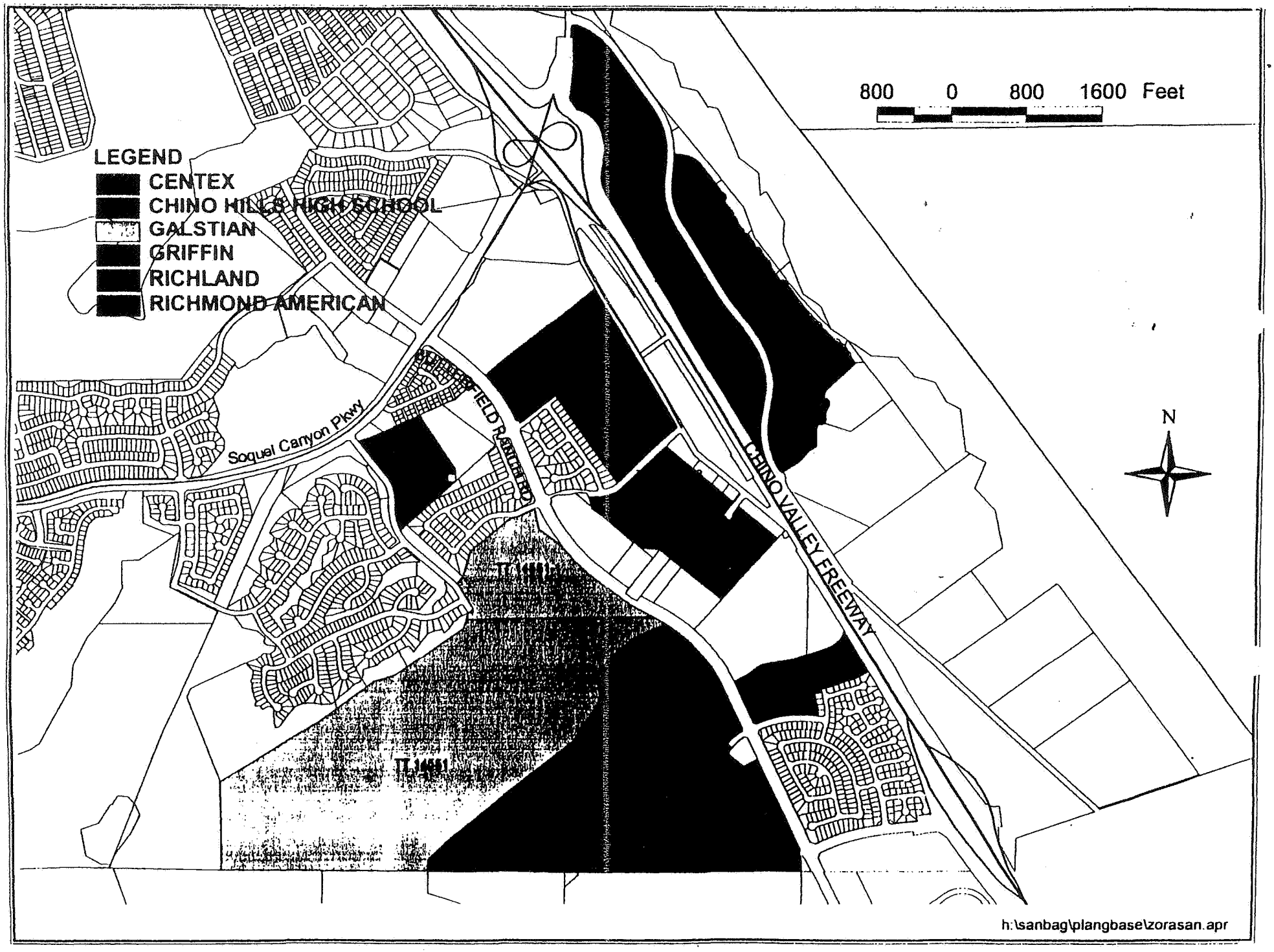
Thank you for your favorable consideration of the City of Chino Hills' concerns. Please feel free to call me at (909) 364-2610 to discuss these issues in greater detail.

Sincerely,

Douglas N. La Belle, City Manager

Enclosure

cc: Mayor and City Council


800 0 800 1600 Feet
LEGEND
CENTEX
CHINO HILLS HIGH SCHOOL
GALSTIAN
GRIFFIN
RICHLAND
RICHMOND AMERICAN
Soquel Canyon Pkwy
CHINO VALLEY FREEWAY
N
h:\sanbag\plangbase\zorasan.apr

DEPARTMENT OF CONSERVATION
STATE OF CALIFORNIA

801 K STREET
SACRAMENTO
CALIFORNIA
95814

PHONE
916/322-1080

FAX
916/445-0732

TDD
916/324-2555

INTERNET
consrv.ca.gov

GRAY DAVIS
GOVERNOR

January 5, 2001

Mr. Brent Arnold, Principal Planner
City of Chino
Community Development Department
13220 Central Avenue
Chino, CA 91710

Subject: Notice of Preparation (NOP) of a Draft Environmental Impact Report (DEIR) for the Chino Preserve Specific Plan, Annexation and General Plan Amendment – **SCH #2000121036**

The Department of Conservation's Division of Land Resource Protection (Division) has reviewed the referenced NOP. The Division monitors farmland conversion on a statewide basis and administers the California Land Conservation (Williamson) Act and other agricultural land conservation programs. We offer the following comments for your consideration.

The proposed project includes the annexation of the largest remaining portion of the Chino Valley Dairy Preserve within the City of Chino's Sphere of Influence. The annexation would allow for development of a portion of the approximately 5,435 acres currently within the Preserve. The Chino Basin is home to one of the largest dairy herd populations in the world. Portions of these dairies, covering over a quarter of the project area, are located within the Preserve. An additional 40 percent of the project area is devoted to pasture land and agricultural uses. The proposed project would allow up to 8,064 dwelling units on 1,223 acres; 640 acres of business uses; 584 acres of public facilities and rights-of-ways; and, approximately 2,988 acres in open space.

To assess the significance of the project's agricultural impacts, the Division recommends that the City of Chino use the California Land Evaluation and Site Assessment (LESA) model. The model provides an objective methodology to consistently document, in a quantitative manner, the significant environmental impacts of a project on agricultural land. The model may also be used to rate the relative value of alternative project sites. A user's guide to the LESA model is available from the Division at the contact number listed below.

The California Code of Regulations (Section 15000 et seq., Appendix G) includes a sample initial study checklist by which lead agencies may also determine the significance of project impacts on agricultural resources.

In accordance with the checklist and LESA approach, the Department recommends that the DEIR address the following issues when a project has the potential to impact agricultural resources.

Agricultural Setting of the Project

Existing and potential agricultural productivity is determined to a large extent by soil quality and water availability. The Department's Important Farmland series maps define farmland categories according to these attributes. Since Important Farmland Maps are available for the project area, we recommend that the DEIR include a map identifying areas of Prime Farmland, Farmland of Statewide Importance, and Unique Farmland in the project area and on surrounding lands. In addition, the following site information should be addressed.

- Current and past agricultural use of the project area, including data on the types of crops grown, and related yields and farmgate values.
- The total economic value of agricultural production from the project site. Economic multipliers should be used to assess the total agricultural value to the local, regional and state economies. State and Federal agencies such as the UC Cooperative Extension Service and USDA are sources of economic multipliers.

Project Impacts on Agricultural Land

- Type, amount, and location of farmland conversion resulting directly and indirectly (including growth-inducing impacts) from project implementation.
- Impacts on current and future agricultural operations; e.g., land-use conflicts, increases in land values and taxes, vandalism, etc.
- Incremental project impacts leading to cumulatively considerable impacts on agricultural land. These impacts would include impacts from the proposed project as well as impacts from past, current and foreseeable future projects.

The Division's 1990 publication, *The Impacts of Farmland Conversion in California,* contains a thorough discussion of the kinds of physical, social and economic impacts that can occur as a result of farmland conversion. This publication could be helpful in guiding the analysis of the agricultural land impacts of this project. This publication is available through the Division at the address listed below.

Williamson Act Lands

A project is deemed to be of statewide, regional, or area-wide significance if it will result in the cancellation of a Williamson Act contract for a parcel of 100 or more acres [California Code of Regulations Section 15206(b)(3)]. Since lands under Williamson Act

contract exist in the project area, the Department recommends that the DEIR provide the following information.

- A map detailing the boundaries of the agricultural preserve and location of contracted land within the preserve. The DEIR should also include the number of acres in the agricultural preserve by contract status and land type (e.g., prime or non-prime agricultural land). Similarly, the DEIR should map and enumerate total preserve and contained contracted lands that will be impacted directly or indirectly by the project.
- A description of Williamson Act contracts that may be terminated in order to accommodate the project. The DEIR should discuss the impacts that termination of Williamson Act contracts could have on remaining contracted properties in and adjacent to the project site.

  As a general rule, land can be withdrawn from Williamson Act contract only through the nine-year nonrenewal process. Immediate termination via cancellation is reserved for "extraordinary", unforeseen situations (See Sierra Club v. City of Hayward (1981) 28 Cal.3d 840, 852-855). Cancellation must be based on specific findings that are supported by substantial evidence. If Williamson Act contract cancellation is proposed, we recommend that a discussion of the specific findings (Government Code Section 51282) that must be made by the City in order to approve tentative contract cancellation, be included in the DEIR. Notice of the public hearing on cancellation, and a copy of the landowner's petition, must be mailed to the Director of the Department of Conservation ten (10) working days prior to the hearing on tentative contract cancellation. (The notice should be mailed to Darryl Young, Director, Department of Conservation, 801 K Street, MS 24-01, Sacramento, CA 95814-3528).

- A discussion of proposed uses for lands that will remain under Williamson Act contract. Land uses proposed for Williamson Act contracted land must meet compatibility principles identified in Government Code Sections 51238 - 51238.3. Otherwise, contract termination (see paragraph above) must occur prior to the initiation of the land use.
- Government Code Section 51230 states that an agricultural preserve may contain land other than agricultural land, but the use of any non-contracted land within the preserve must be restricted by zoning or other means to not be incompatible with the agricultural use of contracted land. Therefore, the DEIR should discuss any proposed general plan designations or zoning within the project area that could preclude or be incompatible with agricultural uses, especially on lands under Williamson Act contract.

- A discussion of Williamson Act lands that may be acquired as part of the project. The Act requires that a public agency proposing to acquire Williamson Act land notify the Department of Conservation prior to the acquisition. In addition, the acquiring agency must first make specified findings to support the purchase of Williamson Act lands (Government Code Sections 51291-51292). We recommend that the DEIR identify Williamson Act lands that may be acquired for the project, and, consistent with the required findings, discuss why project alternatives that would avoid Williamson Act lands are not feasible.
- If land within an agricultural preserve is annexed, the city must succeed to the rights, duties and powers of administering the preserve and contracts, unless conditions specified in Government Code Sections 51243 and 51243.5 apply. Annexation of Williamson Act lands also requires notification of the Department (Government Code Sections 56828.5 and 56835).

Mitigation Measures

Feasible mitigation measures and alternatives to lessen farmland conversion impacts should be discussed in the DEIR. The Division has compiled an annotated listing of approximately thirty "conservation tools" that have been used by communities in the U.S. to conserve or mitigate impacts on agricultural land. The unpublished report may be requested from the Division at the below listed phone number.

One of the tools described in the report is the purchase of agricultural land conservation easements on land of equal quantity and size as replacement for the land converted. We highlight this mitigation measure because of its growing application by state and local agencies in California. Also, at least one California court has ruled that conservation easements should be considered as a reasonable mitigation measure for the loss of agricultural land. (El Toro Land Use Planning Authority, et al v. County of Orange, et al, San Diego Superior Court #710123, January 6, 1998). Agricultural land conservation easements have been used to mitigate agricultural land impacts both directly and indirectly, the latter through the use of impact mitigation fees that are subsequently used to acquire easements directed by the lead agency or a land trust.

Information on conservation easements and related Department of Conservation programs is available on the Department's website, or by contacting the Division at the address and phone number listed below. The Department's website address is:

http://www.consrv.ca.gov/dlrp/CFCP/index.htm

We note that right-to-farm provisions and buffers are proposed to minimize conflict between incompatible uses. Other mitigation measures that could be considered to

fulfill the requirements of CEQA with respect to the project's environmental impacts include the following.

- Direct urban growth to lower quality soils in order to avoid valuable agricultural lands.
- Avoid low density, estate type residential development in favor of development designs that include higher home densities and clustering of residential units to allow a greater portion of the project area to remain in agricultural production.
- Similarly, encourage compact development patterns in the proposed commercial areas of the project.
- Protect the proposed open space areas of the project with long-term restrictions on use such as by agricultural conservation easements [e.g., Department of Conservation's California Farmland Conservancy Program (Public Resources Code Section 10200-10277)].
- Prevent the premature conversion of agricultural land through the use of less than permanent land restrictions, such as 20-year Farmland Security Zone contracts (Government Code Section 51296), or 10-year Williamson Act contracts (Government Code Section 51200 et seq.).

Finally, we suggest that the best mitigation approach is through a general or master plan-level comprehensive farmland protection policy supported by implementation measures such as those listed above, which address the loss of farmland systematically rather than case-by-case. Transfer of development credits, mitigation banking, and economic incentives for continuing agricultural uses, are other strategies that could be integrated into such a comprehensive approach.

Thank you for the opportunity to comment on the NOP. If you have questions regarding our comments, or require technical assistance or information on agricultural land conservation issues please contact the Division at 801 K Street, MS 13-71, Sacramento, CA 95814; or, phone (916) 324-0850. You may also call me at (916) 445-8733.

Sincerely,

Kenneth E. Trott
Environmental Coordinator

cc: Erik Vink, Assistant Director
Division of Land Resource Protection

California Regional Water Quality Control Board
Santa Ana Region

Winston H. Hickox
Secretary for Environmental Protection

Internet Address: http://www.swrcb.ca.gov/~rwqcb8
3737 Main Street, Suite 500, Riverside, California 92501-3339
Phone (909) 782-4130 ∃ FAX (909) 781-6288

Gray Davis
Governor

January 5, 2001

Mr. Brent Arnold, Principal Planner
City of Chino
Community Development Department
13220 Central Avenue
Chino, CA 91710

NOTICE OF PREPARATION OF A DRAFT ENVIRONMENTAL IMPACT REPORT TO ADDRESS THE CHINO PRESERVE SPECIFIC PLAN/ANNEXATION/GENERAL PLAN AMENDMENT EIR

Dear Mr. Arnold:

We have reviewed the Notice of Preparation (NOP) of a Draft Environmental Impact Report to Address The Chino Preserve Specific Plan/Annexation/General Plan Amendment EIR. Regarding the statutory concerns of the Santa Ana Regional Water Quality Control Board (Regional Board), the Draft Environmental Impact Report (EIR) should address the following:

I. Water Quality and Beneficial Uses

A. Mitigation of adverse impacts should be addressed.

B. The description of potential impacts of the proposed projects on surface and ground water quality and beneficial uses should address the following:

1. Any activities that could cause violations of narrative or numeric water quality objectives contained in the Regional Board's 1995 Water Quality Control Plan for the Santa Ana River Basin.

2. Proposed projects occurring upstream of or discharging into impaired waterbodies listed on the Clean Water Act Section 303(d) list may be subject to additional controls (specifically Total Maximum Daily Loads or TMDLs) pursuant to federal regulation. Depending on the proposed project, these controls could include discharge prohibitions, revisions to discharge permits, or management plans to address water quality impacts. This is especially important in the Chino Basin Watershed. Environmental documents for proposed projects need to acknowledge that these additional requirements may be imposed in the future.

3. Urban development can lead to an increase in impermeable surfaces that cause an increase in storm water runoff. The EIR should address existing

and future storm water runoff and flood control in the study area as it affects water quality and particularly concentrated animal feeding operations (CAFOs). Storm water runoff has the potential to inundate CAFOs and significantly affect the ability of CAFO operators to comply with Regional Board discharge requirements.

4. Construction activities (including grading) that could result in water quality impacts.

5. Soil characteristics related to water quality including the potential for erosion and subsequent siltation, and any increase or decrease in water percolation.

6. Impacts of toxic substances handling and disposal (if appropriate).

7. If any of the projects impact riparian or wetland habitats, a complete description of the impacts, acreage of the impacts, and any proposed mitigation should be provided.

II. Wastewater Disposal and Treatment

A. Types and amounts of waste materials generated by various projects should be considered.

B. Proposed waste treatment and disposal methods should be evaluated in regards to the following:

1. Treatment facilities: location, current capacity, treatment standards, master treatment facilities expansion plan (if appropriate)

2. Treatment plant collection system: location of major trunk lines and tie-ins, current capacity

3. Disposal facilities: location, capacity

C. Applications or permits required to implement waste disposal should be addressed.

D. The impact of calculated project waste volume on the capacity of existing and proposed treatment and disposal facilities should be evaluated.

III. Permits

A. Storm water runoff in the area is currently regulated by an areawide discharge permit, which was issued to cities and counties under the National Pollutant Discharge Elimination System (NPDES).

B. A notice of intent (NOI) with appropriate fees for coverage of any projects under the General Construction Activity Storm Water Runoff Permit must be submitted to the State Water Resources Control Board at least 30 days prior to initiation of construction activity. This is required for any construction activity covering at least five acres.

C. The Regional Board requires an NPDES permit for any discharge of wastes to surface waters or Waste Discharge Requirements for any discharge of wastes to land.

D. If reclaimed water is to be used, Water Reclamation Requirements must be issued by the Regional Board.

We look forward to reviewing the Draft EIR when it becomes available. If you have any questions, please contact me at (909) 782-4459.

Sincerely,

Wm. B. Rice

William B. Rice, Associate Engineering Geologist
Chino Basin Watershed Management Section

Cc: Scott Morgan, California State Clearinghouse

WBR/c:data/bill/Chbasin/cbinfo/Chino Annexation NOP letter

California Regional Water Quality Control Board
Santa Ana Region

Winston H. Hickox
Secretary for Environmental Protection

Internet Address: http://www.swrcb.ca.gov/rwqcb8
3737 Main Street, Suite 500, Riverside, California 92501-3348
Phone (909) 782-4130 - FAX (909) 781-6288

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January 5, 2001

Brent Arnold
Principal Planner, City of Chino
13220 Central Ave.
Chino, CA 91710

RESPONSE TO THE NOTICE OF PREPARATION OF A DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE PREFERRED LAND USE PLAN FOR THE CITY OF CHINO, SUBAREA 2

Dear Mr. Arnold:

Staff of the Regional Water Quality Control Board, Santa Ana Region (RWQCB), have reviewed the Preferred Land Use Plan for the above referenced project and have the following comments:

- The Prado Dam Wildlife area supports a number of listed and threatened plant and animal species. The Regional Board is concerned that the land adjacent to and inside this wildlife area maintain appropriate land uses that would be conducive to support this sensitive community. This plan proposes recreation such as golf courses and equestrian facilities that fall below the dam inundation level. It is also proposed that some of the larger estate houses have their backyard extend below the dam inundation level. The potential for negative water quality impacts and subsequent habitat degradation should be addressed, as well as alternatives that might be more appropriate to such a sensitive wildlife area.

- The plan also states that below the inundation level there will be a preservation effort. The use of golf courses, horses and non-native landscaping is not considered to be part of a preservation effort.

- Adding additional impervious surfaces will cause additional runoff being generated from this area. The impacts of increased volume of runoff, the increased velocity of this runoff and the urban pollutants this water will carry should be looked at.

We would appreciate the opportunity to provide assistance in developing a plan that will benefit both the quality of Waters of the State, and the community. If you have any questions, please call Kelly Schmoker at (909) 782-4990 or Wanda Smith at (909) 782-4468.

Sincerely,

Kelly Schmoker

Kelly Schmoker
Planning Section

cc: Scott Morgan – State Clearinghouse
USFWS, Carlsbad Office – Loren Hayes
CDFG, Chino Hills Office – Juan Hernandez

O:\Planning\KSCHMOKE\EIR&NEG Comments\ChinoSubarea2.doc

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COUNTY OF SAN BERNARDINO
ECONOMIC DEVELOPMENT
AND PUBLIC SERVICES GROUP

825 East Third Street • San Bernardino, CA 92415-0835 • (909) 387-8104
Fax (909) 387-8130

KEN A. MILLER
Director of Public Works

January 9, 2001

City of Chino
Community Development Department
Attn.: Brent Arnold, Principal Planner
13220 Central Avenue
Chino, CA 91710

File # 10(ENV)-4.01

RE: NOTICE OF PREPARATION OF DRAFT EIR FOR THE CHINO PRESERVE ANNEXATION

Dear Mr. Arnold:

Thank you for giving the San Bernardino County Department of Public Works the opportunity to comment on the above-referenced document.

Our Department feels that the following issues should be addressed in the proposed EIR:

Hydrology and Water Quality

The City of Chino should identify potential flooding problems and make recommendations for future local and regional facilities. This can be accomplished by either revising the City's existing Master Plan of Drainage (MPD) or preparing a separate MPD for this area (proposed annexation). The revised and/or prepared MPD shall be coordinated with the Flood Control District.

Traffic/Circulation

A Traffic Impact Analysis should be prepared for this area (proposed annexation) and submitted to the San Bernardino County Department of Public Works, Traffic Division for review and comment.

Sincerely,

Frank Molina

FRANK MOLINA, Senior Associate Planner
Environmental Management Division

cc: Naresh P. Varma, Chief
Michael Brandman Associates
KAM/PJM Reading File

FM:fm/ChinoPreserveAnnex

County of Orange
Planning & Development Services Department

THOMAS B. MATHEWS
DIRECTOR

300 N. FLOWER ST.
SANTA ANA, CALIFORNIA

MAILING ADDRESS:
P.O. BOX 4048
SANTA ANA, CA 92702-4048

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January 8, 2001

Brent Arnold
City of Chino
Community Development Department
13220 Central Avenue
Chino, CA 91710

SUBJECT: NOP for the Chino Preserve Specific Plan/Annexation/General Plan Amendment

Dear Mr. Arnold:

The above referenced item is a Notice of Preparation (NOP) of a Draft Environmental Impact Report (DEIR) for the City of Chino. The proposed project includes the annexation of the largest remaining portion of the Chino Valley Dairy Preserve within the City's Sphere of Influence to allow for development of a portion of approximately 5,435 acres currently within the Preserve. The master plan will consist of a comprehensive, policy-level specific plan/land use plan. The proposed project would allow up to 8,064 dwelling units on 1,223 acres, 640 acres of business uses, 584 acres of Public Facilities and Rights-of-ways; and approximately 2,988 acres in Open Space. The proposed site is located in the extreme southwestern corner of San Bernardino County.

The County of Orange has reviewed the NOP and offers the following comments:

1. We recommend the DEIR make references in all appropriate sections, to the U.S. Army Corps of Engineers' Santa Ana River Mainstem project and the proposed raised design water surface elevation of 566 feet for the proposed Prado Dam Reservoir. (The NOP, under "Project Description", does acknowledge the Corps' project and the El. 566'.) We suggest the DEIR state that no habitable structures should be constructed below the elevation 566 feet.

2. Any planned usage below elevation 566 feet such as those mentioned in the NOP (recreation and agriculture) is also subject to review and approval of the Corps of Engineers and/or the Orange County Flood Control District in addition to review and approval by the San Bernardino County Flood Control District.

3. On page 2-2, "Location and Settings", please make the following corrections in the second paragraph:

   A. Please correct all "El Prado Dam" references to read "Prado Dam".

   B. The Prado Dam will be raised 28.6 feet and the spillway 20 feet. The existing references to 28 feet and 8 feet, respectively, are incorrect.

   C. The raised dam is designed to accommodate a 190-year flood event. The reference to a 333-year flood event is incorrect.

Thank you for the opportunity to respond to the NOP. Please send one complete set of the DEIR to me at the above address when they become available. If you have any questions, please contact me or feel free to call Charlotte Harryman directly. Charlotte may be reached at (714) 834-2522.

Very truly yours,

George Britton

George Britton, Manager
Environmental and Project
Planning Services Division

CH

LOCAL AGENCY FORMATION COMMISSION

175 West Fifth Street, Second Floor
San Bernardino, CA 92415-0490 • (909) 387-5866 • FAX (909) 387-5871
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www.sanbdnolafco.org

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CLARK H. ALSOP

January 8, 2001

Mr. Brent Arnold, Principal Planner
Community Development Department
City of Chino
13220 Central Avenue
Chino, CA 91710

Dear Mr. Arnold:

RE: NOTICE OF PREPARATION OF DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE CHINO PRESERVE SPECIFIC PLAN/ANNEXATION/GENERAL PLAN AMENDMENT

The Local Agency Formation Commission has received the Notice of Preparation of the EIR as outlined above. A copy of this information has also been forwarded to the Commission's Environmental Consultant, Tom Dodson & Associates, who will respond by separate correspondence. The following are our comments regarding the project identified above:

1. Land Use/Agriculture: We concur with the identification that this may have a potentially significant impact. In addition, it should be noted that annexation of this territory would transfer responsibility for administration of Williamson Act Contracts, and the Agricultural Preserve area itself, to the City of Chino. The proposal submitted to LAFCO for annexation will be required to address the issue of the future of the Preserve and the contracts within it.

2. Public Services: Fire protection within the area under consideration is within the jurisdiction of the Chino Valley Independent Fire Protection District. LAFCO staff believes that a portion of the southern area of the Preserve is designated as State Responsibility Area (SRA) lands for wild land fire protection by the State of

California. Upon annexation to the City, this designation will be removed and the City will become responsible for payment of costs associated with this type of firefighting condition pursuant to the State Department of Forestry and Fire Protection rules and standards. The impacts to the Chino Valley Independent Fire District, as the fire service provider for the City, upon assumption of this obligation should be addressed.

3. Utilities and Service Systems: LAFCO staff concurs with the statements included that major new infrastructure will be needed and its impact addressed in the EIR. Effective January 1, 2001, the provisions of AB 2838 became operational. One of the new requirements related to water service is an evaluation of "the timely availability of water supplies adequate for projected needs including, but not limited to, the projected needs as specified in Section 65352.5" (urban water management plans). These provisions are included in new Government Code Section 56668 and the Commission's Plan for Services Policy.

Should you need additional information regarding the questions/concerns outlined above, please do not hesitate to contact me at (909) 387-5869. We look forward to working with the City on its processing of this project.

Sincerely,

Kathleen Rollings McDonald

KATHLEEN ROLLINGS-McDONALD
Deputy Executive Officer

/krm

cc: Tom Dodson & Associates

Department of Toxic Substances Control

Edwin F. Lowry, Director
5796 Corporate Avenue
Cypress, California 90630

Winston H. Hickox
Agency Secretary
California Environmental
Protection Agency

Gray Davis
Governor

January 5, 2001

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Mr. Brent Arnold
Principal Planner
Community Development Department
City of Chino
13220 Central Avenue
Chino, California 91710

NOTICE OF PREPARATION OF AN ENVIRONMENTAL IMPACT REPORT FOR THE CHINO PRESERVE SPECIFIC PLAN/ANNEXATION/GENERAL PLAN AMENDMENT (SCH #2000121036)

Dear Mr. Arnold:

The Department of Toxic Substances Control (DTSC) has received your Notice of Preparation (NOP) of a draft Environmental Impact Report (EIR) for the above-mentioned Project.

Based on the review of the document, DTSC's comments are as follows:

1) The draft EIR needs to identify and determine whether current or historic uses at the Project site have resulted in any release of hazardous wastes/substances at the Project area.

2) The draft EIR needs to identify any known or potentially contaminated sites within the proposed Project area. For all identified sites, the draft EIR needs to evaluate whether conditions at the site pose a threat to human health or the environment.

3) The NOP indicates that a variety of educational facilities can be accommodated within the project area including community college, public shcools and learning centers that consist of shared schools, day care, library, and satellite civic uses. During the proposed school property acquisition and/or construction utilizing state funding, it should be in compliance with the Assembly Bill 387 (Wildman) and Senate Bill 162 (Escutia) which requires a comprehensive environmental

review process and that DTSC's approval is required. DTSC's role in the assessment, investigation, and cleanup of proposed school sites is to ensure that the selected properties are free of contamination, and if the property is contaminated, that it is cleaned up to a level that is protective of the students and faculty who will occupy the new school. A study of the site is to be conducted to provide basic information for determining if there has been a release, or if there is a threatened release of a hazardous material including agricultural chemicals or if there may be a naturally occurring hazardous material present at the site, that may pose a risk to human health or the environment.

4) The NOP indicates that the project area includes known hazardous waste sites associated with underground storage tanks and small generators of hazardous wastes. Proper studies should be conducted during the preparation of a draft EIR.

5) It also states that the potential for residual pesticides or herbicides exists on agricultural lands or dairies planned for development. Proper studies should be conducted during the preparation of a draft EIR, especially if the area is proposed for building schools or day care centers.

6) The NOP shows that potential methane accumulations in dairy soils laden with manure and organic materials present a potential hazard to building foundations and new urban development. It should be noted that methane formation in the proposed development area is a threat to human health or the environment. Therefore, proper precautions or mitigation is required prior to any development at the project area.

7) The draft EIR should identify the mechanism to initiate any required investigation and/or remediation for any site that may require remediation, and which government agency will provide appropriate regulatory oversight.

8) If during construction of the project, soil contamination is suspected, construction in the area should stop and appropriate Health and Safety procedures should be implemented. If it is determined that contaminated soil exists, the draft EIR should identify how any required investigation and/or remediation will be conducted, and which government agency will provide appropriate regulatory oversight.

DTSC provides guidance for the Preliminary Endangerment Assessment (PEA) preparation and cleanup oversight through the Voluntary Cleanup Program (VCP). For additional information on the VCP or to meet/discuss this matter further, please contact Mr. Johnson P. Abraham, Project Manager at (714) 484-5476 or me at (714) 484-5463.

Sincerely,

Haissam Y. Salloum, P.E.
Unit Chief
Southern California Cleanup Operations Branch
Cypress Office

cc: Governor's Office of Planning and Research
State Clearinghouse
P.O. Box 3044
Sacramento, California 95812-3044

Mr. Guenther W. Moskat, Chief
Planning and Environmental Analysis Section
CEQA Tracking Center
Department of Toxic Substances Control
P.O. Box 806
Sacramento, California 95812-0806

SOUTHERN CALIFORNIA

ASSOCIATION of GOVERNMENTS

Main Office

818 West Seventh Street

12th Floor

Los Angeles, California

90017-3435

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Riverside County: Bob Buster, Riverside County • Ron Loveridge, Riverside • Greg Pettis, Cathedral City • Andrea Puga, Corona • Ron Roberts, Temecula • Charles White, Moreno Valley

San Bernardino County: Bill Alexander, Rancho Cucamonga • Jim Bagley, Twentynine Palms • David Eshleman, Fontana • Lee Ann Garcia, Grand Terrace • Gwenn Norton-Perry, Chino Hills • Judith Valles, San Bernardino

Ventura County: Judy Mikels, Ventura County • Donna De Paola, San Buenaventura • Glen Becerra, Simi Valley • Toni Young, Port Hueneme

Riverside County Transportation Commission: Robin Lowe, Hemet

Ventura County Transportation Commission: Bill Davis, Simi Valley

January 10, 2001

Mr. Brent Arnold
Principal Planner
Community Development Department
City of Chino
13220 Central Avenue
Chino, CA 91710

RE: **Comments on the Amended Notice of Preparation for a Draft Environmental Impact Report for the Chino Specific Plan / Annexation / General Plan Amendment – (Refer to SCAG No. I 20000586)**

Dear Mr. Arnold:

Thank you for submitting the **Amended Notice of Preparation for a Draft Environmental Impact Report for the Chino Specific Plan / Annexation / General Plan Amendment** to SCAG for review and comment. As areawide clearinghouse for regionally significant projects, SCAG assists cities, counties and other agencies in reviewing projects and plans for consistency with regional plans. The amended NOP reflects an increase in the number of dwelling units, from 8,064 to 9,780.

Last December, SCAG sent you a letter outlining a series of policies referencing SCAG's Regional Comprehensive Plan and Guide and Regional Transportation Plan, which may be applicable to your project. The same policies may also be applicable to the amended project. Attached is the December 12, 2000 letter, with applicable policies, for your consideration. **We expect the DEIR to specifically cite the appropriate SCAG policies and address the manner in which the Project is consistent with applicable core policies or supportive of applicable ancillary policies. Please use our policy numbers to refer to them in your DEIR. Also, we would encourage you to use a side-by-side comparison of SCAG policies with a discussion of the consistency or support of the policy with the Proposed Project.**

Please provide a minimum of 45 days for SCAG to review the DEIR when this document is available. If you have any questions regarding the attached comments, please contact me at (213) 236-1867. Thank you.

Sincerely,

JEFFREY M. SMITH, AICP
Senior Planner
Intergovernmental Review

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ENDANGERED HABITATS LEAGUE

Dedicated to Ecosystem Protection and Improved Land Use Planning

Dan Silver • Coordinator
8424-A Santa Monica Blvd., #592
Los Angeles, CA 90069-4267
TEL 323-645-1456 • FAX 323-654-1931 • dsilver@exo.com

January 13, 2001

Brent Arnold, Principal Planner
Community Development Department
City of Chino
13220 Central Ave.
Chino, CA 91710

RE: *Amended* Notice of Preparation for the Chino Preserve Specific Plan/Annexation/General Plan Amendment Environmental Impact Report

Dear Mr. Arnold:

The Endangered Habitats League (EHL) appreciates this opportunity to comment on the Amended Notice of Preparation for this regionally significant project. For your reference, EHL is a Southern California organization dedicated to ecosystem protection, improved land use planning, and collaborative conflict resolution.

It is our understanding that the greater number of units proposed in the revised project would place higher residential densities around the community core. EHL supports such densities in the core area. Only in this way will a walkable and transit-supportive community arise. We also request that the EIR analyze the reductions in vehicle trips and vehicle miles traveled associated with pedestrian-oriented development.

Thank you for considering these comments.

Sincerely,

Dan Silver,
Coordinator

cc: Charles Coe

STATE OF CALIFORNIA

Governor's Office of Planning and Research

State Clearinghouse

Gray Davis
GOVERNOR

Steve Nissen
ACTING DIRECTOR

Notice of Preparation

January 12, 2001

JAN 18 2001

To: Reviewing Agencies

Re: The Chino Preserve Specific Plan/Annexation/General Plan Amendment
SCH# 2000121036

Attached for your review and comment is the Notice of Preparation (NOP) for the The Chino Preserve Specific Plan/Annexation/General Plan Amendment draft Environmental Impact Report (EIR).

Responsible agencies must transmit their comments on the scope and content of the NOP, focusing on specific information related to their own statutory responsibility, within 30 days of receipt of the NOP from the Lead Agency. This is a courtesy notice provided by the State Clearinghouse with a reminder for you to comment in a timely manner. We encourage other agencies to also respond to this notice and express their concerns early in the environmental review process.

Please direct your comments to:

Brent Arnold
City of Chino Community Development Department
13220 Central Avenue
Chino, CA 91710

with a copy to the State Clearinghouse in 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 environmental document review process, please call the State Clearinghouse at (916) 445-0613.

Sincerely,

Scott Morgan
Project Analyst, State Clearinghouse

Attachments
cc: Lead Agency

1400 TENTH STREET P.O. BOX 3044 SACRAMENTO, CALIFORNIA 95812-3044
916-445-0613 FAX 916-323-3018 WWW.OPR.CA.GOV/CLEARINGHOUSE.HTML

Document Details Report
State Clearinghouse Data Base

SCH# 2000121036
Project Title The Chino Preserve Specific Plan/Annexation/General Plan Amendment
Lead Agency Chino, City of

Type NOP Notice of Preparation

Description The proposed project includes the annexation of the largest remaining portion of the Chino Valley Dairy Preserve within the City of Chino's Sphere of Influence to allow for development of a portion of the approximate 5,435 acres currently within the Preserve. The City of Chino is preparing a master plan to guide the future development and annexation of the Preserve. The master plan will consist of a comprehensive, policy-level specific plan/land use plan.

Lead Agency Contact

Name Brent Arnold
Agency City of Chino Community Development Department
Phone 909 591-9812 **Fax**
email
Address 13220 Central Avenue
City Chino **State** CA **Zip** 91710

Project Location

County San Bernardino
City Chino, Chino Hills, Ontario, Norco, Corona
Region
Cross Streets Cetral Avenue/Kimball Avenue/Euclid Avenue
Parcel No.
Township **Range** **Section** **Base**

Proximity to:

Highways State Route 71, 91, 60, I-15
Airports Chino
Railways
Waterways Santa Ana River
Schools
Land Use Community of residential neighborhoods.
A Community Core area, envisioned as an idyllic "main street" with a mix of commercial retail and office uses, entertainment areas, residential uses, and public and religious uses.
A regional commercial center.
An employment center focusing upon the Chino Airport.
An open space preserve, including multi-purpose recreational, agricultural, and natural open space uses.

Project Issues Landuse; Flood Plain/Flooding; Water Quality; Other Issues; Geologic/Seismic; Soil Erosion/Compaction/Grading; Minerals; Toxic/Hazardous; Traffic/Circulation; Noise; Air Quality; Population/Housing Balance; Public Services; Schools/Universities; Forest Land/Fire Hazard; Recreation/Parks; Solid Waste; Water Supply; Archaeologic-Historic; Aesthetic/Visual

Reviewing Agencies Resources Agency; Department of Conservation; Department of Parks and Recreation; Department of Food and Agriculture; Department of Fish and Game, Region 6; Native American Heritage Commission; State Lands Commission; Office of Emergency Services; Caltrans, District 8; Department of Housing and Community Development; Caltrans, Division of Aeronautics; California Highway Patrol; Integrated Waste Management Board; Department of Toxic Substances Control; Regional Water Quality Control Bd., Region 6 (So Lake Tahoe)

Date Received 01/11/2001 **Start of Review** 01/11/2001 **End of Review** 02/09/2001

Note: Blanks in data fields result from insufficient information provided by lead agency.

NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-4082
(916) 657-5390 - Fax

JAN 26 2001

January 24, 2001

Brent Arnold
City of Chino Community Development Department
13220 Central Avenue
Chino, CA 91710

RE: SCH# 2000121036 – The Chino Preserve Specific Plan/Annexation/General Plan Amendment

Dear Mr. Arnold:

The Native American Heritage Commission has reviewed the above mentioned NOP. To adequately assess the project-related impact on archaeological resources, the Commission reccomends the following action be required:

✓ Contact the appropriate Information Center for a records search. The record search will determine:
- Whether a part or all of the project area has been previously surveyed for cultural resources.
- Whether any known cultural resources have already been recorded on or adjacent to the project area.
- Whether the probability is low, moderate, or high that cultural resources are located within the project area.
- Whether a survey is required to determine whether previously unrecorded cultural resources are present.

✓ If an archaeological inventory survey is required, the final stage of is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
- Required the report containing site significance and mitigation be submitted immediately to the planning department.
- Required site forms and final written report be submitted within 3 months after work has been completed to the Information Center.

✓ Contact the Native American Heritage Commission for:
- A Sacred Lands File Check.
- A list of appropriate Native American Contacts for consultation concerning the project site and assist in the mitigation measures.

Lack of surface evidence of archeological resources does not preclude the existence of archeological resources. Lead agencies should include provisions for accidentally discovered archeological resources during construction per California Environmental Quality Act (CEQA) §15064.5 (f). Health and Safety Code §7050.5 and Public Resources Code §5097.98 mandates the process to be followed in the event of an accidental discovery of any human remains in a location other than a dedicated cemetery and should be included in all environmental documents. If you have any questions, please contact me at (916) 653-4040.

Sincerely,

Rob Wood

Rob Wood
Associate Governmental Program Analyst

CC: State Clearinghouse

TOM DODSON & ASSOCIATES
2150 N. ARROWHEAD AVENUE
SAN BERNARDINO, CA 92405
TEL (909) 882-3612 • FAX (909) 882-7015
E-MAIL tda@tstonramp.com

January 26, 2000

City of Chino
Attn: Mr. Brent Arnold, Principal Planner
Community Development Department
13220 Central Avenue
Chino, CA 91710

COMMUNITY DEVELOPMENT
RECEIVED
JAN 29 2001

Dear Mr. Arnold:

Tom Dodson & Associates (TDA) serves as the environmental consultant for the San Bernardino County Local Agency Formation Commission (LAFCO or Commission) which will function as a Responsible Agency for future annexations associated with the area allocated to the City of Chino within the dairy agricultural preserve located in the southwestern portion of San Bernardino County. This is a major environment undertaking that will require extensive development of a good data base and an evaluation of major changes in the last remaining uncommitted major agricultural area within the southwestern portion of San Bernardino County. I believe that these comments on the Notice of Preparation will assist the City in completing an adequate environmental document. On behalf of the Commission I have reviewed the City's Notice of Preparation (NOP) for the proposed project and have developed some general comments which follow these introductory comments.

Since LAFCO will serve as a Responsible Agency as defined by the California Environmental Quality Act (CEQA) because of potential future annexations within the area to the City of Chino, it is important that the environmental impact report (EIR) prepared for this proposed project contain an adequate discussion of all potential environmental impacts so that it can be considered and accepted by the Commission when it considers annexation issues in the future. In this particular case the City's future capability to serve the area with adequate services and utilities and the impacts from delivery of utilities and services to the project site need to be fully analyzed in the City's proposed EIR. Of particular importance is the evaluation of cumulative impacts on the various public service and utility service systems, particularly given the current constraints for electricity and natural gas resources. Comments on the remaining environmental issues discussed in the NOP follow in the order that they are discussed in an Initial Study Environmental Checklist Form provided in the State CEQA Guidelines.

Project description: The broad outlines of future land uses and potential development are identified. It is suggested that a development scenario be created with the goal of enabling quantitative evaluation of impacts during development as well as forecasting the buildout impacts of the plan within the Chino Preserve Specific Plan area. Ultimately, the maximum impact will have to be based on the total number of units and square feet of development that will be considered in the Plan.

1. Aesthetics: For the aesthetic analysis it is suggested that the City consider providing a visual simulation of those areas where scenic vistas may be required to fully characterize the changes in the visual setting. Certain areas within the project area are highly visible and exposed to a large number of viewers from adjacent freeways. The focus should be not only on areas of visual changes, but also the design standards that will guide future development.

2. Agriculture Resources: Concur with the discussion in the NOP. This area contains extensive prime agricultural land and its loss must be characterized in the context of current State programs to fully and adequately address this critical issue. For LAFCO the conversion of prime agricultural land and important farmland is a major issue involved in annexation decision, so it is critical that the projected loss of the resource be accurately characterized.

3. Air Quality: The South Coast Quality Management District has recently finalized the 1999 Air Quality Management Plan update. The EIR should evaluate the changes in basic assumptions of the District's future growth scenarios and emissions scenarios that will be caused by implementation of the new specific plan land use designations. Otherwise I concur with the proposed evaluation of this issue in the EIR.

4. Biological Resources: The project area contains significant biological resources. Recent interactions with the U. S. Fish and Wildlife Service and Department of Fish and Game and the County Museum biologist indicate that any field surveys conducted for listed or sensitive species or sensitive habitat will need to observe special protocols. It is recommended that these protocols be determined through consultation with the above parties and the survey protocols be made available to the experts in the field for verification prior to their implementation. It will also be important to identify an appropriate land se interfaces and buffers between areas proposed for development and critical habitat contained within the planning area.

5. Cultural Resources: There are significant cultural resources in the area, both historic and archaeological. Minimal paleontological resources should be found in the young alluvium found throughout most of the planning area. A broad scope, cumulative evaluation of the planning area's cultural resources would be appropriate.

6. Geology and Soils: Active faults affect the western portion of the planning area. An evaluation of any potential fault rupture and seismic ground shaking issues is required for the project area. Related geotechnical issues, ground failure from liquefaction or other hazards should be fully explored for this complex geologic site. The issue of potential erosion during construction will be a major concern given the level of ground disturbance that will be associated with the proposed plan. Detailed mitigation should be identified.

7. Hazards: The key hazard issues appear to be transport of hazardous materials and wastes into the area for industrial activities and potential hazards from storage of such materials. Existing contaminated areas need to be evaluated, including potential hazards associated with contaminated soils related to agricultural production. The potential for conflicts between uses that pose hazards and sensitive land uses (residences, medical facilities, schools, etc.) and the possible constraints created by existing contamination should be a major focus of the impact analysis for the planning area.

8. Hydrology and Water Quality: Hydrology and water quality issues are of concern for the project area, particularly how to manage storm runoff. This project is located in the upper portion of the Santa Ana River Basin, and given new requirements, such as TMDL's (Total Maximum Daily Loads) and other Basin Plan requirements, the analysis of water quality impacts, during both construction and occupancy, should be included with appropriate best management practices. Evaluation of the remaining water resource issues in the EIR will be necessary and it is recommended that the evaluation be framed in the context of the Optimum Basin Management Plan.

9. Land Use And Planning: The analysis of land use should be framed in the context of carrying capacity of the land; potential conflicts between uses; and ability to support the proposed land uses with adequate public service and utility infrastructure. On a related issue, given the timing of the project, the City may want to confirm that the Multi-Species Habitat Conservation Plan will not be ready before a decision on the project is rendered by the City. There are critical areas of wetland habitat within the City and there may be small areas that could support other endangered species in such plans, such as the Delhi Sands Giant Flower-Loving Fly. The land use and planning evaluation should incorporate a comprehensive assessment of impacts from implementing the Specific plan land use designations and regional planning policies as they apply to both the existing land use designations, existing policies guiding uses in these areas, and the fundamental land use characteristics. Finally, the issue of land use conflicts associated with transition from dairy and other agricultural activities to urban uses must be addressed. Where these two activities are juxtaposed there are inherent land use conflicts (noise, odors, trespass, vectors, etc.) that need to be addressed, now rather than later, in the EIR.

10. Mineral Resources: The discussion of this issue should not be a major one since no major mineral resource deposits are known to occur within the project area. As long as the issue is given a fair evaluation in the EIR, this issue should be adequately addressed.

11. Noise: Existing sources of noise are related to major north-south and east-west roadways and the Chino Airport. The effect of these transportation corridors and related noise should be included as a topic within the EIR. The goal would be to define the actual limits of significant noise constraints on the project site where sensitive residential uses should not be constructed without adequate noise buffering. Stationary sources of noise need to be evaluated along with airport related noise. An unusual source of noise may be recreational activities associated with regional park activities and the City should confer with the County on existing and future park uses and potential conflicts with possible residential land uses.

12. Population and Housing : Anticipated growth inducement from the project needs to be addressed at this stage of review because the project represents a continuation of more intense urban extension into the Chino agricultural area. Conformance with regional plans needs to be fully evaluated in the EIR.

13. Public Services and Utilities: The issue of fire protection needs to be addressed in the EIR. Particularly from a LAFCO perspective, the fire protection system infrastructure required to provide adequate service to this area needs to be evaluated and demonstrated to be adequate. The police protection also needs to be evaluated as part of the proposed EIR. The issue of adequate schools may require additional investigation since this project includes a quasi-legislative decision, the adoption of a Specific Plan which amends the General Plan. Regarding park issues, it is not clear what level of evaluation should be considered in the EIR related to this topic. Some discussion in the EIR of this issue appears warranted, primarily because the overall balance of park facility demand and supply does not yet appear to be well defined.

14. Recreation: See discussion above regarding parks.

15. Transportation/Circulation: Obviously substantial enhancement of the circulation system will be required to meet the increase in traffic related to the level of proposed development. Of critical importance to this issue, as well as all public infrastructure issues, will be adequate and timely financing of the requisite infrastructure improvements. Determination of an equitable or fair share development impact fee should be included along with the EIR to demonstrate the feasibility of providing adequate infrastructure systems to meet demand as it is generated, rather than experiencing the typical lag between demand and supply of services and utilities, including roadways.

16. Utilities and Service Systems: See discussion immediately above.

I anticipate all of the mandatory sections to be addressed in the EIR. The EIR needs to carefully evaluate the defined alternatives for the project. Growth inducement and cumulative impacts are also very important issues that must be evaluated in the for this project. To the extent feasible, the City will benefit by evaluating these issues in the context of carrying capacity of the various systems impacted by the proposed implementation of the Specific Plan. In conjunction with the LAFCO Staff, I am available to discuss these comments and provide input into the EIR process, including reviewing the Screencheck EIR if desired. I look forward to reviewing the Draft EIR when it is made available for public review and comment. Thank you in advance for your consideration of these comments.

Sincerely,

Tom Dodson

Tom Dodson
cc: Kathleen Rollings-McDonald

United States Department of the Interior
Fish and Wildlife Service
Ecological Services
Carlsbad Fish and Wildlife Office
2730 Loker Avenue West
Carlsbad, California 92008

JAN 3 1 2001

Brent Arnold
Principal Planner
City of Chino
Community Development Department
13220 Central Avenue
Chino, California 91710

Re: Notice of Preparation of a Draft Environmental Impact Report, Chino Preserve Specific Plan/Annexation/General Plan Amendment, Chino, San Bernardino County, California

Dear Mr. Arnold:

We have reviewed the notice of preparation (NOP) dated December 5, 2000, of a draft environmental impact report (EIR) for the Chino Preserve Specific Plan/Annexation/General Plan Amendment. This draft EIR will evaluate the potential impacts associated with the proposed annexation of remaining portions of the 5,435-acre Chino Valley Dairy Preserve and the adoption of a Specific Plan to allow 8,064 dwelling units on 1,223 acres, 640 acres of business use, 584 acres of public facilities and right-of-ways, and 2,988 acres of open space. We offer the following comments regarding biological impact analysis based on our review of the NOP and our knowledge of the status of biological resources in the project area. We provide these comments in keeping with our agency's mission to work "with others to conserve, protect, and enhance fish, wildlife, and plants and their habitats for the continuing benefit of the American people."

We administer the Endangered Species Act of 1973 (Act), as amended. Section 7 of the Act requires Federal agencies to consult with us if it is determined that their actions may affect federally listed threatened or endangered species. Section 9 of the Act prohibits the "take" (e.g., harm, harassment, pursuit, injury, kill) of federally listed wildlife. "Harm" is further defined to include habitat modification or degradation where it kills or injures wildlife by impairing essential behavioral patterns including breeding, feeding, or sheltering. Take incidental to otherwise lawful activities can be permitted under the provisions of sections 7 (consultation with Federal agencies) 10 (incidental take permits/habitat conservation plans) of the Act.

According to he NOP, the draft EIR will address sensitive habitats. The analysis should include an evaluation of impacts to any federally listed species. The draft EIR should note any Federal approvals required for project implementation, particularly wetland fill permits by the U.S. Army Corps of Engineers (Corps) under section 404 of the Clean Water Act. Section 404 prohibits the unauthorized discharge of dredged or fill material into such waters, including wetlands. The Corps

may issue permits for discharges of dredged or fill material into jurisdictional waters and wetlands. The draft EIR should also detail any proposed mitigation measures.

The Natural Community Conservation Planning Act (NCCP) was enacted in 1991 by the State of California to provide for regional protection and perpetuation of natural wildlife diversity while allowing compatible land use and appropriate development. The law provides an alternative to "single species" conservation through the formulation of regional, natural community based habitat protection programs. The ongoing regional effort to create a multi-species habitat conservation plan (MSHCP) in San Bernardino Valley is under a memorandum of understanding (MOU) with the County and several cities, including the City of Chino. Attachment F of the MOU describes the interim project review guidelines to be used during preparation of the MSHCP. As the Chino Preserve is within the sensitive habitat areas of the MSHCP boundaries, the draft EIR should evaluate the degree to which the proposed specific plan is compatible or conflicts with the MSHCP effort.

To facilitate the evaluation of the proposed project from the standpoint of fish and wildlife protection, we request that the draft EIR contain the following specific information:

1. A description of the environment in the vicinity of the project from both a local and regional perspective.

2. A complete discussion of the purpose and need for the project and each of its alternatives.

3. A complete description of the proposed project, including the limits of the project area. This project description should include all practicable alternatives that have been considered to avoid and minimize project impacts, to the maximum extent practicable, to sensitive habitats, (e.g., coastal sage scrub, wetlands), and endangered, threatened, or sensitive species, as well as measures to compensate for unavoidable impacts.

4. Quantitative and qualitative assessments of the biological resources and habitat types that will be impacted by the proposed project and its alternatives. An assessment of direct, indirect, and cumulative project impacts to fish and wildlife associated habitats, particularly growth-facilitating impacts of the project (e.g., increased population, increased development, increased traffic). All facets of the project (e.g., construction, implementation, operation, maintenance) should be included in this assessment.

   This assessment should include a list of Federal candidate, proposed, or listed species; State-listed species; and locally sensitive species that are on or near the project site, including a detailed discussion of these species and information pertaining to their local status and distribution. Therefore, we recommend comprehensive, current biological surveys be performed on the project site, including directed surveys for all potentially occurring Federal and State listed species using standard survey protocols. Investigators conducting surveys for federally listed species must be qualified biologists.

- We are particularly interested in any and all information and data pertaining to potential impacts to populations of federally listed species, including the endangered least Bell's vireo (*Vireo bellii pusillus*), endangered southwestern willow flycatcher (*Empidonax traillii extimus*), endangered Delhi Sands flower-loving fly (*Rhaphiomidas terminatus abdominalis*), threatened coastal California gnatcatcher (*Polioptila californica californica*), and threatened Santa Ana sucker (*Catastomus santaanae*). These species are known to occur in the general project area.

- The draft EIR must disclose all reasonably foreseeable impacts to these sensitive resources and include feasible conservation measures to avoid, minimize, and offset these impacts. These conservation measures should be spelled out separately from any and all effects analyses.

5. Maps and tables summarizing specific acreages and locations of all habitat types, including the number and distribution of federally listed, State listed, and other sensitive species on or near the project site that may be affected by the proposed project or project alternatives.

6. A detailed analysis of impacts of the proposed project on the movement of wildlife, and proposed measures to avoid and minimize impacts, and mitigate unavoidable impacts to wildlife movement.

7. An assessment of potential impacts to wetlands and jurisdictional waters of the United States should be included. Potential areas of Corps' jurisdiction should be evaluated and wetlands should be delineated using the methodology set forth in the Corps' Wetland Delineation Manual. The draft EIR should disclose all impacts to jurisdictional waters and wetlands, and proposed measures to be taken to avoid and minimize impacts, and mitigate unavoidable impacts.

We appreciate the opportunity to comment on the referenced NOP for potential impacts on sensitive and endangered species, wildlife, and wetlands. If you should have any questions pertaining to these comments, please contact Doug McPherson of my staff at (760) 431-9440.

Sincerely,

Jim A. Bartel
Assistant Field Supervisor

1-6-01-NFTA-1283.1

cc: CDFG, Region 6, Chino Hills (Attn: Robin Maloney-Rames, Juan Hernandez)
RWQCB, Riverside (Attn: Kelly Schmoker)
ACOE (Attn: Antal Szijj)

DEPARTMENT OF FISH AND GAME
Eastern Sierra - Inland Deserts Region
4775 Bird Farm Road
Chino Hills, California 91709
(909) 597-5043

CITY DEVELOPMENT
FEB 5 2001

January 31, 2001

Brent Arnold, Principal Planner
City of Chino
13220 Central Avenue
Chino, CA 91710

Re: **Notice of Preparation (NOP) of a Draft Environmental Impact Report**
The Chino Preserve Specific Plan/Annexation/General Plan Amendment EIR
SCH# 2000121036

Dear Mr. Arnold:

The California Department of Fish and Game (Department) has reviewed the NOP of the Draft Environmental Impact Report for the Chino Preserve Specific Plan. The City of Chino proposes the annexation and development of a 5,435-acre portion of the San Bernardino County Dairy Preserve that falls within the City's Sphere of Influence. The Specific Plan area is bounded by Merrill Avenue to the north, Euclid Avenue to the west, and the Riverside County line to the east and south. Interstate 60 lies to the north of the site; the Prado Flood Control Basin and the Santa Ana River lies to the south; and the Chino Hills State Park lies to the west. The Specific Plan proposes to allow up to 8,064 residential units on 1,223 acres, 640 acres of business uses, 584 acres of Public Facilities and Rights-of-ways, and approximately 2,988 acres of open space.

The Department's review is pursuant to the California Environmental Quality Act (CEQA), section 15386 and 15381 of the CEQA guidelines, whereby the Department is a Trustee Agency for fish and wildlife resources, and a Responsible Agency regarding any discretionary actions required by the Department.

Specific Concerns and Recommendations

The proposed Specific Plan area is within and adjacent to areas containing significant biological resources. The Prado Flood Control Basin is noted for having the largest willow woodland riparian habitat and one of the largest concentrations of nesting water-associated birds found in southern California. The Chino Hills State Park provides

important breeding and wintering grounds for a large variety of raptor species. Development within the proposed plan area could have a significant effect on resources within the Santa Ana River and its tributaries, particularly with regards to the degradation of water quality and loss of fish and wildlife habitat.

Based on the Preferred Land Use Concept, 2,988 acres of the 5,435 acres to be annexed by the City fall below the 566 foot Prado dam inundation level and are planned for open space and recreation. Because this area currently provides an important refuge and corridor for sensitive wildlife species, the Department recommends that access to the area by people and their pets be limited. Predation by domestic cats is of concern, as are noise and night-time lighting, which have been shown to interfere with the breeding activities of birds. The Department recommends that the planting of invasive, non-native plant species within or adjacent to natural areas be avoided. The Department understands that the majority of the proposed open space area is owned in fee simple by the U.S. Army Corps of Engineers (ACOE). The Department has been informed by Mr. Alex Watt, ACOE Environmental Coordinator, Planning Division (213) 452-3860, that federal lands cannot be annexed by state governments. However, the ACOE may lease the lands for use by the City, provided the use is in compliance with ACOE regulations. Access and plans for development in areas below the dam inundation level should be coordinated with the ACOE.

Sensitive Species and Habitats. A review of records from the California Natural Diversity Database (CNNDB) indicates that 23 sensitive species and six sensitive habitat types occur within the site's vicinity. Those species and habitats with a high potential for occurrence on or adjacent to the site based on occurrence records and habitat affinity include: golden eagle, western yellow-billed cuckoo, burrowing owl, long-eared owl, willow flycatcer, least Bell's vireo, yellow-breasted chat, arroyo chub, Santa Ana sucker, southwestern pond turtle, San Diego horned lizard, orange-throated whiptail, Delhi Sands flower-loving fly, Robinson's peppergrass, Coulter's saltbush, many-stemmed dudleya, salt spring checkerbloom, Parry's spineflower, Santa Ana River woollystar, Plummer's Mariposa lily, Intermediate Mariposa lily, Southern California Arroyo Chub/Santa Ana Sucker Stream, Southern Cottonwood Willow Riparian Forest, Southern Sycamore Alder Riparian Woodland, and Southern Willow Scrub. Other sensitive species known to occur in the area include slender-horned spineflower, thread-leaved brodiaea, American peregrine falcon, Swainson's hawk, ashy rufous-crowned sparrow, long-eared owl, California horned lark, ferruginous hawk, Cooper's hawk, California red-legged frog, loggerhead shrike, merlin, northern harrier, sharp-shinned hawk, San Diego black-tailed jackrabbit, coast-patched nosed snake.

Additionally, areas below the 543 foot inundation level of Prado Dam are listed as critical habitat for the federal and State listed endangered least bell's vireo and willow flycatcher. Early consultation with the Department and U.S. Fish and Wildlife Service (Service) is recommended to resolve potential conflicts with proposed land use plans, identify impacts to listed species and critical habitat, and to formulate adequate mitigation measures to be included in the DEIR.

Streambeds and Riparian Habitat. The NOP states that two major creeks traverse the proposed Specific Plan area, Chino Creek and Cucamonga Creek flood channel. Under Section 1600 et seq of the Fish and Game Code, the Department requires the project applicant to notify the Department of any activity that will divert, obstruct or change the natural flow or the bed, channel, or bank (which may include associated riparian resources) of a river, stream or lake, or use material from a streambed prior to the applicant's commencement of the activity. Streams include, but are not limited to, intermittent and ephemeral streams, rivers, creeks, dry washes, sloughs, blue-line streams, and watercourses with subsurface flow. The Department's issuance of a Streambed Alteration Agreement for a project that is subject to CEQA will require CEQA compliance actions by the Department as a responsible agency. The Department, as a responsible agency under CEQA, may consider the local jurisdiction's (lead agency) Negative Declaration or EIR for the project. However, if the EIR does not fully identify potential impacts to lakes, streams, and associated resources (including, but not limited to, riparian and alluvial fan sage scrub habitat) and provide adequate avoidance, mitigation, monitoring and reporting commitments, additional CEQA documentation will be required prior to execution (signing) of the Streambed Alteration Agreement.

In order to avoid delays or repetition of the CEQA process, potential impacts to a lake or stream, as well as avoidance and mitigation measures need to be discussed within this CEQA document. The Department recommends the following measures to avoid subsequent CEQA documentation and project delays.

A.) Incorporate all information regarding impacts to lakes, streams and associated habitat within the DEIR. Information that needs to be included within this document includes: 1) a delineation of lakes, streams, and associated habitat that will be directly or indirectly impacted by the proposed project; 2) details on the biological resources (flora and fauna) associated with the lakes and/or streams; 3) identification of the presence or absence of sensitive plants, animals, or natural communities; 4) a discussion of environmental alternatives; 5) a discussion of avoidance measures to reduce project impacts; and 6) a discussion of potential mitigation measures required to reduce the project impacts to a level of insignificance. The applicant and lead agency should keep in mind that the State also has a policy of no net loss of wetlands. The Department recommends that the project applicant and/or lead agency consult with the Department to discuss potential project impacts and avoidance and mitigation measures.

B.) Early consultation with the Department is recommended, since modification of the proposed project may be required to avoid or reduce impacts to fish and wildlife resources. Pre-project meetings are held every Monday at the Department's Chino Hills office. To schedule a pre-project meeting or to obtain a Streambed Alteration Agreement Notification package, please call (562) 590-5880.

Overall Recommendations

This particular project has the potential to have significant environmental impacts on sensitive species and habitats, including Federally listed endangered species. Therefore, critical aspects of the DEIR should include an alternatives analysis which focuses on environmental resources and specific mitigation measures for impacts identified as significant, including avoidance, minimization (including, but not limited to a reduced scope alternative), and in-kind compensation. To enable Department staff to adequately review and comment on the proposed project, we suggest that updated biological studies be conducted prior to any environmental or discretionary approvals. The following information should be included in any focused biological report or environmental report:

1. A complete assessment of the flora and fauna within and adjacent to the project area, with particular emphasis upon identifying endangered, threatened, and locally unique species and sensitive habitats. Please refer above to a more detailed discussion on Sensitive Species and Habitats.

    a. A thorough assessment of rare plants and rare natural communities, following the Department's May 1984 Guidelines for Assessing Impacts to Rare Plants and Rare Natural Communities (Attachment 1).

    b. A complete assessment of sensitive fish, wildlife, reptile, and amphibian species. Seasonal variations in use of the project area should also be addressed. Focused species-specific surveys, conducted at the appropriate time of year and time of day when the sensitive species are active or otherwise identifiable, are required. Acceptable species-specific survey procedures should be developed in consultation with the Department and the U.S. Fish and Wildlife Service.

    c. Rare, threatened, and endangered species to be addressed should include all those which meet the California Environmental Quality Act (CEQA) definition (See CEQA Guidelines, 15380)

    d. The Department's California Natural Diversity Data Base in Sacramento should be contacted at (916) 327-5960 to obtain current information on any previously reported sensitive species and habitat, including Significant Natural Areas identified under Chapter 12 of the Fish and Game Code.

2. A thorough discussion of direct, indirect, and cumulative impacts expected to adversely affect biological resources, with specific measures to offset such impacts.

    a. CEQA Guidelines, 15125(a), direct that knowledge of the regional setting is critical to an assessment of environmental impacts and that special

emphasis should be placed on resources that are rare or unique to the region.

b. Project impacts should be analyzed relative to their effects on off-site habitats. Specifically, this should include nearby public lands, open space, adjacent natural habitats, and riparian ecosystems. Impacts to and maintenance of wildlife corridor/movement areas, including access to undisturbed habitat in adjacent areas, should be fully evaluated and provided.

c. The zoning of areas for development projects or other uses that are nearby or adjacent to natural areas may inadvertently contribute to wildlife-human interactions. A discussion of possible conflicts and mitigation measures to reduce these conflicts should be included in the environmental document.

d. A cumulative effects analysis should be developed as described under CEQA Guidelines, 15130. General and specific plans, as well as past, present, and anticipated future projects, should be analyzed relative to their impacts on similar plant communities and wildlife habitats.

e. The document should include an analysis of the effect that the project may have on completion and implementation of regional and/or subregional conservation programs. Under 2800-2840 of the Fish and Game Code, the Department, through the Natural Communities Conservation Planning (NCCP) program is coordinating with local jurisdictions, landowners, and the Federal Government to preserve local and regional biological diversity. Coastal sage scrub is the first natural community to be planned for under the NCCP program. The Department recommends that the lead agency ensure that the development of this and other proposed projects does not preclude long-term preserve planning options and that projects conform with other requirements of the NCCP program. Jurisdictions participating in the NCCP should assess specific projects for consistency with the NCCP Conservation Guidelines.

3. A range of alternatives should be analyzed to ensure that alternatives to the proposed project are fully considered and evaluated. A range of alternatives which avoid or otherwise minimize impacts to sensitive biological resources should be included. Specific alternative locations should also be evaluated in areas with lower resource sensitivity where appropriate.

a. Mitigation measures for project impacts to sensitive plants, animals, and habitats should emphasize evaluation and selection of alternatives which avoid or otherwise minimize project impacts. Off-site compensation for unavoidable impacts through acquisition and protection of high-quality habitat elsewhere should be addressed.

b. The Department considers Rare Natural Communities as threatened habitats having both regional and local significance. Thus, these communities should be fully avoided and otherwise protected from project-related impacts (Attachment 2).

c. The Department generally does not support the use of relocation, salvage, and/or transplantation as mitigation for impacts to rare, threatened, or endangered species. Department studies have shown that these efforts are experimental in nature and largely unsuccessful.

4. A California Endangered Species Act (CESA) Permit must be obtained, if the project has the potential to result in "take" of species of plants or animals listed under CESA, either during construction or over the life of the project. CESA Permits are issued to conserve, protect, enhance, and restore State-listed threatened or endangered species and their habitats. Early consultation is encouraged, as significant modification to the proposed project and mitigation measures may be required in order to obtain a CESA Permit. Revisions to the Fish and Game Code, effective January 1998, require that the Department issue a separate CEQA document for the issuance of a CESA permit unless the project CEQA document addresses all project impacts to listed species and specifies a mitigation monitoring and reporting program that will meet the requirements of a CESA permit. For these reasons, the following information is requested:

   a. Biological mitigation monitoring and reporting proposals should be of sufficient detail and resolution to satisfy the requirements for a CESA Permit.

   b. A Department-approved Mitigation Agreement and Mitigation Plan are required for plants listed as rare under the Native Plant Protection Act.

5. The Department opposes the elimination of watercourses and/or their channelization or conversion to subsurface drains. All wetlands and watercourses, whether intermittent or perennial, must be retained and provided with substantial setbacks which preserve the riparian and aquatic values and maintain their value to on-site and off-site wildlife populations.

   a. The Department has direct authority under Fish and Game Code 1600 et seq. in regard to any proposed activity which would divert, obstruct, or affect the natural flow or change the bed, channel, or bank of any river, stream, or lake. Early consultation is recommended, since modification of the proposed project may be required to avoid or reduce impacts to fish and wildlife resources. Please see Specific Concerns and Recommendations of this letter for a more detailed discussion.

b. A 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 must be included.

Thank you for this opportunity to comment. Questions regarding this letter and further coordination on these issues should be directed to Ms. Yvonne C. Moore, Environmental Specialist III, Chino Hills, (909) 606-2413.

Sincerely,

Leslie S. MacNair
Acting Supervisor
Habitat Conservation - West
Region 6

cc: Jeff Newman, USFWS, Carlsbad
Alex Watt, ACOE, Planning Division

Department of Toxic Substances Control

Edwin F. Lowry, Director
5796 Corporate Avenue
Cypress, California 90630

Winston H. Hickox
Agency Secretary
California Environmental
Protection Agency

Gray Davis
Governor

January 31, 2001

COMMUNITY DEVELOPMENT
FEB 5 2001

Mr. Brent Arnold
Principal Planner
Community Development Department
City of Chino
13220 Central Avenue
Chino, California 91710

NOTICE OF PREPARATION OF AN ENVIRONMENTAL IMPACT REPORT FOR THE CHINO PRESERVE SPECIFIC PLAN/ANNEXATION/GENERAL PLAN AMENDMENT (SCH #2000121036)

Dear Mr. Arnold:

The Department of Toxic Substances Control (DTSC) has received your Amended Notice of Preparation (NOP) of a draft Environmental Impact Report (EIR) dated January 5, 2001 regarding the above-mentioned Project.

Enclosed is a copy of DTSC's comments dated January 5, 2001 regarding the previous document. DTSC's comments on the current document are essentially the same. Therefore, prepare a draft EIR incorporating the comments mentioned above.

If you have any further questions, please contact Mr. Johnson P. Abraham, Project Manager at (714) 484-5476.

Sincerely,

Haissam Y. Salloum, P.E.
Unit Chief
Southern California Cleanup Operations Branch
Cypress Office

Enclosure

Printed on Recycled Paper

cc: Governor's Office of Planning and Research
State Clearinghouse
P.O. Box 3044
Sacramento, California 95812-3044

Mr. Guenther W. Moskat, Chief
Planning and Environmental Analysis Section
CEQA Tracking Center
Department of Toxic Substances Control
P.O. Box 806
Sacramento, California 95812-0806

CITY OF CHINO HILLS
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CITY OF CHINO HILLS

2001 GRAND AVENUE
CHINO HILLS, CALIFORNIA 91709-4869
(909) 364-2600 • (909) 364-2695 FAX

CITY COUNCIL:
ED M. GRAHAM
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COMMUNITY DEVELOPMENT
RECEIVED
FEB 9 2001

February 9, 2001

Mr. Brent Arnold
Principal Planner
City of Chino
P.O. Box 667
Chino, California 91708

SUBJECT: AMENDED NOTICE OF PREPARATION OF A DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE CHINO PRESERVE SPECIFIC PLAN, ANNEXATION, AND GENERAL PLAN

Dear Mr. Arnold:

The City of Chino Hills has reviewed the City of Chino's Amended Notice of Preparation for the subject project, which now proposes 9,780 dwelling units (21% increase over the previously proposed project). With this change to the project, we reiterate our previous comment stressing the importance of our two cities working together to accomplish the following:

1. Determine the appropriate, compatible land uses to be established in close proximity to our respective city boundaries.

2. Ensure that provisions are put in place to upgrade the circulation system serving the Preserve in it entirety (including properties within the City of Ontario's portion of the Preserve and the properties in the City of Chino's Subarea 1 portion of the Preserve) and the region.

3. Establish a coordinated and complementary enhancement program for the open space and recreational facilities along both sides of Chino Creek.

In addition, the City of Chino Hills reiterates our previous comments that the scope of the EIR for the Preserve project should be expanded to include a discussion of the various alternatives for avoiding or mitigating any potential

adverse effects, especially with regard to land use compatibility, aesthetics, and traffic/circulation. These areas of concern, as well as others, are set forth in our letters to you dated August 16, 2000 and January 4, 2001 (see attachments).

With the increased density now proposed for the project, we are also concerned that the impacts will be magnified beyond the concerns previously expressed. As such, the level of analysis of potential impacts should be increased commensurately to assure the City of Chino Hills, and our residents, that all potential adverse effects are adequately and accurately identified and, most importantly, are fully mitigated.

Furthermore, the EIR must address the current planning efforts underway by the Inland Empire Utilities Agency (IEUA) to consider relocation of their co-composing facility. It is the City of Chino Hills' understanding that manure co-composting uses are not permitted in the City of Chino and, if true, this should be clearly addressed in the EIR and specific plan. The City of Chino Hills believes that a manure composting facility is an incompatible land use within an urban setting and should not be located within five miles of any residential neighborhood. However, if this use is to be considered as a potential land use within the Preserve, then the scope and project description of the EIR must be revised again. Further, the EIR would need to fully address all potential impacts and mitigation for such a facility, including but not limited to:

1. An assessment of potential airborne transmission of dust/particulate matter, allergens, odors, or releases of other materials from the co-composting facility.

2. Preparation of a human health risk assessment to assess potential risks to residents, participants at the City of Chino Hills' Big League Dreams sports park, Chino Hills High School, and other sensitive receptors within the vicinity of the co-composting facility.

3. Assessment of the potential economic and social impacts that may occur due to the project's physical impacts on residents and uses in Chino Hills.

4. Assessment of potential air, noise, vibration, circulation system and traffic safety impacts associated with increased vehicle trips (especially truck trips) to and from the proposed co-composting facility.

5. Consideration of a variety of alternate sites that will result in a reduction in impacts to residents of the City of Chino Hills.

Again, I would like to thank you for the opportunity to comment on your Amended Notice of Preparation. We would appreciate any further opportunities to discuss

the scope of the project and EIR as part of any further early consultation efforts the City of Chino may undertake to clarify our understanding of the project.

Please feel free to call me at (909) 364-2741 if you have any questions on our comments or if you would like to meet so we can work cooperatively together to address the future development along our common border.

Sincerely,

Jeffrey W. Collier
Community Development Director

Attachments: Comments on Development of Preferred Land Use Plan letter, dated August 16, 2000
Response to Notice of Preparation, dated January 4, 2001

cc: Mayor and City Council
Douglas N. La Belle, City Manager
Winston Ward, Assistant Community Development Director
Jeff Adams, City Planner

CITY OF CHINO HILLS
INCORPORATED 1991

CITY OF CHINO HILLS

2001 GRAND AVENUE
CHINO HILLS, CALIFORNIA 91709-4869
(909) 590-1511 • (909) 590-5646 FAX

CITY COUNCIL:
ED M. GRAHAM
GARY G. LARSON
GWENN E. NORTON-PERRY
JAMES S. THALMAN
MICHAEL G. WICKMAN

January 4, 2001

Glen Rojas, City Manager
City of Chino
P.O. Box 667
Chino, CA 91708—667

SUBJECT: NOTICE OF PREPARATION OF AN ENVIRONMENTAL IMPACT REPORT FOR THE CHINO PRESERVE GENERAL PLAN AMENDMENT, ANNEXATION, AND SPECIFIC PLAN

Dear Glen:

This letter has been prepared to provide you with our comments on Notice of Preparation of an Environmental Impact Report (EIR) for "The Preserve" project providing for urbanization of the 5,435 acre Chino Valley Dairy Preserve. The Preserve project proposes to annex those properties located in the County of San Bernardino into the corporate limits of the City of Chino. It encompasses the area generally bounded by Euclid Avenue on the west, Merrill Avenue on the north, Hellman Avenue on the east, and the San Bernardino/Riverside County boundary on the south in the vicinity of the southeastern border of the City of Chino Hills.

We are interested in actively participating in the plan development and review process for this project located at our border. Detailed financing, phasing, infrastructure, and design guidelines should be established so as to direct development of the Preserve in such a way as to guarantee that it will be an asset to the City of Chino and the region. The City of Chino Hills would like to stress the importance of our two cities working together:

- To determine the appropriate land uses to be established in close proximity to our respective city boundaries;
- To ensure that provisions are put in place to upgrade the circulation system serving The Preserve in its entirety (including the properties within the City of Ontario's portion of the Preserve and the properties in the City of Chino's Subarea 1 portion of the Preserve) and the region; and,
- To establish a coordinated and complementary enhancement program for the open space and recreational facilities along both sides of Chino Creek.

The City of Chino Hills believes that the scope of the EIR for The Preserve project should be expanded. It should include a discussion of the various alternatives for avoiding or mitigating any potential adverse effects, especially with regard to land use compatibility, aesthetics, traffic and circulation. These areas of concern to the City of Chino Hills, as well as others are set forth in our letter to you dated August 16, 2000 (attached).

I wanted to thank you in advance for responding to our comments and for your favorable consideration of the City of Chino Hills' concerns. Please call me at (909) 364-2610 so that we may discuss the appropriate process to allow our two cities to cooperatively work together to address development along our borders.

Sincerely,

Douglas N. La Belle, City Manager

Tuna

CITY OF CHINO HILLS

2001 GRAND AVENUE
CHINO HILLS, CALIFORNIA 91709-4869
(909) 590-1511 • (909) 590-5646 FAX

CITY COUNCIL:
ED M. GRAHAM
GARY G. LARSON
GWENN E. NORTON-PERRY
JAMES S. THALMAN
MICHAEL G. WICKMAN

August 16, 2000

Glen Rojas, City Manager
City of Chino
P.O. Box 667
Chino, California 91708-0667

SUBJECT: Subarea 2 -- City of Chino Sphere of Influence

Dear Glen:

This letter has been prepared to provide you with the City of Chino Hills' comments regarding the development of a Preferred Land Use Plan Concept for Subarea 2. The City of Chino Hills has reviewed the various land use alternatives under consideration. We are generally supportive of the direction being undertaken by the City of Chino and are pleased to see that comments are being solicited at the beginning of the formal land use planning and environmental review process.

Our comments focus on the areas of concern to the City of Chino Hills:

1) ***Land Use Compatibility*** -- Emphasis should be placed on our two (2) cities working together to establish a buffer area with open space, recreational, and agricultural land uses as a significant focal point and boundary between the urban core areas of Chino and Chino Hills. Compatible and complementary land uses should be established adjacent to the Chino Valley Freeway (SR 71) and Chino Creek within the general vicinity of our respective borders;
2) ***Quality of Life*** -- Adequate provisions should be instituted to ensure that the quality of life enjoyed throughout the residential neighborhoods in Chino Hills is protected from any deleterious effects (such as traffic, noise, lights, air pollution, odors, a reduction in available public facilities and services, and the like) that may result from urbanization of the agricultural lands;
3) ***Adequate Infrastructure*** – Financing plans should be developed and all associated capital improvement projects should be identified in order to ensure that the required infrastructure to support urban land uses is constructed in a timely manner;
4) ***Environmental Remediation*** – Programs should be put in place to address remediation of any contaminated properties to ensure that they are cleaned up prior to urbanization; and
5) ***Phasing Plan***—A comprehensive approach should be taken for providing a smooth transition from agricultural land to an urban area and for establishing adequate buffers between different land uses.

We look forward to continued involvement in the planning and environmental review process to address conversion of the agricultural preserve lands east of Euclid Avenue and south of Merrill Avenue into an urban area.

While we realize that Subarea 2 is not immediately contiguous to our border, we would like to reiterate the comments previously presented to the City of Chino during the review and processing of plans for Subarea 1. We would like to stress the importance of our two cities working together to determine the appropriate land uses to be established in close proximity to our respective city boundaries. The City's focus on retaining the majority of the agricultural land uses within Subarea 1 should be continued, as appropriate, in the plans being developed for Subarea 2. The provision of a combination of agricultural, open space, and recreational land uses along the western boundary of Subareas 1 and 2 would provide a buffer between the urban core areas of both cities.

We are concerned that the quality of life enjoyed by our existing residents and those who locate here in the future is maintained and enhanced. It is important that both the Environmental Impact Report (EIR) and the Planning Program itself for Subarea 2 address how preservation of the high standards and quality living environment of our communities will be accomplished.

The basic land use pattern to the west of Subarea 1 and 2, exclusive of the Soquel Canyon Parkway/SR 71 quadrant, is residential. There are a significant number of Chino Hills residents who live adjacent to this area. In addition to the existing population, we anticipate that there will be approximately 600 to 800 families moving into the area within the next year, including the 787 unit Fairfield Ranch, the 99 unit Silver Sage community, the 322 unit Pinehurst West, and the 142 unit Griffin Communities Legacy Ranch. Since January of this year, approximately 400 new Chino Hills' families have moved into the area.

In addition, it is critical that financing plans for construction of the necessary public infrastructure are developed. Development should not proceed without first setting aside sufficient funds for the improvements needed to support conversion of this area to urban land uses. We are primarily concerned that provisions are put in place to upgrade the circulation system serving both Subarea 2 and the region. Any financing plan established for infrastructure improvements should also include fair share contributions from the City of Chino to fund the projects identified in the Four Corners Transportation Study Report and any others that may be warranted based on the Traffic Impact Analysis Report prepared specifically for Subarea 2.

The regional traffic and circulation impacts associated with development of the Sphere of Influence area needs to be properly analyzed and mitigated. Additional and/or improved connections to the surrounding freeways (SR 71, SR 60, I-15, and SR 91) must be provided. Particular emphasis should be placed on establishing an additional east/west transportation corridor directly connecting SR 71 and I-15. Further, improvements should be made to the SR 71/Pine Avenue interchange and the SR 71/Euclid Avenue interchange to accommodate the planned urbanization. Easy access to the Chino Valley Freeway (SR 71) is critical.

We look forward to being included as part of the EIR preparation and the review process for Subarea 2 and the Planning Program itself. We would appreciate your assurance that development of Subarea 2 will not proceed without enactment of a comprehensive approach for mitigating and addressing our concerns regarding land use compatibility, maintenance of the quality of life, provision of adequate infrastructure, environmental remediation, and development phasing. Recognition should be given to the current agricultural land uses and related support facilities that may remain for some time. Further, the planning of the mixture of land uses for Subarea 2 and the subsequent implementation of the planning programs needs to address how compliance with the existing peace agreement and OBMP mandate that manure must not be stored above the basin will be achieved.

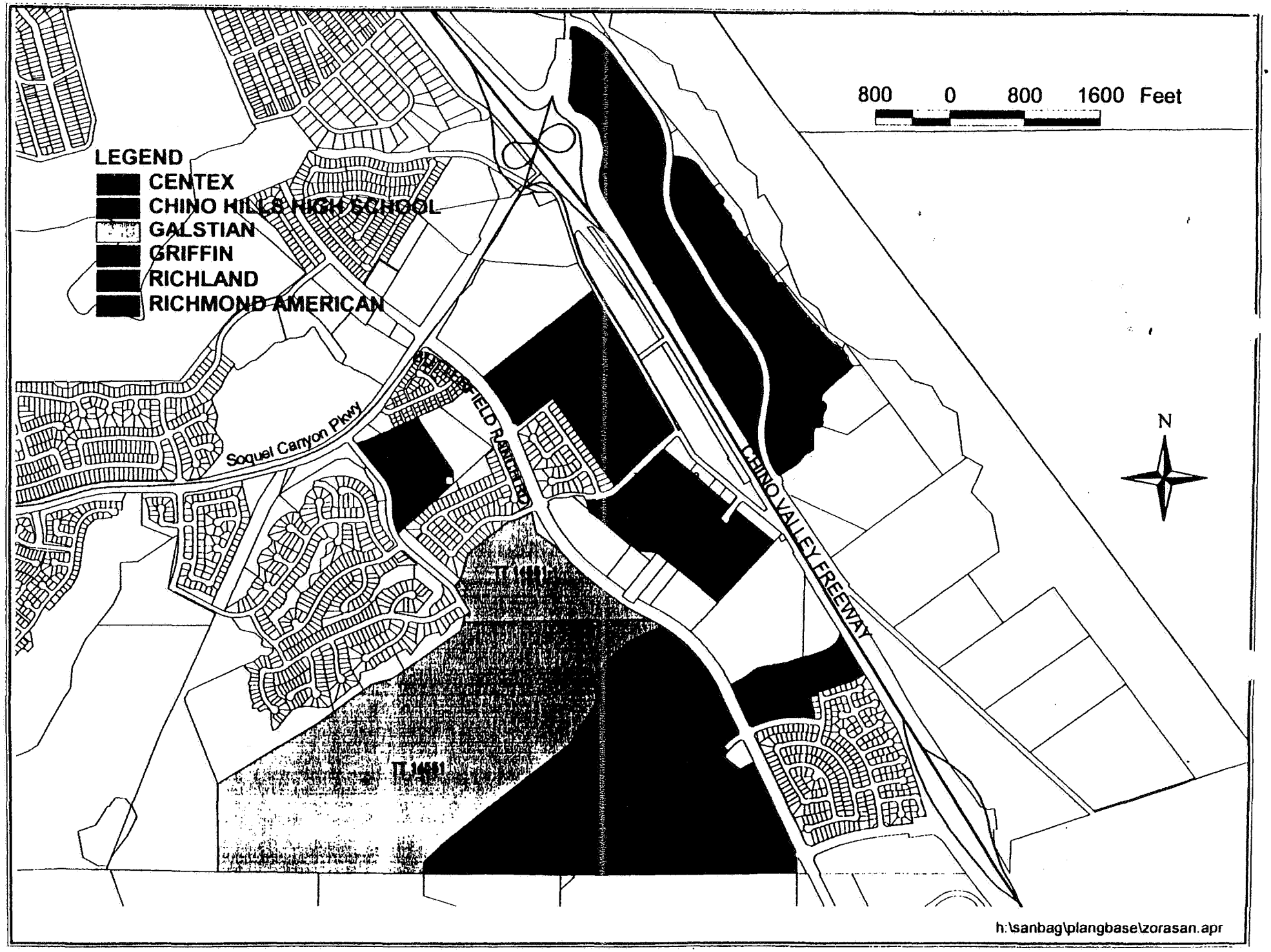
Thank you for your favorable consideration of the City of Chino Hills' concerns. Please feel free to call me at (909) 364-2610 to discuss these issues in greater detail.

Sincerely,

Douglas N. La Belle, City Manager

Enclosure

cc: Mayor and City Council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LAND USE SERVICES DEPARTMENT

COUNTY OF SAN BERNARDINO
ECONOMIC DEVELOPMENT
AND PUBLIC SERVICES GROUP

PLANNING DIVISION
385 North Arrowhead Avenue • San Bernardino, CA 92415-0182 • (909) 387-4131
First Floor Fax (909) 387-3249 • Third Floor Fax (909) 387-3223
15505 Civic Drive • Victorville, CA 92392 • (760) 243-8245 • Fax (760) 243-8212
http://www.co.san-bernardino.ca.us/landuseservices

MICHAEL E. HAYS
Director of Land Use Services

COMMUNITY DEVELOPMENT
DEPARTMENT

FEB 13 2001

February 9, 2001

City of Chino
Attn: Brent Arnold, Principal Planner
Community Development Department
13220 Central Avenue
Chino, CA 91710

RE: NOTICE OF PREPARATION OF A DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE CHINO PRESERVE SPECIFIC PLAN/ANNEXATION/GENERAL PLAN AMENDMENT

Dear Mr. Arnold:

Thank you for the opportunity to comment on the scope and content of the anticipated Draft Environmental Impact Report for the Chino Preserve Specific Plan, Annexation and General Plan Amendment under preparation by the City of Chino. Based on the information provided in the Notice of Preparation, the County offers the comments described below.

In regard to the potential environmental effects of the land use plan proposed by the City, the County requests that the following issues be addressed in the EIR: the Chino Airport, the Prado Regional Park, hydrology and water quality, traffic circulation and natural open space opportunities that may contribute to the objectives of the San Bernardino Valley Multi-Species Habitat Conservation Plan.

Chino Airport

The EIR should contain an analysis of potential effects of both noise and airport safety on proposed future development. According to the Chino Airport Comprehensive Land Use Plan (ACLUP), portions of the Chino Preserve project area lie within Safety Zones II & III. Based on the County Hazard Overlay Maps, the ACLUP Safety Zones are identified as Airport Safety Review Areas 1 and 2. Airport Safety Review Area 2 overlays portions of the Preserve surrounding the airport located within the 65 CNEL Noise Contours. The noise contours are based on a 1991 ACLUP that may not accurately reflect noise levels associated with aircraft is using the airport in recent years. The EIR should consider current and projected noise conditions at the airport. The County is concerned with the potential for non-aviation compatible land uses to encroach on the airport boundaries, thereby affecting continued viability of the Chino Airport. The County is looking forward to working with the City to ensure that the proposed land use plan is consistent with the long term operation of the airport. The County is pleased to see changes in the "Preferred Land Use Concept" that increases "Airport Related" land use designations south and east of the southerly boundary of the airport as compared to the earlier version of the Land Use Concept Plan dated August 2000. The County continues to have additional concern with the "tier" Medium Density Residential land use designation lying south of Kimball and north of the

"Community Core" due to the fact that this area is within the 65 decibal noise contour of the airport. Please address this potential noise impact in the EIR.

Prado Regional Park

The Regional Park is a significant County facility at 2,000 acres located in the southern portion of the Preserve Area. There are three specific areas of concern that the County would like to see addressed in the EIR relative to the park:

- While the proposed development plan alleviates the nitrate issue, it also greatly reduces the existing and valuable watershed north of the park. If not properly designed and managed, the existing nitrate situation will be replaced by an exponentially larger urban run-off problem. The urban runoff, when combined with the tremendous reductions in local watershed land, will cause major drainage and flood control concerns for the park during the rainy season.

- The Regional Park's potable water supply comes from a well that is located just north of Kimball Avenue, east of Euclid Avenue, on San Bernardino County property within the boundary of Chino Municipal Airport. The main line is routed south, along the undeveloped Sultana corridor to the park via Johnson Avenue. The proposed specific plan will need to recognize the location of this main line and address appropriate measures for future construction to occur.

- The addition of an estimated 38,000 people to the sphere area in close proximity to the Regional Park raises concerns about the capability of existing and planned facilities to accommodate what may arguably be a significant increase in future park visitation. This impact should be addressed in the EIR. Additionally, the County believes that the impacts to the park caused by the proposed future growth should be paid for by that growth. The County would like to encourage the City to consider developing a mitigation measure to help offset the future impacts of the Specific Plan on the Regional Park.

Hydrology and Water Quality

The City of Chino should identify potential flooding problems and make recommendations for future local and regional facilities. This can be accomplished by either revising the City's existing Master Plan of Drainage (MPD) or preparing a separate MPD for this area (proposed annexation). The revised and/or prepared MPD should be coordinated with the Flood Control District.

Traffic/Circulation

A Traffic Impact Analysis (TIA) should be prepared as a technical report for the EIR and to satisfy Congestion Management Plan requirements. The traffic analysis should consider future development of the Chino Airport throughout the planning horizon for the Specific Plan. The County requests that a copy of the TIA be submitted to the San Bernardino County Public Works Department, Traffic Division for review and comment. Furthermore, it is the County's understanding that the proposed plan relies on a light rail-mass transit system as a project component to reduce the overall projected vehicle trips

that may be associated with implementation of the plan. While such a system would be very desirable, establishing such a system would be a significant undertaking that may be beyond the City's direct ability to implement. The County is concerned with the consequences on regional traffic circulation if the Specific Plan is built out without such a system. We believe that the EIR should address the traffic impacts using two scenarios consisting of "with mass transit" and "without mass transit" to consider the "worst case" situation that may occur if mass transit does not become a reality.

San Bernardino Valley Multi-Species Habitat Conservation Plan

As you may be aware, the County of San Bernardino is sponsoring a Multi-Species Habitat Conservation Plan (MSHCP) for the San Bernardino Valley. The planning area of the MSHCP encompasses all of southwestern San Bernardino County, including the City of Chino and its sphere of influence. The area targeted for annexation constitutes the southern portion of the Chino Dairy Preserve, an area that is thought to be biologically sensitive because it supports a number of special status plants and animals. Because the City of Chino is a participating party in the development of the MSHCP, the County would like to encourage the coordination of mitigation alternatives that may be associated with the implementation of this plan so as to facilitate integration of resource protection initiatives within the region.

We look forward to receiving a copy of the Draft EIR when it becomes available. Thank you again for the opportunity to comment. Please free to call me at (909) 387-4147 should you have any questions regarding this letter.

Sincerely,

for RANDY SCOTT, AICP
Division Chief, Advance Planning Division

cc: John Goss, Assistant County Administrative, ED/PSG
Keith Lee, Associate Administrative Officer, ED/PSG
Norm Kanold, Deputy Administrative Officer, ED/PSG
Mike Hays, Director, Land Use Services Department
Ken Miller, Director, Department of Public Works
James Jenkins, Acting Manager, Chino Airport
Tom Potter, Chief of Regional Parks, Department of Public Works
Phil Krause, Park Planner II, Regional Parks, Department of Public Works
Maureen Snelgrove, Project Analyst, Regional Parks, Department of Public Works
Pat Mead, Assistant Director, Planning, Department of Public Works
Naresh Varma, Division Chief, Environmental Management, Department of Public Works
Jacob Babico, Division Chief, Traffic Division, Department of Public Works
Tracey Creason, Senior Associate Planner, Advance Planning, Land Use Services Department

CHINO VALLEY UNIFIED SCHOOL DISTRICT
Student Achievement ◆ Safe Schools
Positive School Climate

CHINO VALLEY UNIFIED SCHOOL DISTRICT
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Feb. 13, 2001
~~January 12,~~ 2001

VIA FACSIMILE and U.S. MAIL

Brent Arnold, Principal Planner
City of Chino
Community Development Department
13220 Central Avenue
Chino, CA 91710

RE: Response to Notice of Preparation for Chino Preserve Specific Plan/ Annexation/ General Plan Amendment ("Project")

Dear Mr. Arnold:

Thank you for this opportunity to respond to the Notice of Preparation ("NOP") and Amended NOP of a Draft Environmental Impact Report ("Draft EIR") for the proposed Chino Preserve Project. We look forward to working with the City of Chino ("City") to ensure that this Project's potential environmental impacts are fully addressed and mitigated wherever possible.

As you are aware, the Chino Valley Unified School District ("District") is responsible for providing K-12 public school services to children living within its boundaries. The District includes most of the City of Chino, all of Chino Hills, a small part of Ontario, and a portion of the unincorporated area in the County of San Bernardino. The District's boundaries also include the Chino Preserve area. A map showing the District's boundaries is enclosed for your reference.

The District is concerned that the Project could adversely affect the District in several ways. Our primary concern relates to the tremendous impact this Project will have on the provision of school facilities and the facilities planning process. To assist in preparing the Draft EIR, we are forwarding to you copies of the District's "Developer Fee Justification and Impact Analysis" ("Impact Analysis") and "Population Dynamics and

5130 RIVERSIDE DRIVE • CHINO CA 91710-4130 • PHONE: (909) 628-1201
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Demographics Report" ("Demographics Report"), which were adopted in May 2000. The Impact Analysis contains information regarding the facilities capacity and projected student enrollment in the District. It also estimates the costs required to accommodate student growth in the District. The Demographics Report contains data supporting the findings and conclusions included in the Impact Analysis.

You can see from the Impact Analysis that the District's student enrollment in 1999-2000 school year was 31,545. This is more than double the enrollment in 1980. By contrast, the District's current permanent adequate capacity is 25,033, resulting in a shortfall of 6,014 seats. The Impact Analysis also shows that the Student Generation Factor ("SGF") in the District is .62, which means that every new housing unit built in the District will result in .62 students. Because the Project would permit up to 9,780 new dwelling units, it will ultimately generate approximately 6,064 new students in the District. This will require the construction of several schools at significant cost. As set forth in the Impact Analysis, the cost to provide new school facilities is $5.07 per square foot of new residential development. By contrast, the District collects only $2.65 per square foot in statutory school fees.

This dramatic influx of students would place a tremendous burden on the District, especially when the District is operating over capacity. Therefore, the Draft EIR should include a discussion of the Project's impacts on school facilities and services and provide measures to help mitigate any significant adverse impacts. These might include, for example, close coordination among the District, the City, and developers for early designation of school sites in safe and convenient locations, dedication of suitable property for school sites, and formation of Community Facilities Districts.

In addition to school facilities impacts, the District is concerned about other environmental impacts that could affect the provision of school services in the Project area. Section 4 of the NOP summarizes probable environmental effects of the Project. We are concerned that these Project impacts could affect the placement of school sites, the safety of students and school personnel, and school operations in general. For instance:

- Land Use/Agriculture – This section of the NOP identifies significant unavoidable adverse impacts. This includes incompatibilities resulting from acceleration of growth near dairies. The Draft EIR should include a discussion of how this might affect the location of school sites.

- Water Resources – This section of the NOP indicates that drainage patterns may be altered and that there will be an increase in pollutant laden storm water runoff. The Draft EIR should address how this may affect school sites.

- Geology – This section indicates that, because the area is susceptible to liquefaction, structural mitigation will be required to address hazards for critical or high-occupancy facilities such as hospitals and churches. The

Draft EIR should clarify whether schools fall within this category and what this means for school construction.

- Dairy Waste – The NOP indicates that there could be significant contamination of soils requiring clean-up and removal. The Draft EIR should discuss the implications for school sites. The District is particularly concerned because the of the new, and more stringent, Department of Toxic Substances Control requirements for acquiring and building on school sites. The existence of contaminated property could significantly delay or prevent construction of schools, result in costly clean-up, and affect school site locations. Perhaps this could be alleviated if developers coordinate with the District to provide clean-up in order to expedite site approval and construction.

- Hazardous Materials – The NOP also identifies potential hazards in the Project area, including pesticides, herbicides, and electromagnetic fields associated with power lines, which could present hazards to students and school employees or limit school site locations. The Draft EIR should fully address how these hazards will affect schools.

- Transportation and Circulation – This section indicates that the Project will significantly increase traffic and could result in circulation problems. The Draft EIR should address how this might affect bus routes and the ability of the District to transport students to school effectively.

- Noise – This section indicates significant and unavoidable noise impacts in the Project area. Specifically, the NOP indicates that schools may be impacted by Chino Airport operations and future expansion. The Draft EIR should address how this might impact the ability of the District to locate schools in areas geographically convenient to the residential communities they serve.

- Public Services. The Draft EIR should discuss how the Project's significant demand on public services, such as police and fire facilities, might impact the health and safety of students and school personnel.

- Air Quality – The NOP indicates that the Project will result in elevated levels of ozone, carbon monoxide, and other pollutants, causing significant and unavoidably adverse impacts. The Draft EIR should include a discussion of how air quality impacts may affect schools.

Also please note that Section 3.2 of the NOP, entitled "Project Objectives," does not include any mention of schools as an essential element of residential communities. In addition, Section 3.3, entitled "Agencies with Discretionary Approval or Permit Authority," makes no mention of the District's responsibility to issue Certificates of Compliance to developers who have satisfied school fee obligations prior to building

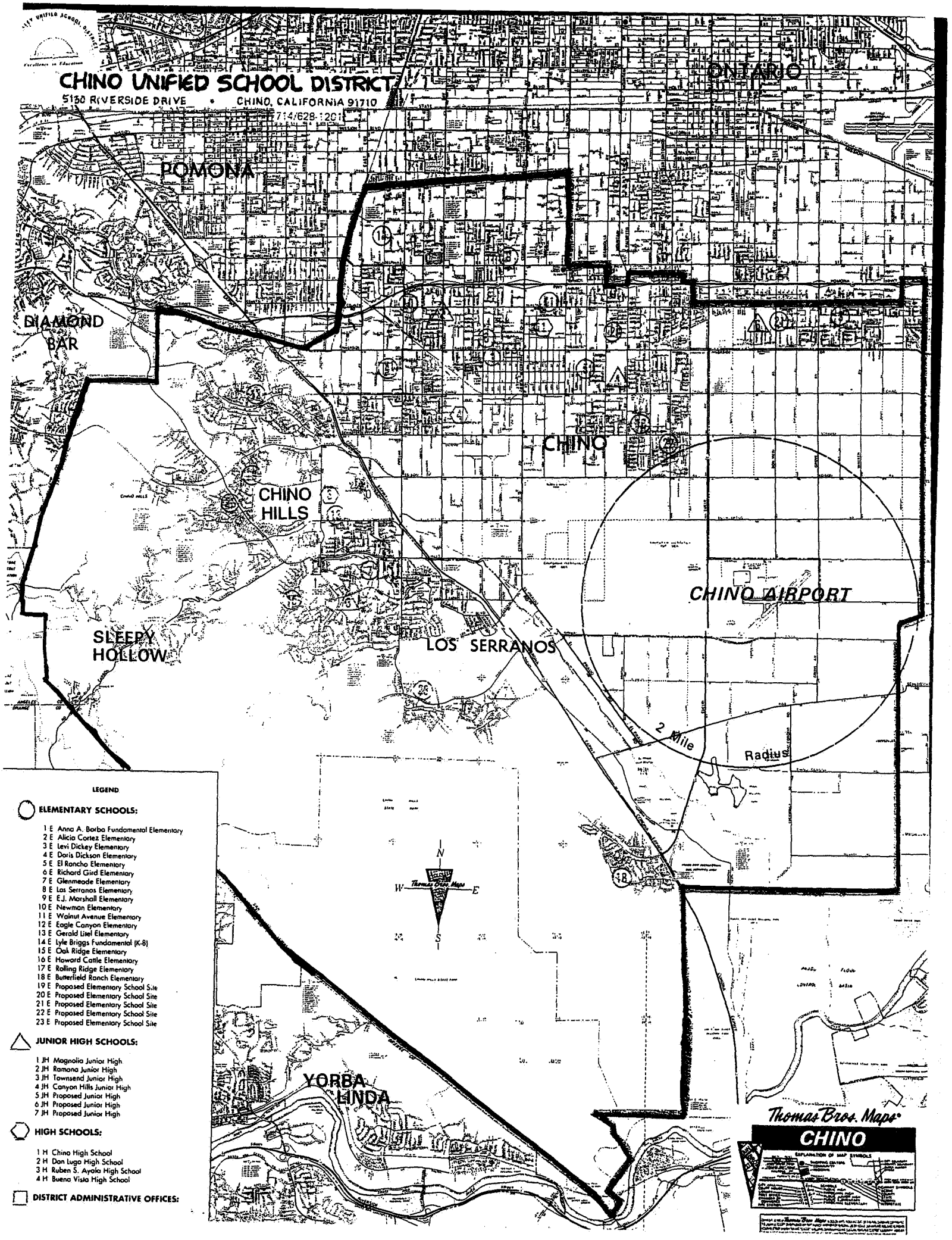
permit. These areas should be modified and/or corrected as needed. Finally, the Draft EIR should address cumulative effects of the Project, as well as Project Alternatives.

Thank you again for this opportunity to respond to the NOP and express the District's concerns regarding the Project as it affects the provision of school facilities and services. We would be happy to meet with the City to provide any additional information or to discuss options to mitigate these impacts. You may reach me at (909) 628-1201, Ext. 1200.

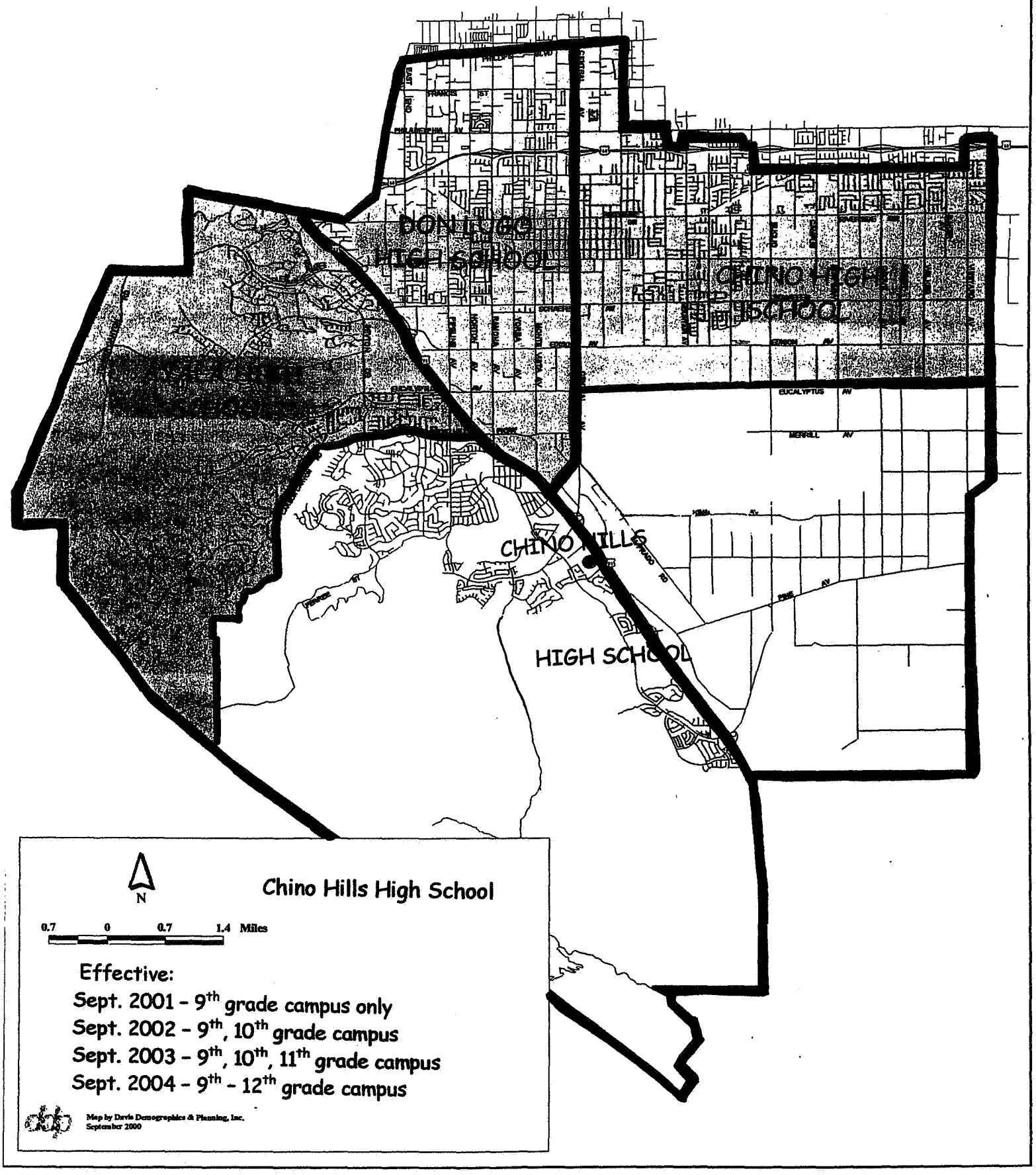
Yours truly,

Dr. Paul Andersen
Assistant Superintendent
Facilities/Planning

Enclosures


CHINO UNIFIED SCHOOL DISTRICT
5130 RIVERSIDE DRIVE • CHINO, CALIFORNIA 91710
714/628-1201
POMONA
ONTARIO
DIAMOND BAR
CHINO
CHINO HILLS
CHINO AIRPORT
SLEEPY HOLLOW
LOS SERRANOS
2 Mile Radius
YORBA LINDA
N
W
E
S
LEGEND
ELEMENTARY SCHOOLS:
1 E Anna A. Borba Fundamental Elementary
2 E Alicia Cortez Elementary
3 E Levi Dickey Elementary
4 E Doris Dickson Elementary
5 E El Rancho Elementary
6 E Richard Gird Elementary
7 E Glenmeade Elementary
8 E Los Serranos Elementary
9 E E.J. Marshall Elementary
10 E Newman Elementary
11 E Walnut Avenue Elementary
12 E Eagle Canyon Elementary
13 E Gerald Litel Elementary
14 E Lyle Briggs Fundamental (K-8)
15 E Oak Ridge Elementary
16 E Howard Cattle Elementary
17 E Rolling Ridge Elementary
18 E Butterfield Ranch Elementary
19 E Proposed Elementary School Site
20 E Proposed Elementary School Site
21 E Proposed Elementary School Site
22 E Proposed Elementary School Site
23 E Proposed Elementary School Site
JUNIOR HIGH SCHOOLS:
1 JH Magnolia Junior High
2 JH Ramona Junior High
3 JH Townsend Junior High
4 JH Canyon Hills Junior High
5 JH Proposed Junior High
6 JH Proposed Junior High
7 JH Proposed Junior High
HIGH SCHOOLS:
1 H Chino High School
2 H Don Lugo High School
3 H Ruben S. Ayala High School
4 H Buena Vista High School
DISTRICT ADMINISTRATIVE OFFICES:
Thomas Bros. Maps
CHINO
EXPLANATION OF MAP SYMBOLS

CHINO VALLEY UNIFIED SCHOOL DISTRICT
High School Boundaries 2001



County of Orange
Planning & Development Services Department

THOMAS B. MATHEWS
DIRECTOR

300 N. FLOWER ST.
SANTA ANA, CALIFORNIA

MAILING ADDRESS:
P.O. BOX 4048
SANTA ANA, CA 92702-4048

February 9, 2001 NCL 00-1

COMMUNITY DEVELOPMENT
RECEIVED
FEB 15 2001

Brent Arnold
City of Chino
Community Development Department
13220 Central Avenue
Chino, CA 91710

SUBJECT: Amended NOP for the Chino Preserve Spec. Plan/Annex./Gen. Plan Amend.

Dear Mr. Arnold:

The above referenced item is an Amended Notice of Preparation (NOP) of a Draft Environmental Impact Report (DEIR) for the City of Chino. The proposed project includes the annexation of the largest remaining portion of the Chino Valley Dairy Preserve within the City's Sphere of Influence to allow for development of a portion of approximately 5,435 acres currently within the Preserve. The master plan will consist of a comprehensive, policy-level specific plan/land use plan. The proposed project would allow up to 9,780 (instead of the previously proposed 8,064) dwelling units on 1,236 acres, 627 acres of business uses, 584 acres of Public Facilities and Rights-of-ways; and approximately 2,988 acres in Open Space. The proposed site is located in the extreme southwestern corner of San Bernardino County.

The County of Orange has reviewed the Amended NOP and offers the following comment:

> We believe the proposed 21% increase in dwelling units will cause an increase in urban runoff into the Prado Dam Basin and consequently potential increased pollution of these waters.

Thank you for the opportunity to respond to the NOP. Please send one complete set of the DEIR to me at the above address when they become available. If you have any questions, please contact me or feel free to call Charlotte Harryman directly. Charlotte may be reached at (714) 834-2522.

Very truly yours,

George Britton

George Britton, Manager
Environmental and Project
Planning Services Division

CH

DEPARTMENT OF TRANSPORTATION
AERONAUTICS PROGRAM M.S. #40
1120 N STREET - ROOM 3300
P.O. BOX 942874
SACRAMENTO, CA 94274-0001
(916) 654-4959
FAX (916) 653-9531

COMMUNITY DEVELOPMENT
RECEIVED
FEB 20 2001

February 14, 2001

Mr. Brent Arnold
City of Chino Community Development Department
13220 Central Avenue
Chino, CA 91710

Dear Mr. Arnold:

Re: *City of Chino's Amended NOP for the Chino Preserve Specific Plan/Annexation/ General Plan Amendment; SCH# 2000121036*

The California Department of Transportation (Caltrans) Aeronautics Program has reviewed the above-referenced document with respect to CEQA. The following comments are offered for your consideration.

The proposed project includes the annexation of the largest remaining portion of the Chino Valley Dairy Preserve within the City of Chino's Sphere of Influence to allow for development of a portion of approximately 5,435 acres currently within the Preserve. While the prior NOP proposed 8,064 dwelling units, the amended NOP proposes 9,780 dwelling units on 1,236 acres, a 21% increase in dwelling units. All other aspects of the project will remain essentially the same according to the amended NOP. The Chino Preserve surrounds Chino Airport to the east and south. According to the Chino Airport Comprehensive Land Use Plan (CLUP), portions of the Preserve will be located within the Runway Protection Zone (RPZ)/Safety Zone I and Outer Safety Zone/Safety Zone II, with the remainder of the project site within the Traffic Pattern Zone/Safety Zone III. The EIR should address airport-related noise and safety impacts as well as the project's potential impact on airport operations. Any school sites within two miles of the airport will need a school site evaluation in accordance with Education Code Section 17215. Additionally, the proposal should be submitted to Jim Squire with the San Bernardino County Planning Department to ensure that the proposal is consistent with the CLUP. The proposal should also be coordinated with Chino Airport staff.

Thank you for the opportunity to review and comment on this proposal. If you have any questions, please call me at 916/654-5314.

Sincerely,

Sandy Hesnard

SANDY HESNARD
Environmental Planner

c : State Clearinghouse, Chino Airport, Jim Squire-San Bernardino County Planning.
Keith Downs-Riverside County ALUC

CITY OF ONTARIO

303 EAST "B" STREET, CIVIC CENTER ONTARIO CALIFORNIA 91764-4196

(909)395-2000
FAX (909)395-2070

GARY C. OVITT
MAYOR

GERALD A. DuBOIS
MAYOR PRO TEM

ALAN D. WAPNER
PAUL S. LEON
DEBORAH S. ACKER
COUNCIL MEMBERS

GREGORY C. DEVEREAUX
CITY MANAGER

MARY WIRTES, MMC
CITY CLERK

JAMES R. MILHISER
TREASURER

COMMUNITY DEVELOPMENT

FEB 2 2001

FAXED 2/27/01

February 27, 2001

Mr. Brent Arnold, Principal Planner
City of Chino
Community Development Department
13220 Central Avenue
Chino, CA 91710

RE: Amended Notice of Preparation for the Chino Preserve Specific Plan/General Plan Amendment EIR

Dear Mr. Arnold:

Thank you for giving us the opportunity to review the Amended Notice of Preparation for the chino Preserve Specific Plan/General Plan Amendment EIR. We have several concerns regarding this project. They are the increase in residential density proposed, the impacts to the transportation and infrastructure systems, regional coordination of SB 831 (Williamson Act Cancellation Fees) and the impact to sensitive habitats. Please keep us informed of the status of this project. If you have any questions, please call James A. Ragsdale, AICP, Principal Planner at (909) 395-2036.

Sincerely,

ONTARIO PLANNING DEPARTMENT
Jerry L. Blum, Planning Director

James A. Ragsdale

James A. Ragsdale AICP
Principal Planner

Focus Group Meeting #1
Topic - Environmental Issues
March 15, 2000

Summary of Input

Inundation Issues

- 566' Flood Elevation Line
  - Potential discrepancy of 566 line
  - Ensure a "common line" and work to resolve any discrepancies
  - Who is going to pay for the property that is under the existing inundation line that hasn't been acquired? OC and ACOE is going to purchase property to 566 or allow flowage easements
  - OC Flood Control Agency provided the County of San Bernardino with accurate lines that have been surveyed and recorded
  - Elevation line and capacity of the basin is changed by what occurs in the basin
- Given infrequent inundation and the various levels of actual flood inundation, there is an opportunity to explore creative uses of properties located between the 556' and 566' elevation lines, such as:
  - Agriculture
  - Trails
  - Grazing
  - Recreation
  - Habitat

Conservation Issues

- Connect to the Regional Open Space and habitat systems (Orange, Riverside and San Bernardino Counties)
- San Bernardino has not embarked on a comprehensive MSHCP
- This project should connect with Riverside MSHCP and Santa Ana Watershed Group's efforts on habitat preservation
- Santa Ana River should be utilized as the basis for regional conservation
- Council's vision should include habitat values. This vision can be expanded by the focus group input through The Planning Center's vision package that is currently being reviewed by the City
- Habitat in the Chino Basin is important to the Chino Hills and visa-versa. City of Chino Hills and State Park have studies of habitat movement between Chino Hills and Basin
- 71 connection to 91 can provide habitat linkages between Chino Hills, State Park and Basin
- Specific Plan could help to finish the wildlife strategy of the Santa Ana Watershed through an implementation measure

Regional Issues

- Capitalize on the fact that the inundation areas and Prado Basin are a major regional recreation resource. Major property that is not developed that can be a regional draw
- Largest infill property in the region with tremendous opportunities to capitalize on proximity to Orange, Riverside and San Bernardino Counties (I-15 High Speed Rail, 60 and 10 east Alameda Corridor, 91 and 15)
- Santa Ana watershed is fastest growing area in country, maybe world
- Consider regional framework in project
- Consider regional open space connections
- Opportunity to act as a transit and transportation hub and help address jobs housing imbalance
- Eastvale has missed the opportunity for a jobs-housing balance and generate employment opportunities
- Specific Plan can include standards to address jobs-housing balance and job growth

- Subarea 2 can be a "Economic Powerhouse" and is a valuable area. Century City may be a smaller comparison.
- Prison, Airport, dairy owners and other major landowners provide the opportunity for a new town (such as discussed in the 1960s) that capitalizes on regional market and location
- Riverside County CETAP program has a number of transportation improvement options, however, the provision of jobs can be a major opportunity to provide jobs and reduce employment commute pattern

Land Use Issues
- This property acts as the entrance to Chino and should be designed to articulate the City's image
- Plan for a balance of housing and employment opportunities
- Land use pattern should allow convenient access to transportation and employment/service opportunities
- An opportunity to create an economic engine and help reduce westward commute pattern

Employment Issues
- Plan for a balance of housing and employment opportunities
- Land use pattern should allow convenient access to transportation and employment/service opportunities
- The availability of jobs can help shift employment and commute patterns to the east

Agricultural Issues
- Agricultural uses may be able to be accommodated in Subarea 2
- Agricultural lands can accommodate conjunctive uses, such as:
  - Habitat
  - Recreation
  - Open space easements
  - Agriculture
- Agricultural uses are being squeezed out
- Agriculture as an urban use, such as metro farming or with conjunctive uses, may be economical and fit with surrounding urban uses
- Agricultural uses may be retained if compensated for uses other than agriculture on other portions of the property, such as easements, recreation, habitat, housing, etc
- Metro Farming – smaller and highly productive agricultural properties that, due to profits and intensity of crops, can compete with development pressures. Same day delivery contracts with supermarkets. Strawberries are an example
- Density of dairies cause impacts, but due to compactness, their impacts may be more readily mitigated
- Three polar questions: Dairies, jobs or housing?
- To what degree do dairies remain in the area or do they remain at all? Dairies may not be compatible with urban uses
- If dairies stay, land must be bought down

Funding Issues
- Funding Opportunities may be available from the Army Corps of Engineers and SAWPA for studies and habitat enhancement.
- The City should consider a comprehensive mitigation fee that would be charged to new development to help preserve habitat
- SB 831 is a bill that allows localities prepare a plan for the use of Williamson Act cancellation fees locally and not into the State general fund. Williamson Act cancellation fees and agricultural easements can be pooled locally for use in the Chino Basin.

Focus Group Meeting #2
Topic – Public Utilities and Services
March 22, 2000

Summary of Input

Army Corps of Engineers

- Dam would be raised 28 feet and the Spillway raised 8 feet
- Actual 566' line is about 4 feet over the spillway. Designed to accommodate a 333-year event. After 100 years, it will accommodate a 190-year event
- OC Flood Control District must still obtain easements or purchase property between the 556' and 566' elevation lines
- Approximately 1,500 acres must be obtained or encumbered
- ACOE in the process of preparing a master plan for the inundation areas
- Allowable uses within the Flood inundation area (provided written guidelines):
  - No habitable structures
  - No Floatable objects
  - Structures must be flood proofed or floodable
  - Agricultural uses are acceptable within the 566' flood elevation area
  - Dairies are not allowable within the 566' flood elevation area, mainly due to on-site habitable structures
  - Recreational uses, such as archery, golf, shooting ranges, dog training, model airplane, bike parks, water parks, soccer, are encouraged
  - Cut ad Fill – is allowed, however the overall capacity of the flood basin must remain. Any digging must still to allow a continuous elevation to prevent ponding
  - OC Flood Control has a surveyed and recorded 566' flood line
  - Flood basin is home to critical habitat
  - Habitat linkages to Chino is critical
- There is no land available for habitat mitigation of non-ACOE projects in the flood basin. Flowage easements are a possibility to explore for habitat mitigation
- Flowage easements are a method to allow private ownership within the flood basin
- The Sepulveda Basin and Indian Bend Wash outside Phoenix are examples of successful flood basins in urban environments (ACOE Con Ops division can help provide input on examples)
- Roads in the inundation area:
  - Roads may be allowable
  - They must be able to withstand inundation
  - Road construction must still maintain capacity of the flood basin and limit ponding

Chino Airport

- Main concern is that future uses are compatible with their noise and safety contours
- Airport is growing, larger jets are using the facility now (accommodating 727s now)
- Board of Supervisors is the Airport Authority
- Chino Airport is approximately 1,100 acres. If they were to expand, which is not anticipated, it would expand to the east
- Noise easements in approach areas
- Eastvale has planned for compatible uses, industrial, within the flight path. Residential uses in the noise contours are required to meet the 45 dB noise standards

Water and Sewer

- A desalting facility is in operation that removes salts, from the high nitrates in the area, from the groundwater
- OC Water Control Agency concerned with water quality in basin

- Potential sewage treatment facility in Subarea 1 (RP2) with an option to relocate the co-composting facility adjacent. New sewage treatment plant should have capacity for development in Subarea 2
- Treated sewer water can be an asset to the region. It can be used for landscape irrigation or industrial uses
- Site will need sewer hookups
- Sewer conveyance facility may be costly
- Opportunity for an independent, single utility service provider in the Ontario, Chino and Eastvale Agriculture preserves
- Could provide sewer service to the 566' flood elevation line
- Santa Ana River regional interceptor line is located within the flood basin and is flood proofed

Gas

- A transmission line runs through the airport and should be able to service the area

Chino Hills

- Main concern is circulation and transportation
  - Continue to participate and include the 4-Corners Group
  - Want the Pine Avenue-Highway 71 connection
  - Continue to work with regional agencies
  - Ultimate goal is a complete regional circulation system
- Other concern is that land uses are complimentary
  - Recreational opportunities
  - Trail and habitat linkages to Chino Hills and region
- City participating in a Multiple Species Habitat Conservation Plan

Water Conservation

- Landscape plan should address
  - Drought tolerant planting
  - Retention basins

YMCA

- A potential satellite facility in Subarea 2 or programs in schools might be merited
- Recreational opportunities should be provided, however access to the facilities must be provided
- Ensure coordination with schools
- Recreational uses may help retain the rural character of the area
- Lewis Operating Corporation – concept for a "Learning Center" with:
  - Schools
  - Day Care
  - Libraries
  - Satellite government offices
  - YMCA

BIOLOGY WORKSHOP
'THE PRESERVE' (SUBAREA 2)

MEETING SUMMARY
2/1/01

Attendees: San Bernardino County Planning, Lisa Northrop; U.S. Fish & Wildlife Service, Doug MacPherson; Bill Geyer (for Ontario); U.S. Army Corps of Engineers, Carvel Bass; Inland Empire Utility Agency, Martha Davis; Endangered Habitats League, Dan Silver; Tri-County Conservation League, Jack Bath, Ph.D; City of Chino, Chuck Coe, Brent Arnold; Michael Brandman Associates, Thomas Holm, Thomas McGill, Claudia Steiding; The Planning Center, Al Bell.

SUMMARY OF ISSUES AND COMMENTS

Agriculture Preservation

- SB 831 funding source for agricultural preservation through purchase of conservation easements
- Utilizes 12 1/2% of cancellation value and 1:1 mitigation
- How to identify and purchase residual values after OC Flood easement purchases?
- Study is needed to identify conservation areas and residual values below 566"; establish program for long-term conservation

Land Use Concept Plan

- Should be some consideration of providing natural open space (OS-N) above 566' line
- Open space extends into urban area via parks and linear paseos, drainages; affords opportunities for connectivity with surrounding open space/corridors
- Over 100 acres of parks within urban core
- It is premature to assume that identified Land Use Concept Plan will be the basis for open space and resource conservation planning until public has opportunity to comment on the Draft EIR; it should not be the role of this group (i.e. workshop attendees) to implement this plan

Habitat Mitigation and Restoration for 'The Preserve'

- USFWS concerned with Delhi sands fly potential impacts; aware of potential habitat within area
- Plan should address need for open space above 566" elevation, as well as below
- Need to address mitigation and restoration opportunities for fallow fields (provide foraging habitat for raptors, birds of prey)
- Birds can use high ground above 566' inundation during future flood events
- Birds capable of using fragmented habitat
- Study is needed to identify conservation areas and 'buy out' residual values below 566"; establish program for long-term restoration
- Need to avoid identifying all resource conservation and restoration measures as 'mitigation'; this may preclude availability of some potential funding sources

Related Conservation and Management Programs

- Corps plans to improve habitat for Santa Ana Sucker
- Other species management programs (contact is Loren Hays, USFWS)
- Trails linkages to Chino Hills State Park
- IEUA looking at Stormwater Management Plan for basin (derived from 'Optimum Basin Management Plan'); Bureau of Reclamation is involved; Chino Creek habitat restoration and groundwater recharge mitigation opportunities
- Need for comprehensive listing and summary of all related agency plans, projects and studies affecting Subarea 2 and Prado Basin
- San Bernardino County Valley-wide Multi-species HCP (14 cities; MOU renewed; $250,000 from USFWS to implement)

- City of Ontario looking to mitigate habitat and open space loss offsite
- Lower Chino Basin Working Group resource management planning (SARWG)
- Could Orange County Water District (OCWD) sell mitigation credits? OCWD needs to be part of this dialogue
- Recent signed Federal & State MOU (SARWG) gives City of Chino (or other local entity) potential authority to function as trustee/manager of resources within lower Chino Basin
- Need for proactive resource conservation program phased with urban development
- How does Subarea 2 mitigation/conservation planning fit within context of these other conservation programs?

Corps of Engineers Prado Basin Plans

- Corps Master Plan Update in process; draft available 2001/02
- Corps will do land use planning for federal lands
- Federal lands are all leased out to Riverside County and San Bernardino County Parks; there are no opportunities for further mitigation on Corps lands (unless existing leases were to change)
- Corps does not want to serve as the mitigation 'basket' for other planning and development programs
- City of Chino staff and consultants are invited to LA USACOE offices to meet with those involved with Prado Basin Master Plan update

Resource Management Plan (RMP)

- Is Program EIR sufficient to implement long-term management of open space resources?
- Conservation planning for this area 'transcends' the EIR
- RMP could serve as focal point to tie together separate, but related conservation efforts

Potential Action Items:

1. **Solicit agencies/organizations to provide brief summary descriptions of all pending plans, projects and studies effecting or effected by 'The Preserve' (Subarea 2) master plan program (i.e. list and description of all relevant planning programs).**

2. **Identify full range of potential funding sources for resource conservation and management programs in the area.**

3. **Evaluate need for feasibility study of conservation easement purchases (including identification of locations and residual values) within the Plan Area below 566'.**

4. **Evaluate benefit and need of potential Resource Management Plan (or Element) component to 'The Preserve' (Subarea 2) GPA/SP and EIR.**

5. **Continue to network and consult with the Biology Workshop attendees as The Preserve planning program and EIR evolve; include OCWD as participant in this process.**

Focus Group Meeting #3
Topic – Transportation and Circulation
April 6, 2000

Summary of Input

Connections
- There is no southern circulation route anticipated within Subarea 2.
- Northern connections are limited due to airport. Walker Avenue is a possible northern connection from Subarea 2. Archibald is nearest northern connection, located to the immediate east. Roads can go in the RPZ safety zones as long as they provide the minimum clearance – 18'. A depressed roadway may be possibility here
- Most traffic must travel east and west in order to proceed north and south
- Traffic projections, which assume buildout of Ontario and Eastvale, are not "blowing out" the system and volumes are moderate through the Subarea. For example, projections along Euclid Avenue south, toward the 71 interchange, do not increase but decrease. This may be due to the fact that much of the infrastructure improvements and regional connections do not exist in Subarea 2 so people avoid traveling through the area.
- It is important to Subarea 2 that Euclid be improved, Pine be connected to the 71, and Pine be widened and improved

Four Corners
- The Four Corners Transportation Study is focusing on transportation improvements at the convergence of LA, Orange, Riverside and San Bernardino Counties. This study is recommending projects that would improve circulation along the 91 freeway. The results of this study will be folded into the SANBAG Transportation Plan which should be available later this year
- Tonner Canyon connection to the 71 (Through Chino Hills) was not assumed in the traffic projections; however, it has been discussed in the Four-Corners report
- 2 handouts provided, "Recommended Priority Projects," and "City of Ontario Projects" map

Pine Ave
- Envisioned as a major 6 lane corridor
- Pine Avenue is a major east-west connection between the 71 and 15 Freeways
- Pine turns into Schleisman, which has a proposed interchange at the 15
- The Pine/71 connection is approved but not funded at this time. The connection would require major fill or a structure to accommodate for the existing elevation difference

Airport
- If the Chino Airport expands, it would expand to the east about 1000 to 2000 feet
- Airport and Subarea 1 may be a major trip attractors
- Opportunity for an employment center connected with the airport
- Airport has about 300 surplus acreage to develop. Airport related industrial is envisioned in the southeast corner of the airport with commercial pockets along Euclid at the northern and southern ends of the airport property
- Project Sierra was a proposed project that envisioned a larger fleet mix. The noise study performed for this project represents a worst case scenario. However, this project is not feasible at this point. (We are in possession of these noise contours)
- The Chino Airport does not plan to accommodate major passenger and cargo users. John Wayne and Ontario Airports satisfy these demands. The focus of the Chino Airport would be General Aviation and business users with limited cargo
- Roads can go in the RPZ safety zones as long as they provide the minimum clearance – 18'. A depressed roadway may be possible.

Traffic Models

- The traffic model for Subarea 2 must be consistent with the San Bernardino Congestion Management Program. However, in order to achieve this consistency, the City model must be updated to project to 2020. If this does not happen, the traffic modeling effort for Subarea 2 will utilize the County's model. The County Model does not allow as focused analysis as the City's model would. It may take approximately 2-3 months to update the City's model. Due to time constraints, the Subarea 2 effort must utilize the County's model.
- Traffic improvements that are not funded or existing today will not be included in the traffic model. Anything that is added to the CMP is assumed to be funded by the development or City.
- The traffic model must account for truck trips

Transit

- Only on-road systems have been discussed in this area
- The Riverside County CETAP process would involve one east-west and one north-south transportation corridor. These corridors may include transit. At this point, no definitive proposals are available
- The Subarea 2 plan must provide the opportunity to provide for future transit and transit stops. For instance, the ROW for transit routes should be preserved

Trucks

- Truck routes should be identified and accommodated in the land use plan
- Trucks should be focused onto Kimball and Euclid and avoid Pine.

Focus Group Meeting #4
Topic – Property/Dairy Owners
April 12, 2000

Summary of Input

Utilities

- How will sewage be accommodated? A sewer plan will be included in the Specific Plan. Financing of the sewer system will also be factored into the plan and addressed in a financing plan. We understand that the sewer treatment facility will have adequate capacity for any proposed development in Subarea 2.
- There is a new sewer line in Kimball; can we hook into it? This is the IEAU system that goes to the water filtration plant at El Prado and Kimball. This system is designed to handle 20-year growth. We will utilize the system if it has the capacity to accommodate Subarea 2 growth.
- Idea to use the Edison power line easement for a bus system. The easement goes near the Haven Train Station
- Potable Water could contain nitrates. Will you sink new wells as a part of this process? Public input - There is a problem in the higher level wells, but deeper wells may not be affected. Source of nitrates is unclear. Will be studies in the infrastructure plan.

Land Use

- What is planned in Subarea 2? No land uses are planned yet. The three land use alternatives, which will be unveiled in late May, will present conceptual land use plans.
- Annexation to the City of Chino will occur after the City Council has adopted the plans. It is anticipated that annexation will occur in the summer of 2001.
- What is the "Buffer Zone?" An area intended to reduce impacts of certain uses on nearby uses. This can be the form of a wall, separation, distance, berming, landscaping, or the location of more compatible uses between sensitive uses and the nuisance itself.

Circulation

- The circulation system must be able to handle the impacts generated from the land use plan.
- Regional traffic patterns are being factored into the traffic study for Subarea 2
- As part of Four Corners study, there is discussion of an extension of the 241 Toll Road to the 71.
- 71 is improved, but not stripped, for two lanes in northbound direction. However, due to conflicts between the toll road agency and State, no improvements have occurred.
- The Subarea 2 effort will illustrate the necessary regional improvements and may act as a catalyst for regional improvements.
- Is Pine Avenue going to be 6 lanes? Potentially. Traffic study and land use alternatives will determine the appropriate size.
- Will Kimball Avenue be four lanes? Unknown at this time. We will define when the alternatives are defined and traffic study is completed
- The 71-Pine connector is not funded at this time but is important to this effort and emergency access. City is studying costs and timing.
- The Central- 71 connection is funded and planned. Environmental concerns on Chino Creek limit the window for construction.

566 Flood Elevation Line

- What will the inundation area be used for? That is unknown at this time. We will work with ACOE and City to determine the most appropriate uses. We will focus on uses that can accommodate occasional flooding and avoid inappropriate uses, according to the ACOE. Inundation area does allow uses that can be flooded; however, we may plan for other uses as long as appropriate flood proofing measure are taken and capacity of the flood basin is maintained.
- Why was property in Subarea 1 zoned Industrial? City zoned them industrial because the property within the 566-flood elevation area was not being acquired.

- We may be able to write primary (preferred) and secondary uses within the flood elevation area, which could allow a higher intensity and avoid a future zone change. The EIR would address the maximum intensity uses.
- The flood inundation line may impact the highest and best use of the land and therefor the property owners may not receive top dollar. Why is the flood plan assumed in your planning efforts, especially if Orange County has not purchased the property yet? Dam project is approved so we must account for its impacts. The property acquisition effort is still being studied but will begin shortly.
- The Specific Plan allows us to design a transition between uses and avoid incompatible uses. The plan will be logical, allow uses to compete in the market.
- The water source in the inundation area is the Santa Ana river watershed
- The funding for the raising of the Dam is the responsibility of the ACOE and the property acquisition is the responsibility of Orange County

Other

- The property owners want to review the plans prior to public hearing to allow ample time to comment. City will provide copies at public facilities, libraries, and the counter for check out and copying.
- Any input should be direct to the City and they will pass it along to the Consultant.

APPENDIX B
BIOLOGICAL ASSESSMENT

CITY OF CHINO SUBAREA 2
RESOURCES MANAGEMENT PLAN

"THE PRESERVE"

Prepared for:

City of Chino
Community Development Department
13220 Central Avenue
Chino, California 91710
(909) 591-9812

Contact:

Robert Prasse, AICP

Prepared by:

Michael Brandman Associates
621 E. Carnegie Drive, Suite 100
San Bernardino, California 92408
(909) 884-2255

Contact:

Thomas J. McGill, Ph.D.
Regional Manager

MICHAEL BRANDMAN ASSOCIATES

January 2003

TABLE OF CONTENTS

1.0 INTRODUCTION 1-1
1.1 Purpose of the Chino Preserve Resources Management Plan 1-1

2.0 PROJECT DESCRIPTION 2-1
2.1 Background 2-1
2.2 Project Location 2-2
2.3 Physical Characteristics 2-6
2.4 Subarea 2 Specific Plan 2-6
2.4.1 Development Concept 2-6
2.4.2 Multi-Purpose Open Space Feature 2-6

3.0 SUMMARY OF BIOLOGICAL RESOURCES 3-1
3.1 Land Cover Types and Natural Plant Communities 3-1
3.1.1 Natural Plant Communities 3-1
3.1.2 Relationship between Land Cover Types and Natural Plant Communities ... 3-2
3.2 Sensitive Biological Resources 3-7
3.3 Jurisdictional Areas 3-12

4.0 MITIGATION IMPLEMENTATION Program 4-1
4.1 Summary of Anticipated Impacts 4-1
4.1.1 Impacts to Biological Resources Above the 566 foot Elevation 4-1
4.1.2 Impacts to Biological Resources Below the 566-foot Elevation 4-3
4.2 Proposed Mitigation Measures 4-4
4.3 Mitigation Measures, Implementing Actions 4-11
4.3.1 Mitigation Measure B-1. Zoning and Land Use Regulations 4-11
4.3.2 Mitigation Measure B-2. Required Biological Surveys 4-14
4.3.3 Mitigation Measure B-3. Resource Management Plan 4-16
4.4 Program Management 4-38
4.5 Mitigation Fee 4-40
4.5.1 300-acre Conservation Area 4-43
4.5.2 Habitat Restoration/Enhancement 4-44

5.0 REFERENCES 5-1

6.0 LIST OF PREPARERS AND PARTICIPATING BIOLOGISTS 6-1

LIST OF TABLES

Table **Page**

3-1 Land Cover Types Found Onsite 3-2
3-2 Plant Communities and Land Cover Types Found Onsite 3-5
3-3 Sensitive Plant Species Potentially Occurring Onsite 3-8
3-4 Sensitive Wildlife Species Potentially Occurring Onsite 3-9
4-1 Plant Communities and Land Cover Types Affected by Proposed Development 4-2
4-2 Zoning and Land Use Regulations Checklist 4-13
4-3 Required Biological Surveys Checklist 4-15
4-4 Conservation Area Checklist 4-19
4-5 Enhancement/Restoration Checklist 4-20
4-6 Burrowing Owl Mitigation Checklist 4-22
4-7 Surface Waters Checklist 4-33
4-8 Windrow Checklist 4-36
4-9 Biological Resources Mitigation Milestones 4-41
4-10 Estimated Environmental Mitigation Fees 4-43

LIST OF EXHIBITS

Exhibit 1 Regional Location Map 2-3
Exhibit 2 Local Vicinity Map 2-4
Exhibit 3 Project Location 2-5
Exhibit 4 Land Use Map 2-7
Exhibit 5 Land Cover Types 3-3
Exhibit 6 Natural Plant Communities 3-4
Exhibit 7 Jurisdictional Areas 3-13
Exhibit 8 Candidate Conservation Areas 4-17
Exhibit 9 Artificial Burrow Design 4-23
Exhibit 10 Generalized Land Ownership Patterns 4-27
Exhibit 11 Urban Buffer/Transition Area 4-29
Exhibit 12 Burrowing Owl Habitat Concept Plan 4-34

LIST OF APPENDICES

Appendix A Natural Plant Communities Occurring Onsite
Appendix B Plant and Wildlife Species Observed Onsite
Appendix C PCR's Regional Raptor Habitat Assessment
Appendix D LSA's Assessment of Impact and Mitigation Options: The Preserve, Chino
Appendix E Open Space Uses
Appendix F CDFG Burrowing Owl Relocation Protocol
Appendix G Suggested Steps for Initiating an Active Relocation Program
Appendix H Mitigation Fee Establishment and Included Costs

1.0 INTRODUCTION

1.1 PURPOSE OF THE CHINO PRESERVE RESOURCES MANAGEMENT PLAN

The purposes of the Resources Management Plan (RMP) are to:

- Provide a detailed methodology for implementing the biological resources mitigation measures contained in the Environmental Impact Report (EIR) "Chino Subarea 2, The Preserve Master Plan" (SCH#2000121036);
- Provide a framework to ensure compliance with the EIR's biological resources mitigation measures; and
- Ensure that adequate reporting and monitoring of the mitigation measures in accordance with Section 21081.6 of the Public Resources Code (PRC).

Impacts were identified and mitigation measures were prepared for several biological resources within the Chino Subarea 2 Specific Plan area (Project Area)[1] including burrowing owl habitat, raptor foraging habitat, migratory bird and waterfowl habitat, federally and state listed species, Waters of the U.S., Waters of California, and other water resources available to wildlife. Through implementation of these mitigation strategies, including resource monitoring, the RMP ensures program success. Methodologies and requirements for implementing the mitigation measures have been included in the RMP for the biological resources identified in the EIR. This RMP is included as a part of the Final EIR.

Section 2 of this RMP provides a summary of the project description of the Subarea 2 Specific Plan as defined in the Draft EIR. Section 3 provides a summary of the biological resources found with the Specific Plan boundaries that were detailed in Appendix B, Biological Assessment, of the Draft EIR and further analyzed in the Recirculated Draft EIR (RDEIR). Please refer to Draft EIR and RDEIR for a complete set of these data. In addition, in order to provide further clarification, supplemental information is included in Section 3 that discusses the natural plant communities found within the

[1] The term "Project Area" means the Chino Subarea 2 Specific Plan area, which is also known as "The Preserve Specific Plan."

various land cover types previously identified within the Project Area. Section 4 is the mitigation implementation program for those mitigation measures listed in Section 5.4.6 of the RDEIR.

2.0 PROJECT DESCRIPTION

2.1 BACKGROUND

The proposed project includes the annexation of the largest remaining portion of the Chino Valley Dairy Preserve within the City of Chino's Sphere of Influence to allow for development of approximately half of the 5,435.6 acres comprising the Project Area. The City of Chino is preparing a master plan to guide the future development and annexation of the Project Area. The master plan consists of a comprehensive specific plan as authorized by Government Code Sections 65450 through 65457, and an 'umbrella' General Plan Amendment, which will link the specific plan to the City's existing General Plan and satisfy the requirement for consistency with the General Plan. The General Plan Amendment is an Area Plan, as authorized by Government Code Sections 65301(b) and 65303.

Subarea 2 is currently located within the San Bernardino County Dairy Preserve. In 1994, the Local Agency Formation Commission (LAFCO) placed the portion of the Dairy Preserve north of Merrill Avenue within the City of Ontario's Sphere of Influence and the remaining portion south of Merrill Avenue to the San Bernardino County line in the City of Chino's Sphere of Influence. The City of Chino addressed that portion of the Dairy Preserve within their Sphere of Influence in two parts, a western and eastern part. The western part, Subarea 1, consists of 1,810 acres and was planned and annexed into the City in 1998. The eastern part, Subarea 2, consists of the remaining 5,435.6 acres of the San Bernardino County Dairy Preserve within the City of Chino's Sphere of Influence. Subarea 2 is currently under the jurisdiction of the County of San Bernardino. The County will retain authority over the land use decisions until annexation occurs. The existing San Bernardino County General Plan designates Subarea 2 as Agriculture – Agriculture Preserve (AG-AP), which allows agricultural and dairy uses, and Resources Conservation (RC), which is essentially an open space zone that supports the conservation of biological resources.

The area in and around Subarea 2 contains a number of existing uses that will either remain or transition to urban uses. In the central and western portions of the Project Area are the Co-Composting Facility operated by the IEUA, the California Institution for Women (CIW-Chino), and Prado Regional Park (including Prado Lake). The Co-Composting Facility receives animal manure and wastewater sludge for recycling from dairies within the Chino Basin Dairy Area. Adjacent to the northwest corner of the Project Area is the California Institution for Men (CIM-Chino). Further west, in Chino Subarea 1 along Kimball Avenue is Inland Empire Utility Agency's (IEUA) Regional Wastewater Treatment Plant No. 5 (RP-5).

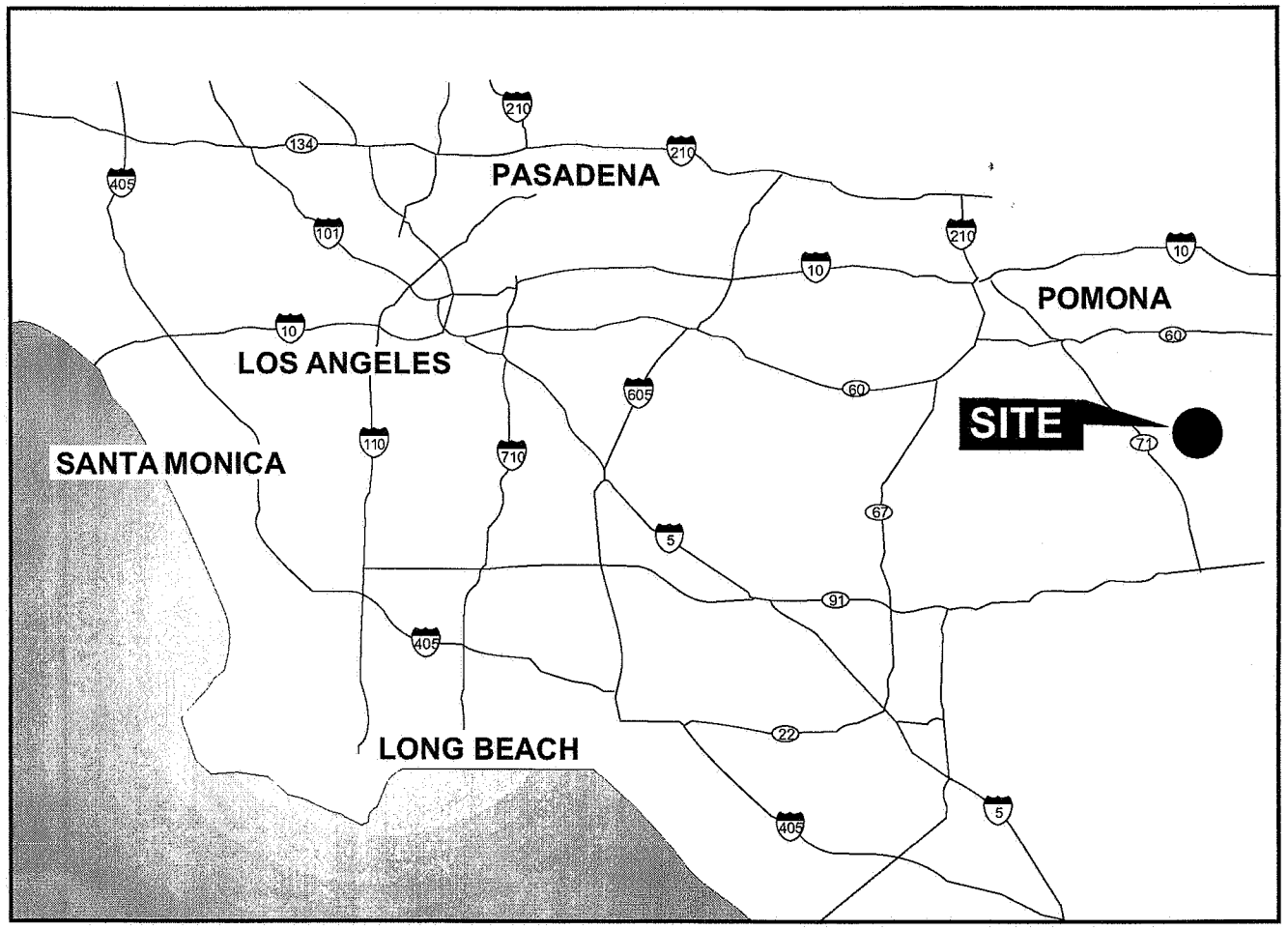
Approximately 2,835 acres of the Project Area are within the potential high-water inundation area that will be created by the raising of the Prado Dam 28 feet and the spillway 8 feet, pursuant to the Santa Ana River Maintstem Project (SARM). Raising Prado Dam will increase the depth of the current inundation area by 10 feet, from 556 to 566 feet above sea level. The increased height of the dam was designed to accommodate a 200-year or greater flood event. This will result in an increase in size of the entire existing Prado Flood Control Basin by 1,660 additional acres. The majority of this additional land will be acquired in fee by Orange County Flood Control District and the remainder will be placed in flowage easements. Most of the land within the 556-foot inundation area is either owned by the U.S. Army Corps of Engineers (USACE) or subject to flowage easements.

The City of Chino issued a Draft Program EIR (Draft EIR) in September 2001, which analyzed and disclosed the potential environmental effects associated with the implementation of the Subarea 2 Specific Plan. A partial recirculation of the Draft EIR (RDEIR) was released in August 2002 and included revisions to Section 5.4, Biological Resources. The RMP is being released with the Final EIR.

2.2 PROJECT LOCATION

The Project Area is located in the extreme southwestern corner of San Bernardino County, approximately 37 miles east of Los Angeles and 20 miles southwest of San Bernardino (Exhibits 1 and 2). The Project Area is adjacent to the cities of Chino and Ontario, and the unincorporated community of Eastvale in Riverside County, and is in the vicinity of Chino Hills, Norco, Corona, and the Prado Flood Control Basin. The Santa Ana River is located to the south of the Project Area and Chino Hills State Park to the west. The Project Area is part of the Chino Valley, a large and generally flat sub-portion of the larger San Bernardino Valley. The lower Chino Valley transitions to the Prado Basin, a major feature of the Santa Ana River (SAR) watershed. The SAR watershed is the largest coastal river system in Southern California, flowing from the slopes of the San Bernardino Mountains to the Pacific Ocean at Huntington Beach approximately 30 miles to the southwest.

Regional access to the Project Area is provided via State Route 71 to the west, State Route 91 to the south, Interstate 15 to the east, and State Route 60 to the north. Euclid Avenue (SR 83) defines the western boundary of the Project Area. Pine Avenue runs east west through the Project Area, providing a link via Schleisman Avenue to Interstate 15. Portions of Kimball and Merrill Avenues form the northern boundary (Exhibit 3).



NORTH

9 4.5 0 9
SCALE IN MILES

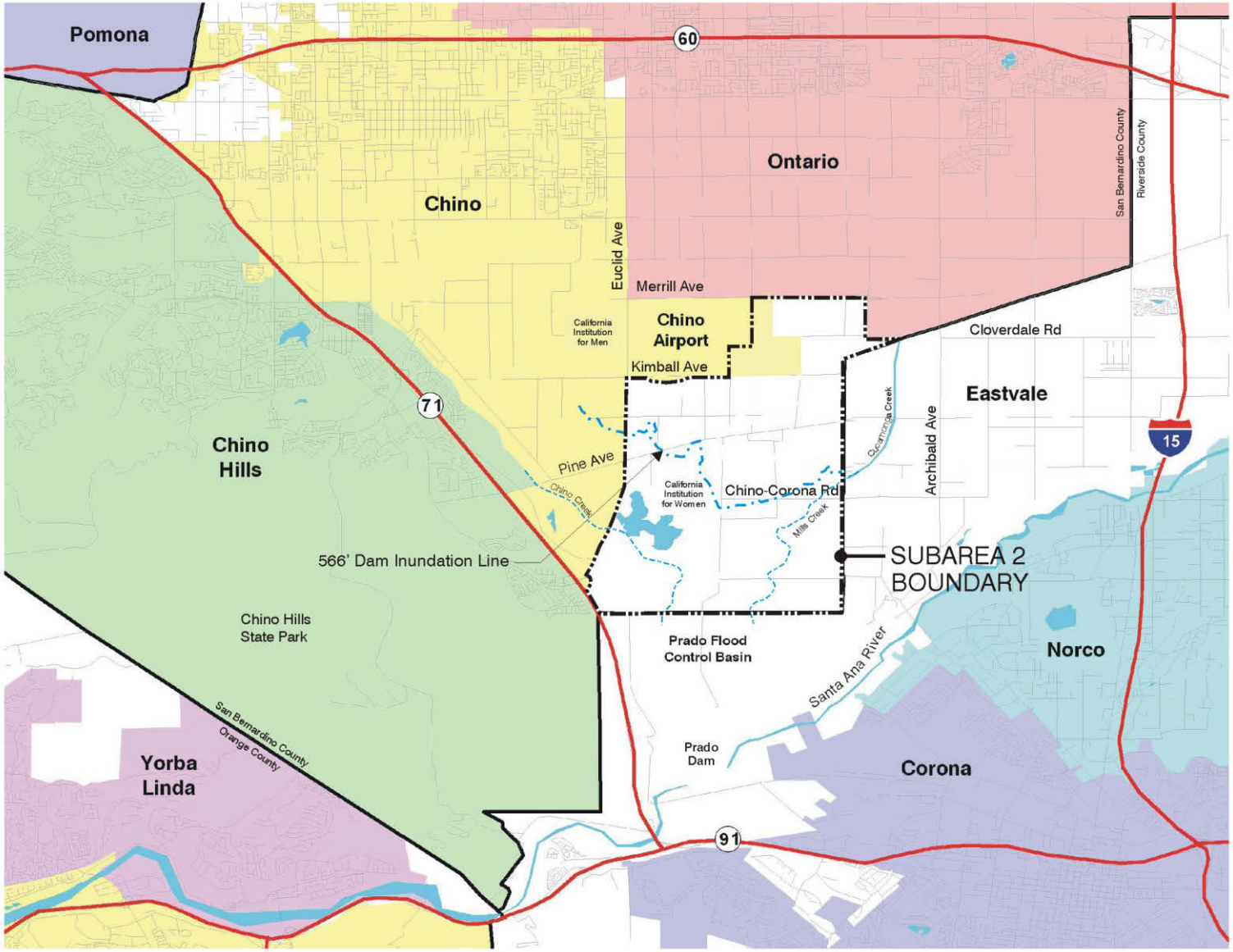
Michael Brandman Associates

05760012 • 8/2000

Exhibit 1

Regional Location Map

THE PRESERVE • CHINO SUBAREA 2



SOURCE: The Planning Center

NORTH

MAP NOT TO SCALE

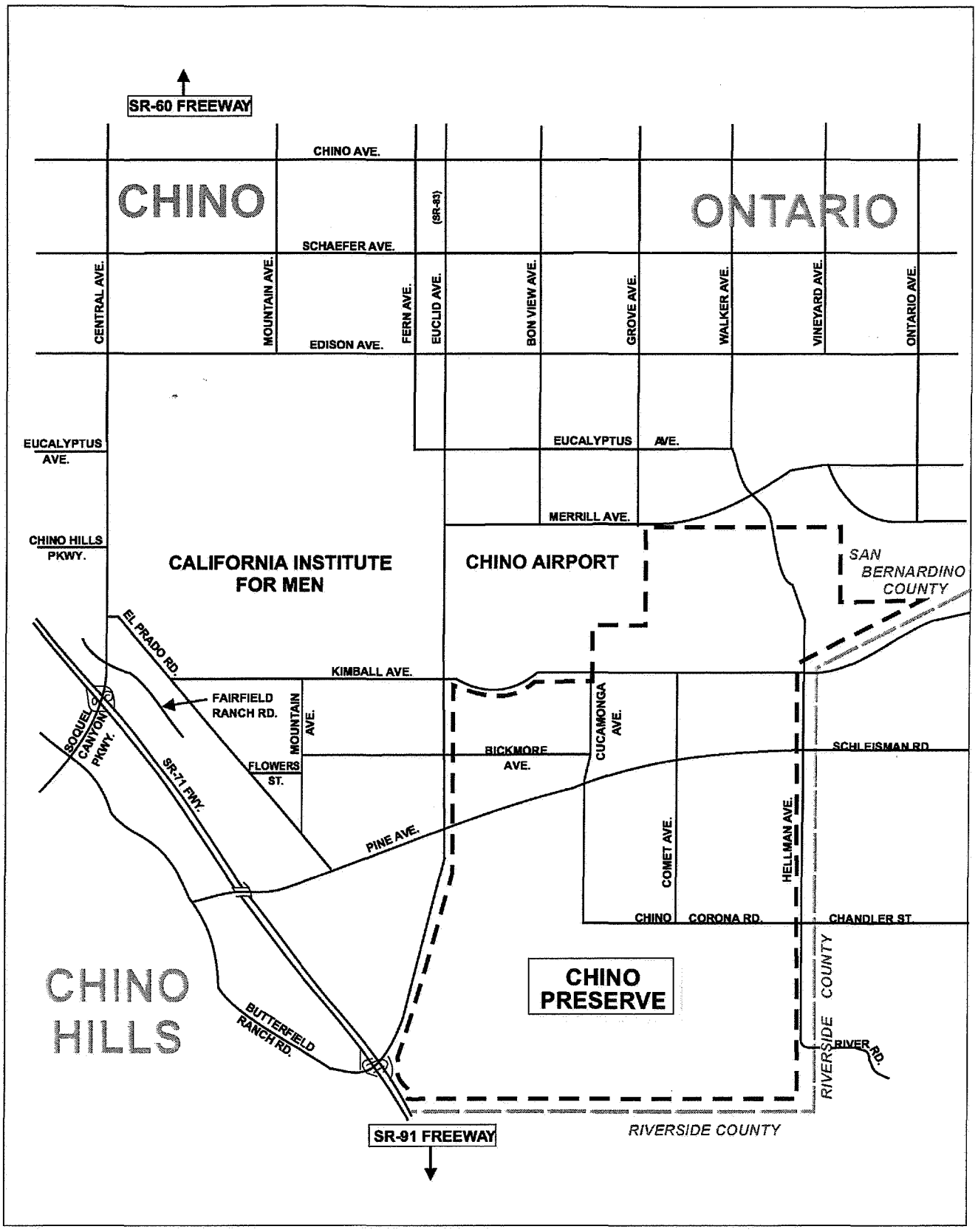
Michael Brandman Associates

05760012 · 6/2001

Exhibit **2**

Local Vicinity Map

THE PRESERVE • CHINO SUBAREA 2



Michael Brandman Associates

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Exhibit 3

Project Location

THE PRESERVE • CHINO SUBAREA 2

2.3 PHYSICAL CHARACTERISTICS

Elevations in the Project Area range from about 500 to 600 feet above sea level. The Project Area is characterized by a lack of drainage facilities. During major storm events, runoff is carried via sheet flow and gulleys through the Project Area in a southwesterly direction, often inundating the dairies. This runoff pattern contributes to water quality problems in downstream receiving waters. Two major creeks traverse the lower portions of the Project Area--Chino Creek, which drains southerly along the base of the Chino Hills, and Cucamonga Creek flood channel, which becomes Mill Creek before draining into the eastern portion of the Prado Basin and eventually into the Santa Ana River. Two other smaller drainages extend south from the Chino Airport through the Project Area, before joining Prado Lake within Prado Regional Park. These drainage courses generally coincide with the flood hazard areas below the 566-foot dam inundation area.

2.4 SUBAREA 2 SPECIFIC PLAN

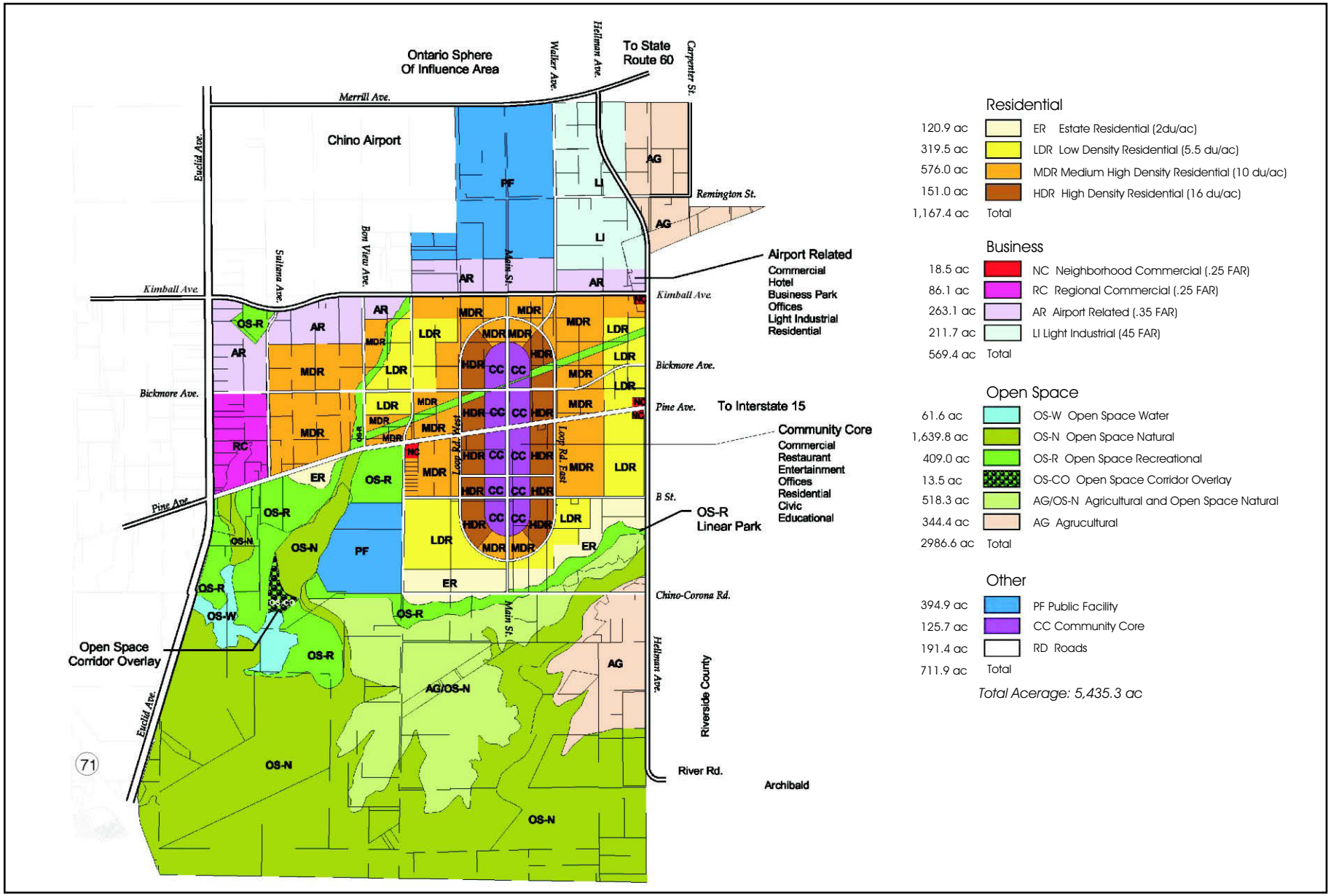
The proposed Subarea 2 Specific Plan includes a variety of land uses intended to implement the City of Chino's vision for the Project Area (Exhibit 4).

2.4.1 Development Concept

The project development includes up to 9,779 dwelling units on 1,167 acres; 696 acres of business uses (Community Core, Light Industrial, Airport Related, Regional Commercial, Neighborhood Commercial); 586 acres of Public Facilities and Rights-of-Way; and approximately 2,987 acres in Open Space (Agricultural, Agricultural/Open Space-Natural, Open Space-Recreation, Open Space-Natural, and Open Space-Water). All proposed developed uses are concentrated in the northern 2,600 acres of the Project Area, above the Prado Basin high water inundation line (elevation 566 feet), which is a significant influence on the planning area. The remaining 2,835 acres of the Project Area south of the 566-foot inundation line are planned for low-intensity Recreation, Agriculture, and Natural Open Space.

2.4.2 Multi-Purpose Open Space Feature

The area within the 566-foot dam inundation area has excellent habitat value for raptors, migratory birds and waterfowl and riparian species. The area is planned to provide a combination of natural open space conservation, passive recreation, and agricultural uses.



SOURCE: The Planning Center

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MAP NOT TO SCALE

Michael Brandman Associates

05760012 · 6/2001

Exhibit **4**

Land Use Plan

THE PRESERVE • CHINO SUBAREA 2

3.0 SUMMARY OF BIOLOGICAL RESOURCES

Baseline biological surveys were conducted by Michael Brandman Associates (MBA) in 2000 as part of preparing the September 2001 Draft EIR and in 2002 for the August 2002 RDEIR. Sensitive habitats within the Project Area include extensive riparian woodlands along the major stream channels below the 566-foot inundation line, freshwater marshes, and open spaces associated with agricultural uses. Fallow agricultural fields, pastures, eucalyptus windrows, and detention basins within agricultural open spaces have some habitat value for raptor foraging and nesting. A variety of sensitive plant and animal species are known to occur in the Prado Basin below the 566-foot inundation line. Federal or state-listed wildlife species that occur or are expected to be present in the Project Area below the 566-foot inundation line include the least Bell's vireo, southwestern willow flycatcher, and western yellow-billed cuckoo. The burrowing owl, a State species of special concern, has been observed in the Project Area.

3.1 LAND COVER TYPES AND NATURAL PLANT COMMUNITIES

The RDEIR addressed five different land cover types within the Project Area: surface waters, agricultural lands, windrows, riparian woodlands, and developed areas. Some of these land cover types were broken down further into sub-categories as defined in the RDEIR and as presented in Table 3-1. This table provides the acreages and percentage for each land cover type within the Project Area and indicates if these land cover types occur above and/or below the 566-foot line. Exhibit 5 illustrates the location of the land cover types within the Project Area. As part of developing the RMP in order to detail vegetation characteristics, the land cover types within the Project Area were further categorized for the type of natural plant community or vegetation association they supported as projected in Table 3-2. Although provided in greater detail, the Natural Plant Communities identified are consistent with the Land Cover Types identified in the EIR.

3.1.1 Natural Plant Communities

There are nine different plant communities or vegetation associations as defined by the Holland natural plant community classification codes or by MBA. Holland uses a numbered inventory system of California's vegetation communities, known as element codes: Non-native Grassland (42200), Southern Cottonwood Willow Riparian Forest (61330), Southern Willow Scrub (63320), Mule Fat Scrub (63310), and Coastal and Valley Freshwater Marsh (52410). These numbers are referenced at the beginning of each community description. Four additional communities were defined by MBA that are not included in Holland's description (disturbed, open water, ornamental woodland, and Arundo scrub) because they do not represent natural plant communities under Holland's classification system

due to the disturbed nature of these areas. These four plant communities have become established in the area due to human influence. However, wildlife has adapted to their presence and can be found inhabiting these plant communities. Exhibit 6 shows the location of each plant community within the Project Area and Appendix A provides a more detailed description. Note that most (> 90%) of the habitat above the 566-foot inundation line is categorized as disturbed. This is due to the predominance of dairies, pastures, and other active agricultural land uses in the area. The relationship between these plant communities and associated land cover types is discussed in Section 3.1.2 below.

TABLE 3-1
LAND COVER TYPES FOUND ONSITE

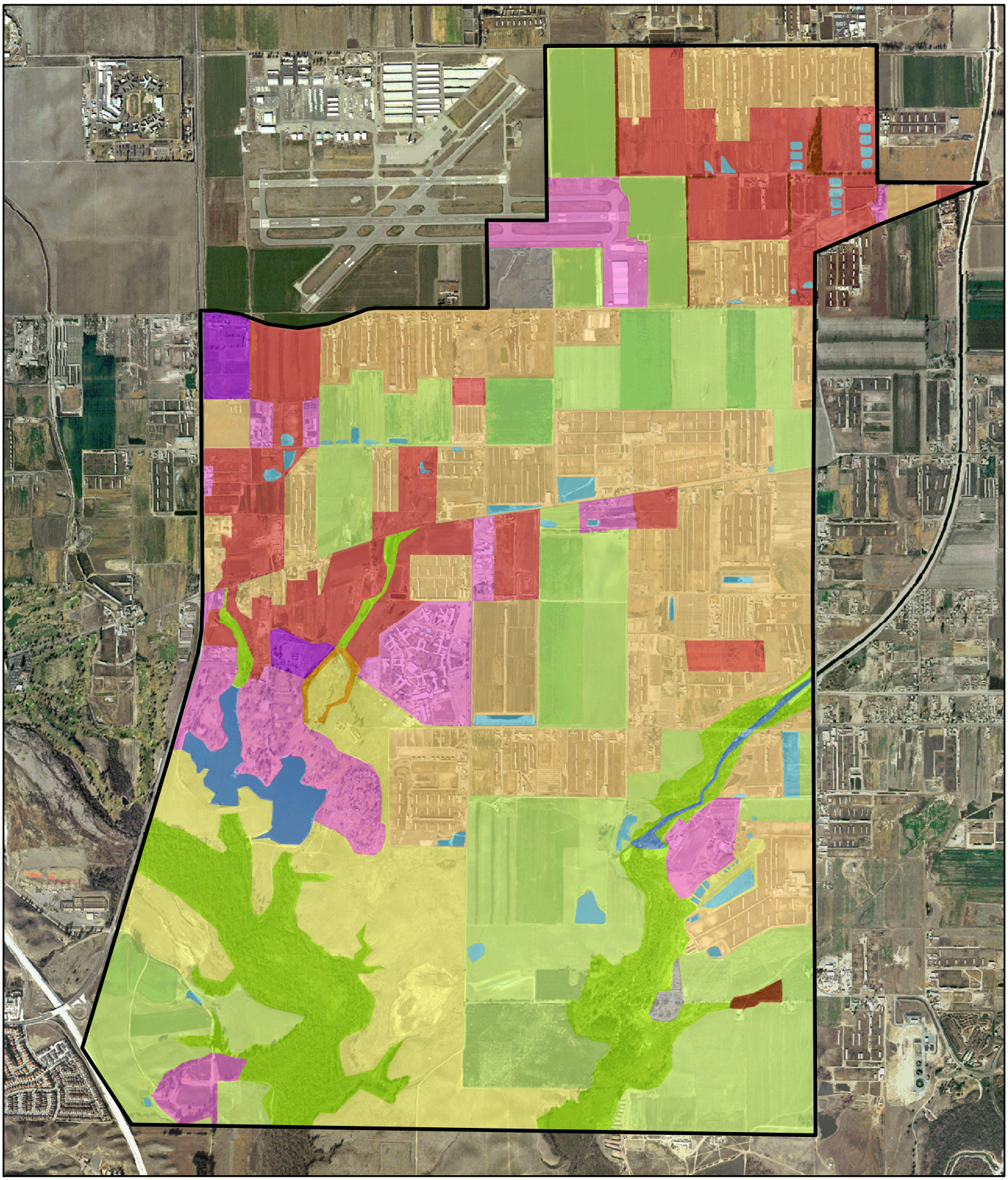
Habitat	Below 566 Line (acres)	Above 566 Line (acres)	Totals (acres)
Surface Water Areas			
▪ Detention Basin	36	38	**74**
▪ Marsh	9	--	**9**
▪ Open Water	77	--	**77**
Agricultural Land			
▪ Dairy	352	1,084	**1,436**
▪ Pasture	144	497	**641**
▪ Active Fields	837	703	**1,540**
▪ Fallow Fields	545	--	**545**
Windrows	7	17	**24**
Riparian	530	1	**531**
Developed Areas			
▪ Developed	272	191	**463**
▪ Disturbed	9	34	**43**
▪ Equestrian	17	35	**52**
Totals	**2,835**	**2,600**	**5,435**

3.1.2 Relationship between Land Cover Types and Natural Plant Communities

Table 3-2 provides a summary of these natural plant communities occurring within Subarea 2 and the acreages found within each of the listed land cover types. The following paragraphs briefly summarize each land cover type, as defined in the RDEIR, and discuss the natural plant communities found within each land cover type.

Surface Water Areas

There are three types of surface water within the Project Area: detention basin/drainages, marsh, and open water, totaling approximately 160 acres. Most of these surface water areas are comprised of disturbed vegetation (48 acres), non-native grasses (15 acres), or open water (84 acres). Open water



Source: City of Chino, MBA

Subarea 2 Boundary
Agriculture
Dairy
Developed
Disturbed
Equestrian
Fallow
Marsh
Open Water
Pasture
Riparian Woodlan
Windrows
detention basin

0 0.25 0.5 1 Miles

NORTH

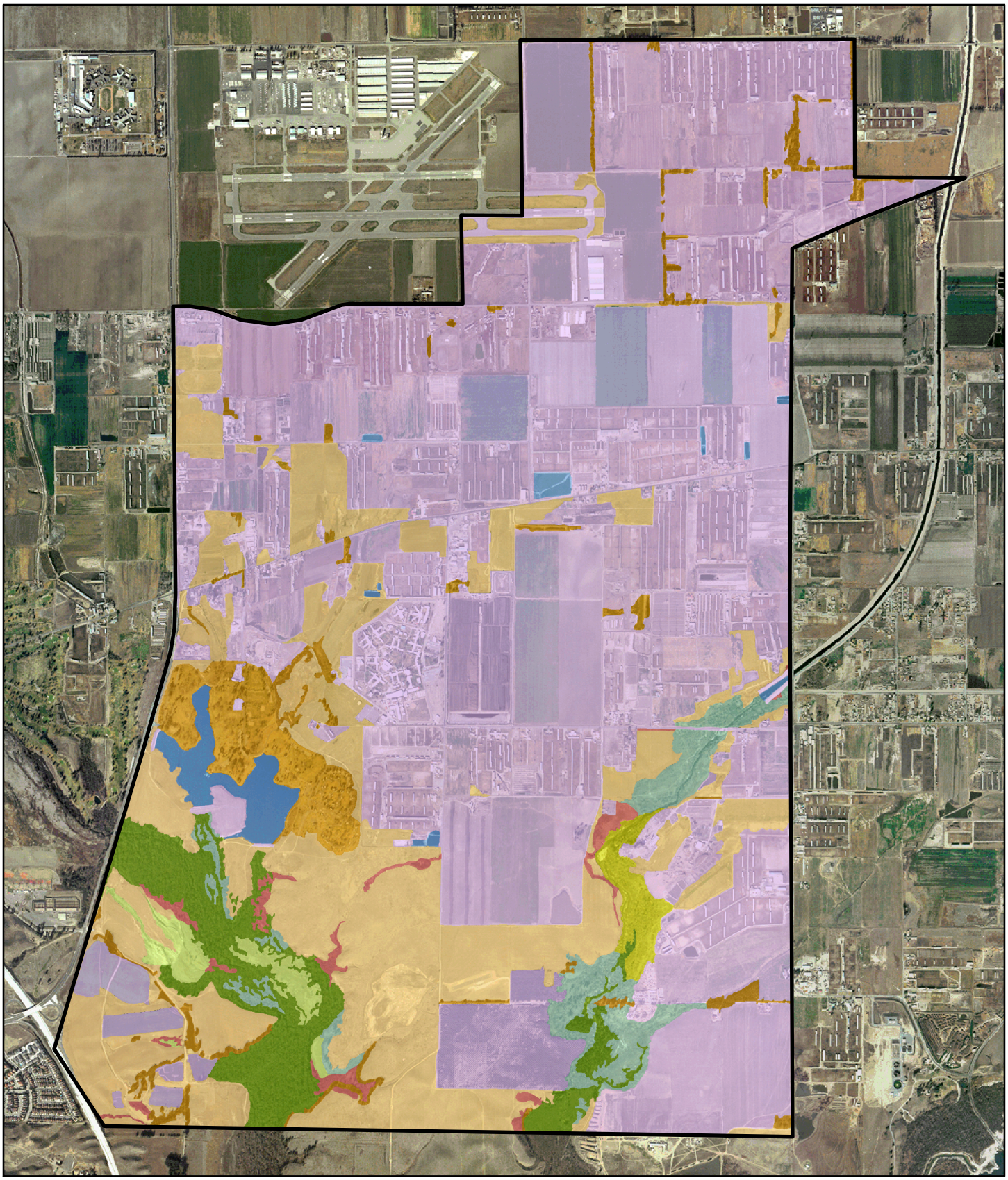
Michael Brandman Associates

Exhibit 5

Land Cover Types

05760012 | chino\landcover.mxd

THE PRESERVE SUBAREA 2



Source: City of Chino, MBA

Subarea 2 Boundary
Arundo Scrub
Cottonwood Willow Riparian Forest
Disturbed
Fresh Water Marsh
Mule Fat Scrub
Non-native Grassland
Ornamental Woodland
Southern Willow Scrub
Open Water

0 0.25 0.5 1 Miles

NORTH

Michael Brandman Associates

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Exhibit 6

Natural Plant Communities

THE PRESERVE SUBAREA 2

TABLE 3-2
PLANT COMMUNITIES AND LAND COVER TYPES FOUND ONSITE

Plant Community	Land Cover Type												TOTAL
	Surface Water Areas			Agricultural Land						Developed Areas			
	Detention Basins	Marsh	Open Water	Dairies	Pasture	Active Fields	Fallow Fields	Windrows	Riparian	Developed	Disturbed	Equestrian	
Disturbed	48			1,352	495	1,195	67		21	250	43	31	**3,502**
Non-Native Grassland	11	4		69	134	321	468[1]		40	64		21	**1,127**
Southern Cottonwood-willow Riparian									234				**234**
Mulefat Scrub	3					9	6		27				**45**
Southern Willow Scrub									144				**144**
Coastal and Valley Freshwater Marsh		5							25				**30**
Open Water	12		72										**84**
Ornamental Woodland				15	11	15	10	24		149			**224**
Arundo Scrub			5						40				**45**
Area Totals (Acres)	**74**	**9**	**77**	**1,436**	**640**	**1,540**	**545**	**24**	**531**	**463**	**43**	**52**	**5,435**

Note: [1]Although the species composition is currently too sparse to be characterized as coastal sage scrub, approximately 108 acres of the non-native grassland below the 566-foot inundation line, if left undisturbed, could transition to coastal sage scrub. For a more detailed explanation see Appendix A.

bodies include Prado Lake and the upper portion of Mill Creek and provide foraging habitat for raptors and other wildlife species and are used by migratory waterfowl. Very few native plants and plant communities exist within these surface water areas. The majority of the detention basins were created to control dairy activity run-off. These basins accumulate surface flows containing manure and other dairy waste from the dairies after heavy rains and are not regulated by USACE as a Water of the U.S. In a few cases, a basin may have been placed in what could have historically been drainages. Some of these areas could potentially be regulated by USACE and California Department of Fish and Game (CDFG).

Agricultural Fields

There are four types of agricultural lands within the Project Area: dairy land, pastures, cultivated agriculture croplands, and fallow fields totaling approximately 4,161 acres. Remnants of native vegetation are typically very minimal or absent within all of these areas with most of the plant community structure represented as disturbed (3,109 acres), non-native grassland (992 acres), or ornamental woodland (51 acres).

The dominant vegetation within the agricultural lands is planted ornamental landscaping, cultivated crops, and fields of non-native grass and opportunistic weedy species. Weedy species found throughout the fields included wild oat, ripgut brome (*Bromus diandrus*), red brome (*Bromus madritensis* ssp. *rubens*), soft chess (*Bromus hordeaceus*), black mustard (*Brassica nigra*), red-stemmed filaree, and cheeseweed (*Malva parviflora*).

Fallow fields occur primarily below the 566-foot inundation line. The majority of these fields were previously cultivated fields, then grazed by dairy cows after harvest and subsequently left fallow. Fallow fields also develop characteristic ruderal vegetation, composed of a number of weedy species as described above. These fields are used as foraging habitat by local raptor species but could be restored and/or enhanced to provide habitat for burrowing owls.

Windrows

Windrows are typically a result of historic agricultural activities. All 24 acres of windrows within the Project Area are comprised of ornamental woodland vegetation and are dominated by blue gum (*Eucalyptus globoratum*), although other species exist, including olive (*Fraxinus* sp.) pine (*Pinus* spp.), and cypress (*Cypressus* spp.). These communities, though comprised of non-native species, are located mostly within the agricultural fields above the 566-foot inundation line and provide nesting and foraging perches for bird species (see Exhibit 5).

Riparian Woodlands

The riparian woodlands contain dense, broad-leaved, winter-deciduous riparian thickets dominated by several willow species and is associated with seasonally flooded or saturated stream and river corridors. It typically forms thickets in riparian zones along creek channels, adjacent sandy or gravelly floodplains, and low stream terraces. The 531 acres of riparian woodlands onsite are comprised of southern cottonwood-willow riparian forest (234 acres), southern willow scrub (144 acres), mulefat scrub (27 acres), coastal and valley freshwater marsh (25 acres), non-native grassland (40 acres), disturbed (21 acres), and Arundo scrub (40 acres). Most of these riparian communities occur below the 556-foot elevation line along Chino and Mill Creeks. Most stands are too dense to allow much under story development. Characteristic species of this community include black willow (*Salix gooddingii*), arroyo willow (*Salix lasiolepis*), red willow (*Salix laevigata*), and mule fat (*Bacharis salicifolia*).

Developed

Within the Project Area, Developed Areas include the CIW-Chino, portions of Prado Regional Park, Prado Recreational Dog Training Facility, an industrial parcel southeast of Chino Airport, the IEUA manure composting facility, commercial nurseries, and several equestrian facilities. These areas include commercial buildings, infrastructure, residential homes, and roads. They support a very limited amount of vegetation, comprised of non-native species planted for their aesthetic and utilitarian values, ornamental vegetation (149 acres), barren/disturbed ground (324 acres), non-native grassland (85 acres).

3.2 SENSITIVE BIOLOGICAL RESOURCES

Tables 3-3 and 3-4 identify those species of plants and wildlife known to occur, or have the potential to occur, on or within the vicinity of the Project Area that have been afforded special recognition by the federal government, the State of California, or the California Native Plant Society (CNPS). Recognition is given due to the species' declining or limited population sizes, resulting in most cases from habitat loss. Sources used to determine sensitivity status and occurrence of biological resources include: plants--U.S. Fish and Wildlife Service (USFWS) (1996a,b), the CDFG Natural Diversity Data Base (CNDDB) (2000), *Federal Register* listing package; and CNPS Electronic Inventory of Rare and Endangered Vascular Plants of California (1994); wildlife--USFWS (1996b), and the CNDDB (2000). Appendix B provides a list of plant and wildlife species observed in the Project Area.

TABLE 3-3
SENSITIVE PLANT SPECIES POTENTIALLY OCCURRING ONSITE

Species	Status[1]	Habitat	Potential For Occurrence[2]
Federal Threatened and Endangered Species			
Santa Ana River Woollystar (*Eriastrum densifolium* ssp. *sanctorum*)	FE SE CNPS List 1B	Sandy soils of river floodplains and terraced alluvial deposits	Low
Braunton's Milk-vetch (*Astragalus brauntonii*)	FE CNPS List 1B	Carbonate soils in coniferous forest, chaparral, coastal sage scrub, and valley and foothill grassland	Very Low
Federal and State Sensitive Species			
Many-stemmed Dudleya (*Dudleya multicaulis*)	FSC CNPS List 1B	Coastal sage scrub, chaparral and grasslands and rock outcrops	Very Low
Smooth tarplant (*Centromedia pungens* ssp. *laevis*)	SSC CNPS List 1B	Grassland, ruderal and alkali meadows	Very Low
CNPS Listed Species			
Intermediate Mariposa Lily (*Calochortus weedii intermedius*)	CNPS List 1B	Rocky areas in chaparral, coastal scrub, and foothill grasslands.	Low[3]
Coulter's Saltbush (*Atriplex coulteri*)	CNPS List 1B	Coastal dunes, coastal bluff scrub last observed in 1917.	Very Low[3]
Chaparral Sand Verbena (*Abronia villisa* var. *aurita*)	CNPS List 1B	Sandy areas in chaparral and coastal scrub last observed in 1934.	Very Low[3]

Notes: [1] Status Legend:

U.S. Fish and Wildlife Service
FE Federal Endangered
FSC Federal Species of Concern

California Department of Fish and Game
SE California Endangered

California Native Plant Society
CNPS List 1B

[2] Potential for Occurrence:

Very Low = Suitable habitat no longer exists for the species in the Project Area or its immediate vicinity. No recent records exist of the species occurring in the Project Area or its vicinity.

Low = No recent records exist of the species occurring in the Project Area or its immediate vicinity (within approximately 5 miles) and/or the diagnostic habitat requirements strongly associated with the species no longer occur in the Project Area or its immediate vicinity.

Moderate = Either a historical record exists of the species in the Project Area or its immediate vicinity or the diagnostic habitat requirements associated with the species occur in the Project Area or its immediate vicinity.

High = Both a historical record exists of the species in the Project Area or its immediate vicinity and the diagnostic habitat requirements strongly associated with the species occur in the Project Area or its immediate vicinity.

Present = Species observed during 2000 baseline biological surveys.

[3] Modified from the Recirculated Draft EIR.

Source: CNDDB 2001

TABLE 3-4
SENSITIVE WILDLIFE SPECIES POTENTIALLY OCCURRING ONSITE

Species	Status[1]	Habitat	Potential For Occurrence[2]
Federal Threatened and Endangered Species			
Delhi sands flower-loving fly (*Rhaphiomidas terminatus abdominalis*)	FE	Colton dunes (Delhi soils series) open sand	Very Low
Santa Ana sucker (*Catostomus santaanae*)	FT SSC	Small to medium-sized streams	Very Low
Arroyo toad (*Bufo californicus*)	FE SSC	Washes and arroyos with open water; sand or gravel beds; for breeding, pools with sparse overstory vegetation.	Very Low
California red-legged frog (*Rana aurora draytonii*)	FT SSC	Streams with slow moving water and deep pools; dense shrubby riparian vegetation at pool edges	Very Low
Least Bell's vireo (*Vireo bellii pusillus*)	FE SE	Southern cottonwood willow riparian forest	Present
Southwestern willow flycatcher (*Empidonax traillii extimus*)	FE SE	Riparian woodlands, water-filled creeks or channels and scattered overgrown clearings	Moderate
Southern bald eagle (*Haliaeetus leucocephalus*)	FT (FPD) SE	Winters locally at deep lakes and reservoirs (mainly at Lake Mathews or Big Bear Lake)	Breeding-Very Low[3] Foraging-Moderate[3]
State Threatened and Endangered Species			
Western yellow-billed cuckoo (*Coccyzus Americanus occidentalis*)	SE	Riparian communities	Moderate
Peregrine falcon (*Falco peregrinus*)	SE FSC	Estuaries, wetlands, and coastal bluffs	Breeding-Low Foraging-High
Federal and State Sensitive Species			
Arroyo chub (*Gila orcutti*)	SSC	Warm streams with highly variable seasonal stream flows	Very Low
Orange-throated whiptail (*Cnemidophorus hyperythrus*)	SSC	Open sage scrub or chaparral with loose soils	Low
San Diego horned lizard (*Phrynosoma coronatum blainvilleri*)	SSC	Open areas of sandy soil with coastal sage scrub, chaparral, grassland, riparian, and washes and watercourses	Low
Silvery legless lizard (*Anniella pulchra pulchra*)	FSC SSC	Sandy or loose organic soils or with abundant leaf litter	Low
Coast patch-nosed snake (*Salvadora hexalepis virgultea*)	SSC	Variety of habitats, including chaparral and sage scrub	Low
Two-striped garter snake (*Thamnophis hammondii*)	SSC	Perennial and intermittent streams having rocky beds and bordered by willow thickets or other dense vegetation	Present
Southwestern pond turtle (*Clemmys moromata pallida*)	FSC SSC	Lakes and ponds, also pools in rivers and streams	Moderate[3]
Golden eagle (*Aquila chrysaetos*)	SFP SSC	Forages in grasslands and other open terrain	Breeding-Low Foraging-High[3]

TABLE 3-4 (Cont.)
SENSITIVE WILDLIFE SPECIES POTENTIALLY OCCURRING ONSITE

Species	Status[1]	Habitat	Potential For Occurrence[2]
Long-eared Owl (*Asio otus*)	CSC	Nests in dense riparian woodlands, as well as oak woodlands; forages in open fields with adequate prey	Moderate [3]
White-tailed kite (*Elanus leucurus*)	FSC SFP	Open woodlands and grasslands	Moderate
Ferruginous hawk (*Buteo regalis*)	FSC SSC	Grasslands and other open terrain	High
Burrowing owl (*Athene cunicularia hypugea*)	SSC	Grasslands, savannahs and sparse brushlands	Present
Cooper's hawk (*Acipiter cooperii*)	SSC	Oak and riparian woodlands	Present
Sharp-shinned hawk (*Accipiter striatus*)	SSC	Oak and riparian woodlands	Low[3]
Northern harrier *Circus cyaneus*)	SSC	Grasslands and other open terrain	Present
Prairie falcon (*Falco mexicanus*)	SSC	Grasslands, coastal sage scrub, and estuaries	Breeding-Low[3] Foraging-Moderate
Loggerhead shrike (*Lanius ludovicianus*)	FSC SSC	Grassland and open scrub	Present
Western least bittern (*Ixobrychus exilis hesperis*)	FSC SSC	Densely vegetated brackish and freshwater marshes	Moderate[3]
California horned lark (*Eremophila alpestris actia*)	SSC	Open fields and grasslands	Present
Tricolored blackbird (*Agelaius tricolor*)	FSC SSC	Marshes and grassland communities	Present[3]
Yellow-breasted Chat (*Icteria virens*)	SSC	Summer resident, nests in low dense riparian scrubs.	Moderate[3]
Yellow warbler (*Dendroica petechia*)	SSC	Mature riparian woodland, especially where dominated by willows or alders	Present
Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*)	SSC	Coastal sage scrub, slopes with sparse shrubs and open grassy areas intermixed.	Low
Townsend's big-eared bat (*Corynorhinus townsendii*)	FSC SSC	A wide variety of habitats including woodlands and arid grasslands; roosts in mines and caves	Moderate
California mastiff bat (*Eumops perotis californicus*)	FSC SSC	Open areas with high cliffs	Moderate
Small-footed myotis (*Myotis ciliolabrum*)	FSC	Forages among trees or over brush; roosts in caves, mines, and in cliff or rock openings	Moderate
Yuma myotis (*Myotis yumanensis*)	FSC SSC	Water and wooded canyon bottoms; roosts in caves and abandoned buildings	Moderate
San Diego black-tailed jackrabbit (*Lepus californicus bennettii*)	SSC	Open areas, typically occurring in alluvial sage scrub and open Riversidean sage scrub	Present
Northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*)	SSC	Sage scrub	Low

TABLE 3-4 (Cont.)
SENSITIVE WILDLIFE SPECIES POTENTIALLY OCCURRING ONSITE

Species	Status[1]	Habitat	Potential For Occurrence[2]
Southern grasshopper mouse (*Onychomys torridus ramona*)	SSC	Open coastal sage scrub, mixed chaparral, and riparian areas	Low
San Diego desert woodrat (*Neotoma lepida intermediai)*	SSC	Variety of habitats from sea level to 8,500 ft. elevation	High
Northern red diamond rattlesnake (*Crotalus ruber ruber*)	SSC	Sage scrub and chaparral, often in rocky areas, also in grasslands, dry washes, and woodlands	Low
Western spadefoot (*Scaphiopus hammondii*)	SSC	Arid and semi-arid regions in lowlands and foothills in washes, river floodplains, alluvial fans, playas, and Alkali flats	Moderate [3]

Notes: [1] Status Legend:

U.S. Fish and Wildlife Service
FE Federal Endangered
FT Federal Threatened
FPD Federal Proposed for Delisting
FSC Federal Species of Concern

California Department of Fish and Game
SE California Endangered
SSC Species of Special Concern
SFP Fully Protected
CSC Considered sensitive by the California Natural Diversity Data Base.

[2] Potential for Occurrence:

Very Low = Suitable habitat no longer exists for the species in the Project Area or its immediate vicinity. No recent records exist of the species occurring in the Project Area or its vicinity.

Low = No recent records exist of the species occurring in the Project Area or its immediate vicinity (within approximately 5 miles) and/or the diagnostic habitat requirements strongly associated with the species no longer occur in the Project Area or its immediate vicinity.

Moderate = Either a historical record exists of the species in the Project Area or its immediate vicinity or the diagnostic habitat requirements associated with the species occur in the Project Area or its immediate vicinity.

High = Both a historical record exists of the species in the Project Area or its immediate vicinity and the diagnostic habitat requirements strongly associated with the species occur in the Project Area or its immediate vicinity.

Present = Species observed during 2000 baseline biological surveys.

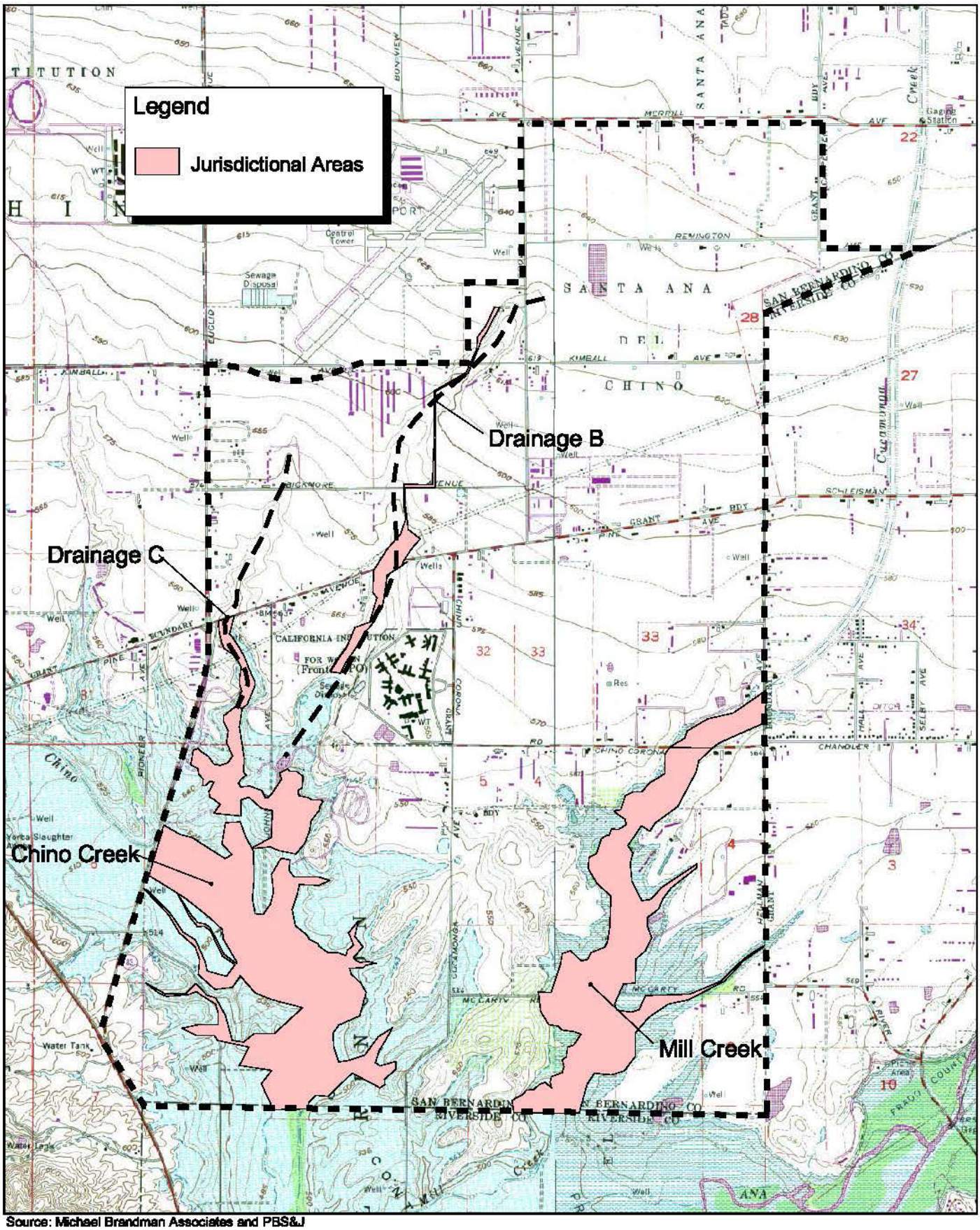
[3] Modified from the Recirculated Draft EIR.

Source: CNDDB 2000

The take of any Federal Endangered Species (FE) or Federal Threatened Species (FT) requires a take permit under either Section 7 or 10 of the Federal Endangered Species Act. The take of any State Endangered Species (SE) or State Threatened Species (ST) requires a take permit under Section 2081 of the California Endangered Species Act. Species of Special Concern at the Federal and State level (FSC, SSC) have no special legal status and no special permits are required for the take or other impacts to such species. Further, the California Environmental Quality Act does not require any mitigation for the take of such species of special concern which is unique to such species unless "endangered, rare or threatened" under California Code of Regulations, Section 15380. None of the species of special concern listed in Table 3-4 are endangered, rare or threatened under Section 15380. "Take" is generally defined to include the harming or killing of a species, including any significant habitat modification that results in injury to the species.

3.3 JURISDICTIONAL AREAS

Although formal jurisdictional determinations were not conducted during the baseline biological surveys, general notations were made of areas potentially regulated by the USACE and CDFG. The location of water bodies or natural features within the Project Area possibly falling under the jurisdiction of the USACE and/or CDFG are shown in Exhibit 7.



Source: Michael Brandman Associates and PBS&J

Michael Brandman Associates

05760012 · 12/2002

Exhibit 7

Jurisdictional Areas

THE PRESERVE · CHINO SUBAREA 2

4.0 MITIGATION IMPLEMENTATION PROGRAM

No State or Federally threatened or endangered species will be directly affected by implementation of the Chino Subarea 2 Specific Plan. The loss of agricultural lands above the 566-foot elevation line may adversely affect burrowing owls, foraging raptors, and migratory birds and waterfowl (sensitive wildlife species). Those mitigation measures listed in Section 5.4.6 of the RDEIR, as further detailed and implemented in the RMP, will mitigate the loss of those agricultural lands with habitat value and impacts to sensitive wildlife species by: (1) providing for open space land use designation on all 2,835 acres of Subarea 2 below the 566-foot inundation line (2) providing for the creation and perpetual maintenance of a 300-acre Conservation Area, on the project site or in nearby locations within the Prado Basin (including Chino Hills[2]); (3) the requirement for project-specific biological surveys; (4) the participation in enhancement and restoration programs for burrowing owl, raptor, and riparian habitats; (5) the creation of an urban buffer/transition area between planned development and wildlife habitat, and (6) the payment of mitigation fees assessed per adjusted gross acre of land that is developed.

4.1 SUMMARY OF ANTICIPATED IMPACTS

Impacts of the proposed project to biological resources are described in the Program EIR (RDEIR Section 5.4) and are briefly summarized below to provide the context for the mitigation implementation program that is detailed in this document.

4.1.1 Impacts to Biological Resources Above the 566 foot Elevation

The significant biological resource impacts of implementation of the proposed plan include direct loss of raptor foraging habitat, loss of burrowing owl habitat, loss of migratory bird and waterfowl habitat, and cumulative loss of certain agricultural lands with habitat value. These impacts are largely restricted to areas planned for development above the 566-foot inundation line, away from the most sensitive areas below the 566-foot line. Table 4-1 provides the acreage of each of the land cover types and associated plant communities located above the 566-foot inundation line affected by the proposed Specific Plan development.

[2] The term Prado Basin, as used herein, includes Chino Hills.

TABLE 4-1
PLANT COMMUNITIES AND LAND COVER TYPES AFFECTED BY PROPOSED DEVELOPMENT[1]

Plant Community	Land Cover Type										TOTAL
	Surface Water Areas			Agricultural Land							
	Detention Basins	Marsh	Open Water	Dairies	Pasture	Active Fields	Fallow Fields	Windrows	Riparian	Developed	
Disturbed	38			1,058	436	639			1	224	**2,396**
Non-Native Grassland				26	61	64				36	**187**
Southern Cottonwood-willow Riparian											**0**
Mulefat Scrub											**0**
Southern Willow Scrub											**0**
Coastal and Valley Freshwater Marsh											**0**
Open Water											**0**
Ornamental Woodland								17			**17**
Arundo Scrub											**0**
Coastal Sage Scrub											**0**
Area Totals (Acres)	**38**	**0**	**0**	**1,084**	**497**	**703**	**0**	**17**	**1**	**260**	**2,600[2]**

Notes: [1] All affected lands are located above the 566-foot inundation line.
[2] Only 1,256 acres provide any quality of habitat (see Section 4.1.1).

Most of the habitat above the 566-foot line is classified as disturbed (2,172 acres or 91%), developed (287 acres), non-native grassland (225 acres or 8%), and ornamental woodlands (17 acres, less than 1%) that are associated with agricultural activities. No significant impacts to sensitive plants and/or sensitive native plant communities are expected to occur. The loss of agricultural lands (pastures, windrows, and active and fallow fields) will result in the loss of 1,256 acres of land that provides, or may provide, varying qualities of roosting and foraging habitat for burrowing owl, other raptor species, and migration birds and waterfowl. An analysis by PCR (see Appendix C), which was included in the RDEIR, and a separate investigation by LSA (see Appendix D) concurred with the original analysis in the DEIR that this loss was not considered significant at a project level for the loss of raptor foraging habitat but could be considered a significant contribution to cumulative loss of this type of habitat on a regional basis. LSA analysis concluded that this potential cumulative loss will be mitigated to below the significant level with the proposed retention of land below the 566-foot inundation line in open space uses, combined with the creation of a 300-acre Conservation Area. LSA also corroborated the RDEIR conclusion that additional mitigation is required to reduce impacts to individual burrowing owl sites.

Dairy lands have not been included as suitable habitat for raptor species since most of the 1,084 acres occupied by dairies are principally stockyards devoid of all vegetation, heavily disturbed and covered with cow manure. Movement by wildlife is not expected to be impacted above the 566-foot line since such movement is restricted due to the intense dairy and agricultural activities, lack of viable water sources, and lack of native habitat.

4.1.2 Impacts to Biological Resources Below the 566-foot Elevation

Urban development is restricted below the 566-foot inundation line in the Project Area (with the exception of a 55-acre parcel that extends above Pine Avenue along the western boundary), so there will be no direct impacts to federal or state listed species, surface water and riparian habitats, or other sensitive species and/or habitats. The Specific Plan land use designations for all land below the 566-foot inundation line limits development likely to cause significant adverse impacts to biological resources and consist of Open Space-Recreation (OS-R), Agriculture (AG), Agriculture/Open Space-Natural (AG/OS-N) and Open Space-Natural (OS-N) uses.

The majority of the existing land uses below the 566-foot elevation consist of agricultural or recreational land use (i.e., Prado Regional Park and concessions). Areas of high biological sensitivity within the Chino Creek and Mill Creek floodways below the 543-foot elevation line have been classified by USACE as an extreme resource area. These areas include least Bell's vireo critical habitat areas and have been identified by the USACE as suitable only for extremely low-intensity use.

The proposed Specific Plan includes a 566-Foot Dam Inundation Elevation Overlay (DIO) applied to all lands below 566-foot inundation line. This overlay requires that all specific development proposals be submitted for review and comment by USACE, and further requires that allowable land uses comply with applicable provisions of any existing cooperative management plans that may apply to the Lower Chino Basin/Prado area. Finally, USACE has indicated that its master plan is being updated and will soon be released for land uses within the Prado Flood Control Basin. Under this plan, active recreation and intense agricultural uses, such as dairies, that have the potential to result in significant conflicts with sensitive biological resources will be carefully managed by USACE to avoid or minimize risks.

4.2 PROPOSED MITIGATION MEASURES

The following are the mitigation measures, verbatim, from the RDEIR. The following section (Section 4.3) details the actions that will be taken to provide for implementation of these measures.

B-1 Zoning and Land Use Regulation

1. All areas below the 566-foot dam inundation line, except such areas located north of Pine Avenue, will be retained within an open space or agricultural land use designation in order to provide protection for existing wildlife habitat values found in such areas and those to be created by the habitat enhancement activities described under mitigation B-3, below, as well as to avoid any new impacts.

2. Any new development or expansions of existing land uses within the open space designations of The Preserve Specific Plan (i.e., Agriculture, Agriculture/Open Space-Natural, Open Space-Recreation, Open space-Natural and Open Space-Water) shall comply with the requirements and provisions of the Resource Management Plan (see Mitigation No. B-3, below) in order to mitigate potential adverse project-specific impacts on biological resources.

B-2 Required Biological Studies

1. Conduct a biological assessment of each specific project site to characterize the habitat types and the potential for the site to support any sensitive species or habitat.

2. Where a sensitive species has the potential to occur, determine the level of potential for occurrence as low, moderate, or high. Provide scientific justification for this determination.

3. If the potential for occurrence is moderate or high (e.g., the required habitat elements for this species are present and/or there has been a sighting of this species in the vicinity of the project site), conduct focused surveys within suitable habitat to determine the presence or absence of the species on the project site.

4. Any surveys deemed necessary must be conducted by a biologist qualified to perform the needed survey(s). The City of Chino, or its consultant, will review and approve the personnel and methodology for any such proposed surveys.

5. If a sensitive species or habitat is found to occur on a proposed project site, or occupies habitat that may be impacted directly or indirectly by the proposed project, this must be called to the City's immediate attention and documented in the biological assessment for the project.

6. Mitigation measures to offset any potential impact to sensitive species and habitats must comply with the RMP and shall be included in the biological assessment. All lands set aside for conservation and/or other mitigation measures must be clearly documented in the final biological assessment.

B-3 Resources Management Plan

A Resources Management Plan (RMP) shall be prepared by the City of Chino to provide for the implementation of the mitigation measures described below, in order to avoid, lessen and reduce impacts on the biological resources within the Preserve Specific Plan Area. The Resources Management Plan will be approved by the Chino City Council at the time of certification of the Final EIR. The RMP will formalize the City's balanced approach to land use and resource management, and provides the framework for coordinating the City's actions with other agencies, such as County of San Bernardino, CDFG, USFWS, USACE, OCFWD, and OCWD with regard to specific conservation measures and resource management initiatives within The Preserve. The RMP will focus on establishing a Conservation Area and the development and implementation of wildlife habitat enhancement and restoration activities, primarily funded by a mitigation fee imposed on all urban development within the Project Area. The RMP will specifically address the following mitigation measures:

1. 300-acre Conservation Area

   Provision will be made for the creation, enhancement, expansion and perpetuation of high quality wildlife habitat in a 300-acre Conservation Area to be located generally below the 566-foot inundation line and within the boundaries of the Project Area. The more specific location of the Conservation Area will be determined through the preparation of the RMP and will depend on availability of such lands for mitigation purposes, and the suitability of land for the enhancements envisioned. Such habitat will be designed to address the impacts that will occur as the result of development of The Preserve (i.e., raptor, waterfowl and burrowing owl habitat). Key enhancements that will be provided comprise the following:

a) A weed removal program and replanting of native vegetation within the 300-acre Conservation Area shall be implemented to create high quality raptor and burrowing owl foraging habitat.

b) Installation and maintenance of twenty (20) artificial burrowing owl nesting sites to mitigate for the loss of burrowing owl habitat. Artificial nests will be located and designed to facilitate use by burrowing owls.

Stands of trees shall be planted at a minimum of five (5) locations within the 300-acre Conservation Area to mitigate for the loss of raptor nesting/foraging habitat. Specifics regarding enhancements (i.e., location of tree stands, placement of artificial owl burrows, plant and tree species, long-term maintenance and management, etc.) will be detailed in the RMP.

c) The City shall obtain agreements with the landowners in the 300-acre Conservation Area in the form of an irrevocable license, conservation easement, right of entry, or other legally enforceable instrument to install and maintain the above habitat enhancements and to provide the City with a perpetual right to control uses which would conflict with the land's use as wildlife habitat.

2. Alternate Location for the 300-acre Conservation Area

If the City is unable, or it is infeasible, to obtain the onsite mitigation agreements from property owners for all or a portion of the 300-acre Conservation Area, the City may acquire and enhance, or make other arrangements securing the right to permanently protect/preserve and enhance, land off-site within the Prado Basin (including Chino Hills). Such land must have similar biological value to land on-site within the areas planned for urban development (generally above the 566-foot elevation line). In addition, provisions shall be made to provide enhancements/restoration similar to the measure described in Section B-3(1), above.

3. Burrowing Owls

a) If burrowing owls are found on an individual development site, development, including the expansion of existing land uses or other land use activities that could disrupt the owls, will be required to follow the CDFG burrowing owl relocation protocols, including the creation of artificial burrows. Key components of this protocol presently include:

i. Occupied burrows should not be disturbed during the nesting season, from February 1 through August 31.

ii. If owls must be moved away from the disturbance area, passive relocation is preferable to trapping.

iii. A time period of at least one week is recommended to allow owls to move and acclimate to the alternate burrows.

iv. Passive relocation involves encouraging owls to move from occupied burrows to alternate natural or artificial burrows that are at least 50 meters from the impact zone with a minimum of 6.5 acres of suitable foraging habitat for each pair of relocated owls.

v. Owls should be excluded from burrows in the immediate impact zone and within a 50-meter buffer zone by installing one-way doors in burrow entrances.

vi. One-way door should be left in place for at least 48 hours to insure that owls have left the burrow before excavating the burrow.

vii. One alternate burrow (natural or artificial) should be provided for each burrow that will be excavating in the project impact zone.

viii. The Project Areas should be monitored daily for at least one week to confirm no owl use before excavating burrows in the immediate impact zone.

ix. When excavating burrows, hand tools should be used and the burrows should be refilled to prevent reoccupation.

x. Sections of flexible plastic pipe or burlap bags should be inserted into the tunnels during excavation to maintain an escape route for any animals that may still be located inside the burrow.

b) In order to provide supplemental mitigation beyond the standard CDFG protocol requirements for relocation of owls, the 300-acre Conservation Area will be made available for the relocation of burrowing owls that would be displaced by development, including the creation of 20 artificial burrows. The feasibility of relocating owls from development sites to the Conservation Area will be reviewed on a case-by-case basis for individual development projects, subject to the evaluation and recommendations of the biological survey prepared for a given site.

4. Urban Buffer/Transition Area

In order to limit urban intrusion into areas with habitat value that are below the 566-foot dam inundation line, a buffer area will be provided along the southern edge of urban development within The Preserve Specific Plan Project Area. The buffer will be designed to provide for limited access to habitat areas and will include provisions for the logical transition between urban structures/uses and habitat areas. Such provisions may address without limit measures regarding: location and type of land uses, lighting, vegetation, and tree plantings. Specific features regarding the design, conceptual location, buffer width and/or setback requirements,

timing and other features of the buffer shall be included as part of the Resources Management Plan.

While every reasonable effort will be made to seek such a buffer, this mitigation measure does not require land acquisition or obtaining any agreements with landowners in the form of an irrevocable license, conservation easement, right of entry, or other legally enforceable instrument for the purposes of providing the buffer, or for purposes of providing any of enhancements or features described under Mitigation Measure B-3(1).

5. Surface Water and Riparian Habitat

   a) All development will be required to satisfy any applicable requirements of USACE, Regional Water Quality Control Board and CDFG for Section 404 Clean Water Act permits and streambed alteration agreements.

   b) Drainage Area B (see Exhibit 7) will be designed as a naturalized drainage course and enhanced to provide riparian habitat values, including plantings of appropriate native species of plants and trees. It is anticipated that these enhancements will be provided in conjunction with drainage facilities and constructed "Natural Treatment Systems" (NTS) designed to improve water quality. Specific features related to habitat values will be addressed as part of the RMP.

   c) A minimum of 10 acres of marsh and or riparian habitats shall be constructed in conjunction with drainage facilities and/or Natural Treatment Systems for water quality purposes, in order to provide mitigation for loss of the low-quality habitat values of the agricultural detention basins, as well as other surface water areas that support waterfowl.

6. Existing Windrows

   Existing windrows that provide viable raptor habitat shall be retained and incorporated into the design of individual development projects where practical. If retention is not practical, the developer shall provide for the replacement of the windrow trees in a manner supportive of raptor habitat. The biological survey prepared for the development project shall include an analysis by an ornithologist specializing in raptor biology. Such analysis shall include recommendations on the number of trees, tree specifications and location of replacement areas for windrows or stands of trees. The recommendations shall be based on biological values, as determined by the ornithologist, and in consultation with the City and the wildlife agencies. Replacement trees may be located within the 300-acre Conservation Area or other suitable areas located outside of the project site if consistent with the recommendations of the ornitholog0ist.

7. Agricultural Easements

Under Mitigation Measure AG-1 (see Section 5.2 in the Draft EIR), which addresses mitigation for the loss of prime agricultural land, the City has committed to actively pursue establishment of agricultural easements within The Preserve, pursuant to SB 831 and the Williamson Act Easement Exchange Program (WAEEP). These easements will also provide mitigation for identified impacts on biological resources in that they will preserve areas in agriculture and prevent the future development of recreational or other non-agricultural uses that could be detrimental to biological resources.

8. Mitigation Fee

A mitigation fee shall be imposed on new development for the purpose of implementing the Biological Resource mitigation measures as described in the Resources Management Plan. The fee shall be adopted by the City Council prior to the issuance of grading permits for new residential, commercial, office, industrial development, or public facilities; provided grading permits may be issued prior to final adoption of the fee upon developer's deposit with the City of adequate cash or other form of security in excess of the proposed fee, as approved by the City Council for the City. The fee shall be structured to cover the estimated cost of the identified mitigation measures, including:

a) Costs associated with obtaining agreements for the 300-acre Conservation Area with landowners in the form of conservation easements or other legally enforceable instruments as described under mitigation measures B-3-1 and B-3-2, above;

b) Costs associated with the design, installation, and maintenance of the various enhancements and improvements described above, including such appropriate refinements/adjustments as may be identified by the RMP.

c) Administration, management and monitoring of the 300-acre Conservation Area and other mitigation measures as appropriate, including adaptive management.

Costs that form the basis for the mitigation fee may, at the discretion of the City, be defrayed through the use of grants or other government or private funding sources as such sources become available in the future.

Costs for wetlands/riparian enhancements shall be structured in conjunction with costs for such improvements that also serve water quality and drainage purposes, which may be funded by project drainage and/or water quality fees.

9. Participation in Regional Conservation Efforts

The City has had ongoing involvement with various regional conservation-related efforts. The City will continue to be involved in and coordinate with such efforts within The Preserve. These efforts include, without limitation:

a) USACE and Orange County Water District's Prado Basin Master Plan;

b) IEUA's Chino Creek Habitat Restoration Program;

c) Orange County Water District's Santa Ana River Watershed program;

d) USACE's Santa Ana River Mainstem Project;

e) Lower Chino Basin Working Group (Santa Ana River Working Group MOU) Resources Management Planning;

f) Chino Basin Center for Organic Materials (Santa Ana River Working Group MOU); Wildlife, Wetlands and Recreation Resource Conservation Program (Santa Ana River Working Group MOU);

g) Urban Transition Planning Smart Growth Program (Santa Ana River Working Group MOU);

h) Conjunctive Groundwater Management, Replenishment and Conservation Program (Santa Ana River Working Group MOU).

i) Chino Hills State Park General Plan (February 1999).

10. Administration and Monitoring

The City shall use a conservancy or land trust, or other similar, qualified entity to oversee and implement the Resources Management Plan and principally manage the 300-acre Conservation Area. Such an entity shall have expertise in the management of land and biological resources. The chosen entity may also jointly provide a similar function to adjacent jurisdictions, provided that effective implementation of the mitigation measures described herein can be achieved. The City Council shall use its best efforts to select and enter in to necessary agreements with the chosen entity prior to acquisition of any property through an irrevocable license, conservation easement, right of entry, or other legally enforceable instrument.

4.3 MITIGATION MEASURES, IMPLEMENTING ACTIONS

The following actions will be undertaken to implement the biological resources mitigation measures contained in the EIR for the Project Area.

4.3.1 Mitigation Measure B-1. Zoning and Land Use Regulations

A significant portion of Subarea 2 below the 566-foot line lies within the inundation area created by the raising of the Prado Dam. No new habitable structures will be allowed within this area to protect public health and safety from flood-related hazards. The majority of land is in OS-N (Open Space-Natural) or AG (Agricultural) and AG/OS-N (Agricultural/Open Space-Natural) areas that are protective of existing habitats and sensitive species (see Exhibit 4). Appendix E provides detailed descriptions of allowable uses under each of these designations. Creation of the urban buffer/transition area and implementation of the other RMP mitigation measures will provide further assurance that wildlife habitats associated with the agricultural and open space uses below the 566-foot inundation line will be adequately protected. The following paragraphs describe each of these proposed open space land use designations, land use designation enforcement responsibilities, and requirements for proposed changes in open space land use designation.

Agriculture Designation

Within the Project Area, total of 344 acres will be maintained in two separately designated Agricultural (AG) areas that will be available for most agricultural uses, including farming, stables, pastures, and grazing (see Exhibit 4). These two areas will also preserve a large block of open agricultural fields that will provide habitat for burrowing owls, raptors, and migratory birds and waterfowl above and below the 566-foot inundation line.

Agriculture/Open Space-Natural Designation

Another 518 acres have been designated as agricultural/open space-natural in the central portion of the Project Area just below the 566-foot line and will be available for migratory bird, agricultural, and open space uses, including passive recreation, equestrian uses, and conservation. Conservation values include potential habitat for burrowing owls, raptors, and migratory birds and waterfowl.

Open Space-Natural Designation

Riparian areas below the 543-foot elevation line have been designated Critical Habitat for the least Bell's vireo by USFWS. These areas along both Chino Creek and Mill Creek support known

populations of least Bell's vireo. In recognition of these underlying land use restrictions and the conservation value of these lands for federally listed biological species, 1,640 acres in the Project Area have been designated Open Space-Natural (OS-N). Natural drainages have also been included in the OS-N designations in recognition of critical biological resources within these areas. These areas will provide permanent natural open space and connect with the Santa Ana River system and provide connectivity for wildlife movement in the Prado Basin.

Open Space-Recreational Designation

Open space areas between Prado Lake and Pine Avenue and a narrow corridor running along the 566-foot inundation line have been designated Open Space–Recreational (OS-R). This designation is intended to establish open space areas for active and passive recreation as well as to provide open space for protection against environmental hazards such as flooding.

Zoning Enforcement Responsibility

Review of allowable uses and enforcement of land use designation provisions within the AG, AG/OS-N, OS-R, and OS-N designated areas of the Specific Plan is the responsibility of the Director of Community Development, or his/her designee. All proposed uses within these designated areas shall be evaluated by the City on a case-by-case basis for significant environmental impacts in accordance with California Code of Regulations (CEQA Guidelines) Sections 15162 and 15168.

Retention of Open Space Land Use Designations

Through the implementation of Mitigation Measure B-1, Zoning and Land Use Regulation, as detailed in this RMP, the City will retain all areas below the 566-foot inundation line (except such areas located above Pine Avenue) within an open space designation. This will provide for the protection of existing wildlife habitat values or those created by habitat enhancement activities, as well as to avoid any new impacts. However, if a change in land use designation is requested in the future, it would require a Specific Plan amendment and review for conformance with provisions of the RMP. Moreover, any future proposal to change a land use designation would require review of environmental impacts in compliance with CEQA.

Proposed Use Notification to U.S. Army Corps of Engineers

Land below the 566-foot line is within the Specific Plan Dam Inundation Elevation Overlay (DIO). This overlay requires all specific development proposals be submitted for USACE review, and that allowable land uses comply with provisions of any existing cooperative management plans developed

for the Lower Chino Basin/Prado area. If there are proposed uses, activities, or improvements that could affect USACE or federal land, the USACE may require compliance with provisions of the National Environmental Policy Act (NEPA). Compliance with land use designations, the DIO, as well as other applicable cooperative management plans, will ensure that future land uses within the area are carefully managed to avoid or minimize risks to sensitive biological resources.

Review of Land Use Applications Within Open Space Land Use Designation

Table 4-2 provides a checklist for City use in reviewing land use and permit applications within designated open space areas of the Specific Plan for conformance with provisions of the RMP.

TABLE 4-2
ZONING AND LAND USE REGULATIONS CHECKLIST

☐	Verify location of proposed use, improvement or activity within Specific Plan designated Open Space.
☐	Confirm proposed use as allowable open space use under Specific Plan and Section 20.11.030 of the Zoning Ordinance (see Appendix E).
☐	Verify jurisdictional authority of other public agencies, if any (i.e., USACE, San Bernardino County, etc.).
☐	Confirm compliance with Biological Study submittal requirements (EIR Mitigation Measure B-2 and RMP Table 4-3 Checklist).
☐	Identify location and proximity of proposed Open Space use, improvement or activity with respect to identified sensitive habitat areas. Sensitive habitat areas include, but may not be limited to the following: – High Sensitivity Areas identified in Program EIR Exhibit 5.4-2; – Least bell's vireo (LBV) Critical Habitat (below elevation of 543 feet); – Habitat of other federal- or State-listed Endangered and Threatened Species; – Riparian Woodland; – Conservation Areas(s) designated in the RMP; and – Burrowing owl relocation areas established pursuant to the RMP. Proposed improvements or the location of any land uses proposed to be changed from their current use shall be designed to avoid and/or minimize impacts to these areas.
☐	Verify location of proposed use with respect to Specific Plan Dam Inundation Overlay (DIO) and notify U.S. Army Corps of Engineers if included within DIO.
☐	Review proposed use, improvement or activity for compliance with applicable requirements of USACE, RWQCB and CDFG for Section 404 Clean Water Act permits and streambed alteration agreements.
☐	Review location of proposed use with respect to current ownership map and assessor's parcel information for OS designated areas below the 566-foot line; identify any additional agency and landowner notification requirements.
☐	Review proposed use, improvement or activity for conformance with other RMP checklist requirements and criteria.
☐	Review proposed use, improvement or activity status with respect to CEQA compliance; complete Environmental Checklist as necessary, and identify additional documentation requirements, if any.
☐	Evaluate need for special design requirements and/or setbacks for Open Space uses, improvements or activities proposed in proximity to identified sensitive habitat areas (e.g., within 100 feet).
☐	Prepare and adopt CEQA findings, as necessary.
☐	Process required City approvals and issue permit(s).

4.3.2 Mitigation Measure B-2. Required Biological Surveys

Further guidance in the implementation of RDEIR Mitigation Measure B-2 is provided as follows.

As part of submitting to the City a development application or a land use application that would result in a substantial change to the existing land use, an applicant/landowner shall conduct and submit a biological survey of the project site that briefly characterizes the habitat types and identifies the existence or the potential to occur of sensitive species (identified in Tables 3-3 and 3-4 as endangered or threatened). A biological survey and documenting report must provide the following information and analysis:

1. Conduct a biological survey of each proposed project site to characterize the habitat(s) present and the potential for the site to support sensitive plant and wildlife species.

2. If sensitive species have the potential to occur, rate the potential as low, moderate, or high. Provide scientific justification for this determination.

3. If the potential for occurrence is moderate or high (e.g., the required habitat elements for this species are present and/or there has been a sighting of this species in the vicinity of the project site), conduct focused surveys within suitable habitat to determine the presence or absence of the species on the project site. Focused surveys, if required, will follow established protocols by either USFWS or CDFG, when available.

4. Any focused surveys deemed necessary must be conducted by a USFWS and/or CDFG permitted biologist qualified to perform the needed survey(s). The City of Chino, or its consultant, will review and approve the personnel and methodology for any such proposed surveys.

5. If a sensitive species is found to occur on a proposed project site, or occupies habitat that may be impacted directly or indirectly by the proposed project, this must be called to the City's immediate attention and documented in the biological survey report for the project.

6. Mitigation measures to offset any potential impact to sensitive species and habitats must comply with the RMP and shall be included in the biological survey report. A take permit under either Section 7 or 10 of the Federal Endangered Species Act will be obtained prior to issuance of a grading permit, if a federally endangered or threatened species will be adversely impacted by a project. If the species is State Endangered or Threatened only, a consultation with CDFG will be required to determine ways to offset impacts to the species.

7. A wetlands permit under Section 404 of the Clean Water Act and a Streambed Alteration Agreement under CDFG code, if required, must also be obtained prior to issuance of a grading permit for any activity in a jurisdictional wetland.

8. All lands set aside for conservation and/or other mitigation measures in compliance with the RMP must be clearly documented in the final biological survey report.

9. Implementation of the mitigation measures set forth in B-3 to B-10 on a project-wide (Project Area) basis provide mitigation to offset project-wide impacts to species that are not listed as threatened or endangered by the USFWS or CDFG. Survey information identifying existence of any sensitive species shall be furnished to USFWS or CDFG for research collection. Additional mitigation may be required for any species which is defined as "endangered," "rare," or "threatened" in Section 15380 of the California Code of Regulations, depending on the adverse biological impacts to such species found as the result of subsequent, project-level, site-specific surveys and CEQA analysis.

Table 4-3 provides a checklist of these requirements for conducting biological studies as part of the development of the project application process.

TABLE 4-3
REQUIRED BIOLOGICAL SURVEYS CHECKLIST

☐	Conduct a biological survey of the project site and document habitat present, including surface waters and windrows.
☐	Determine potential for sensitive species to occur, including but not limited to: – Least Bell's vireo; – Southwestern willow flycatcher; – Yellow-billed cuckoo; and – Burrowing owls, raptors, and migratory birds and waterfowl.
☐	Determine potential for impacts to Waters of the U.S. or Waters of the State.
☐	Subcontract with a USFWS and/or CDFG permitted biologist qualified to perform any needed survey(s), if required.
☐	Conduct needed focused surveys during the following timeframes: Least Bell's vireo — April 10 – July 31 Southwestern willow flycatcher — May 5 – July 10 Yellow-billed cuckoo — May 5 – July 10 Burrowing owl — December 1 – January 31 or April 15 – July 15 Raptors — February 1 – August 31 Migratory birds and waterfowl — February 1 – August 31
☐	Conduct Jurisdictional Delineation on all potential Waters of the U.S. or Waters of the State, if needed.
☐	Determine if impacts to non-jurisdictional surface water and/or windrows on a project site require mitigation.
☐	Review potential impacts and recommended mitigation against conservation measures initiated in compliance with the RMP.
☐	Evaluate need for additional mitigation measures beyond those already initiated under the RMP.
☐	Prepare and submit technical reports for all biological surveys to the City as part of the application review process.

TABLE 4-3 (Cont.)
REQUIRED BIOLOGICAL SURVEYS CHECKLIST

☐	Acquire any needed take permits under the Federal Endangered Species Act and the California Endangered Species Act.
☐	If Waters of the U.S. are present, coordinate with USACE regarding need for Nationwide Permit.
☐	If Waters of the State are present, obtain a Streambed Alteration Agreement from CDFG.
☐	Prepare and adopt CEQA findings, as necessary.
☐	Process required City approvals and issue permit(s).

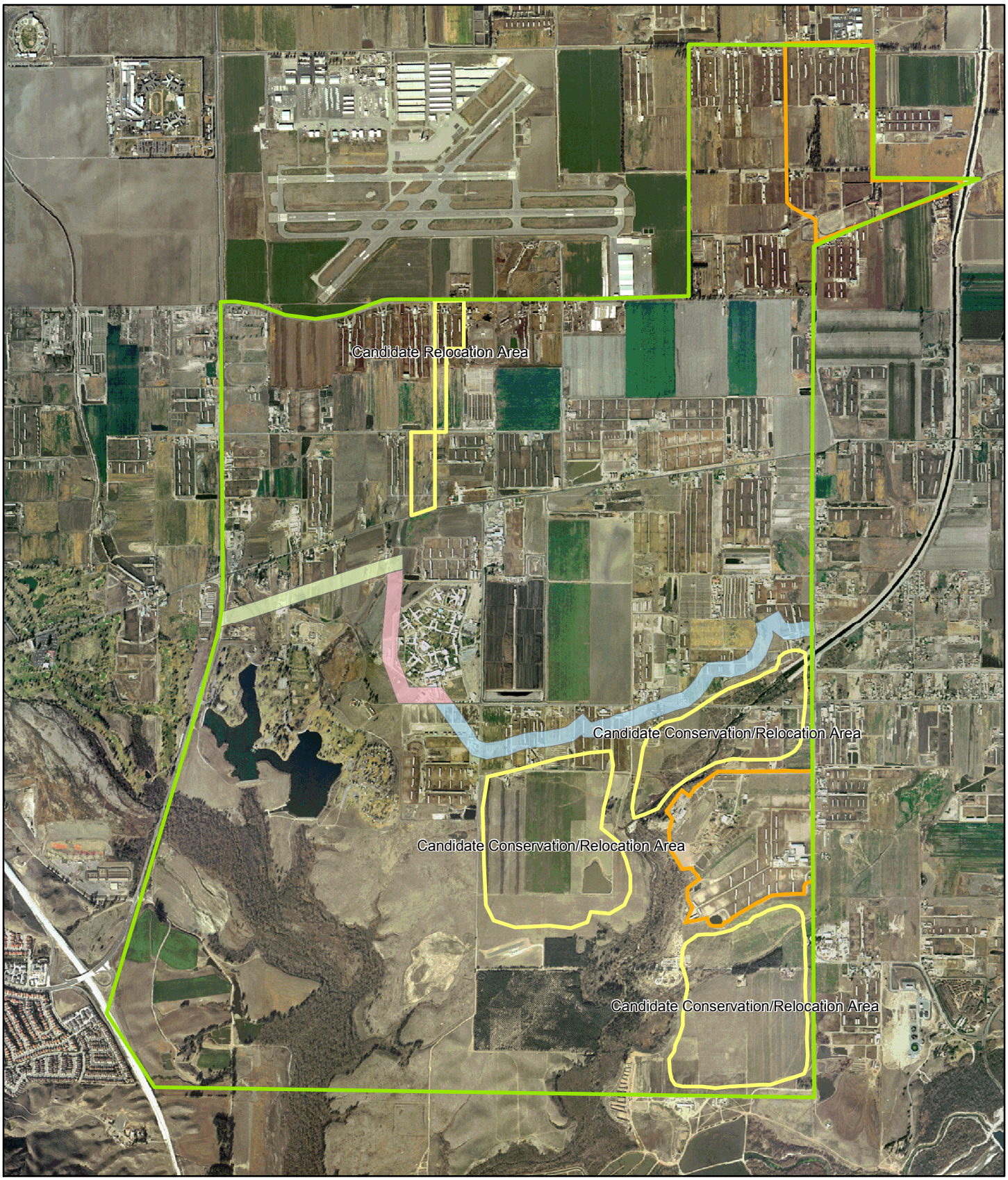
4.3.3 Mitigation Measure B-3. Resource Management Plan

Mitigation Measure B-3 (Resource Management Plan) called for the development of this RMP and specified several programs or mitigation measures be developed in order to address the following issues and to formalize the City's balanced approach to land use and resource management within The Preserve: 1) a 300-acre Conservation Area, onsite or offsite; 2) burrowing owls; 3) an urban buffer/transition area; 4) surface water and riparian habitat; 5) existing windrows; 6) agricultural easements; 7) a mitigation fee program; 8) participation in regional conservation efforts; and 9) program management. Additional implementation guidance is provided for each of these components below.

300-acre Conservation Area

Provisions will be made for the creation, enhancement, expansion and perpetuation of high-quality wildlife habitat in a 300-acre Conservation Area to be located within the Prado Basin with preference to a location generally below the 566-foot inundation line and within the boundaries of the Project Area. Exhibit 8 shows the general locations within the Project Area that have the greatest potential of being suitable for the Conservation Area. The 300-acre site will be selected according to the following criteria and obtained by the City of Chino through an agreement with the landowners in the form of a deed, an irrevocable license conservation easement right-of-entry, or other legally enforceable instrument. The purpose of the selected site will be to provide foraging and nesting habitat for raptor and migratory bird and waterfowl species that are consistent with the biological resource mitigation measures of the EIR. Candidate sites will be evaluated against the following criteria:

- Large, contiguous parcels of land;
- Preference given to location within the Project Area below the 566-foot dam inundation line. Alternatively, the Conservation Area could be established offsite within the Prado Basin if acquisition and control of the onsite Conservation Area cannot be secured in a timely, cost-effective manner as determined by the City;



Source: City of Chino, MBA

Buffer/Transition Area
Flood Control Berm
Edison Corridor
Candidate Conservation and Relocation Area
Agricultural Zoned Area
Subarea 2 Boundary

0 1,250 2,500 5,000 Feet

NORTH

Michael Brandman Associates

05760012 | chino\conservation_areas.mxd

Exhibit 8

Candidate Conservation Areas

THE PRESERVE SUBAREA 2

- Willingness of landowners to allow their land to be used for conservation purposes;
- Agricultural land or natural open space with short, native or non-native grassland;
- Sites supporting natural habitats utilized by foraging raptors and/or migratory waterfowl such as riparian woodlands and oak woodlands;
- Extent of enhancements/restoration efforts needed to improve existing habitat values;
- Proximity to wildlife corridors; and
- Connectivity to regional open space.

The City shall complete a feasibility analysis of potential Conservation Areas identified in Exhibit 8, or, if these areas are determined to be infeasible or unavailable, a Conservation Area(s) offsite outside of the boundaries of the Project Area but within the Prado Basin, within 12 months of certification of the EIR. The feasibility study shall include costs and a timetable for securing Conservation Area(s). Offsite alternatives will be considered if the City finds potential onsite mitigation areas to be infeasible or if a proposed offsite alternative is available and is found to be environmentally superior based upon the above selection criteria.

A biologist experienced in conservation ecology will conduct a general biological survey of any site proposed by the City to determine the suitability of the site to serve as a Conservation Area. Based on the survey and criteria evaluation, the biologist will prepare a report documenting the site's suitability, specific recommended enhancement and restoration measures, other conservation activities needed for implementation consistent with the RMP and the EIR, and estimated costs associated with such measures or activities. The City will review this report and, if they concur with the assessment of the site and its suitability to serve as a Conservation Area, adopt a program for formally acquiring, enhancing, restoring, and managing the site. The City may involve federal, state, private land use, and/or conservation agencies in this program.

If the City selects a Conservation Area (onsite or offsite), and such area does not have all the requisite habitat characteristics necessary to mitigate impacts consistent with Mitigation Measures B-3(1) and B-3(2), other actions to address such impacts shall be implemented. Such actions may include the identification of other areas for specific mitigation including the enhancement/restoration of such areas. For example, if the selected Conservation Area(s) is located outside of the Project Area and is not viable to support burrowing owls including their relocation into such area, actions to ensure that the impacts to the burrowing owl are adequately addressed will also need to be implemented.

The City may ultimately transfer ownership and/or management responsibility for the property to a conservancy, land trust, or appropriate land management agency. Such an entity must have expertise in

the management of land and biological resources. Until the transfer of ownership or management responsibility occurs, the responsibility for management of the Conservation Area will remain with the City. Table 4-4 provides a checklist for needed items to identify and establish the Conservation Area.

TABLE 4-4
CONSERVATION AREA CHECKLIST

☐	Identify large, contiguous parcels of land within the Prado Basin meeting one or more of the following criteria: – Agricultural land or natural open space with short, native, or non-native grassland; – Site supporting native habitats such as riparian woodlands and oak woodlands; – Proximity to wildlife corridors; – Connectivity to regional open space; – Availability of the land for conservation purposes; and – Preference to feasible onsite areas within the 566-foot flood inundation area.
☐	Retain a biologist experienced with conservation ecology to conduct a general biological inventory of potential sites with emphasis on assessing the suitability to serve as a conservation site for foraging and nesting raptors and migratory bird and waterfowl species and to support regional wildlife movement.
☐	The biologist will prepare a technical report documenting his findings, evaluation, and recommendations on whether a property could serve as a Conservation Area based on the above criteria.
☐	Submit the biological report to the City of Chino for review and concurrence.
☐	Once an appropriate site is identified, the City will retain a conservation biologist to prepare implementing procedures specific to that site. Procedures will address all issues needed to ensure the site is permanently conserved and provides all necessary elements for supporting foraging or nesting raptors, migratory birds and waterfowl, and/or regional wildlife movement. Issues to be addressed should include: – Site description, such as location, physical features, and biological habitats; – Species presence; – Potential for site to support foraging or nesting raptor species, migratory birds, and/or regional wildlife movement; – Establish a biological monitoring program to document wildlife use of the site; and – Reporting requirements.
☐	Work with an existing agency or conservancy to establish a management program for the long-term management and maintenance of the Conservation Area.

Enhancement/Restoration

Once a Conservation Area(s) has been selected, provisions will be made for Enhancement/Restoration deemed necessary, based on the biologist's report and recommendations described in the preceding section. Given the extent of disturbance of the existing wildlife habitats throughout the Project Area, some level of Enhancement/Restoration is expected. However, the level of Enhancement/Restoration will vary depending on the characteristics of the selected site. A well-chosen site may not require much in the way of enhancements, although a high-quality site may not be able to meet all the required characteristics. If it is determined that little or no funding is needed for a particular site in the way of enhancements/restoration, funds apportioned for such purpose (see Section 4.5) may be used

for other enhancements/restoration activities within the Project Area that will be of benefit to biological resources within the Project Area.

A biologist/restoration specialist experienced in Enhancement/Restoration of riparian and upland habitats shall inspect a candidate site and prepare recommendations for habitat restoration and enhancement, if required, to correct identified habitat deficiencies. These recommendations shall consider and include, as needed:

- A weed removal program and replanting of native vegetation to create high-quality raptor foraging, burrowing owl nesting and foraging, and migrating bird and waterfowl habitats;
- Installation and maintenance of artificial burrowing owl nesting sites, if appropriate, to mitigate for the loss of burrowing owl habitat. Nesting sites will be located and designed to facilitate use by burrowing owls; and
- Planting stands of trees within the proposed Conservation Areas, if needed, to mitigate for the loss of raptor nesting/foraging habitat.

Table 4-5 provides a checklist for steps that should be implemented in order to establish what Enhancement/Restoration efforts may be needed.

TABLE 4-5
ENHANCEMENT/RESTORATION CHECKLIST

☐	Once a conservation site has been identified, the City will retain a biologist/restoration specialist to inspect the site and prepare Enhancement/Restoration recommendations specific to that site. Recommendations will address all improvements needed to a candidate site to ensure the site provides good quality habitat for both short-term and long-term occupation by burrowing owls, raptors, migratory birds, and other wildlife species as appropriate. Issues to be considered include: – A weed removal program and replanting of native vegetation to create high-quality raptor foraging, burrowing owl nesting and foraging, and migrating bird habitats; – Installation and maintenance of twenty (20) artificial burrowing owl nesting sites, if appropriate, to mitigate for the loss of burrowing owl habitat. Nesting sites will be located and designed to facilitate use by burrowing owls; and – Planting stands of trees within the proposed Conservation Areas to mitigate for the loss of raptor nesting/foraging habitat.
☐	Contract with a restoration, landscaping, or planting services company to implement needed Enhancement/Restoration efforts.
☐	The biologist/restoration specialist will monitor the installation of improvements for compliance with the Implementation Plan.
☐	Prepare an annual report for the first 5 years to document the successful implementation of the Enhancement/Restoration efforts.

Burrowing Owls

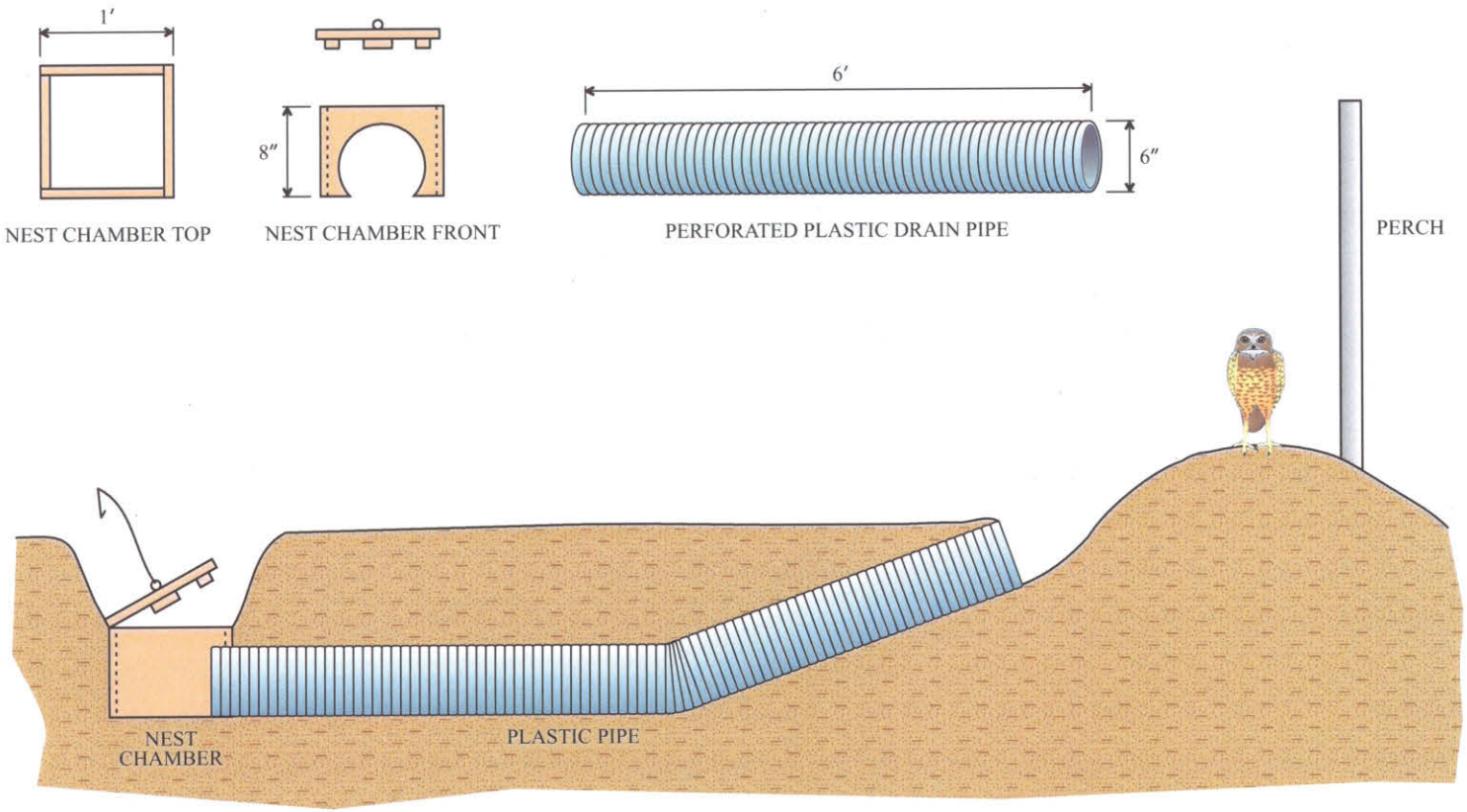
Although significantly degraded, agricultural lands within the City of Chino, including the Project Area, provide nesting and foraging habitat for the burrowing owl. If burrowing owls are discovered on a property proposed for development during the course of conducting a biological survey (see Section 4.3.2, Required Biological Surveys), the applicant/landowner shall follow the September 25, 1995 CDFG Staff Report on Burrowing Owl Mitigation (Appendix F) as supplemented by this RMP. If avoidance is feasible areas occupied by burrowing owls should not be disturbed within approximately 160 feet outside the breeding season (September 1 through January 31) and 250 feet during breeding season (February 1 through August 31). If avoidance is not feasible, provisions will be made to passively relocate the owls from the project site in accordance with the 1995 CDFG Staff Report. It should be noted that site conditions are expected to vary and that mitigation measures will need to be adapted to fit specific circumstances. While the primary focus will be on passive relocation, as required by CDFG, other optional approaches to mitigation may be considered if it can be demonstrated that they will benefit the burrowing owl.

As indicated, passive relocation as opposed to avoidance will be the preferred and probably the most practical mitigation measure since most of the land above the 566-foot inundation line is planned for development and avoidance is not expected to be possible. Relocated owls are intended to be accommodated within the 300-acre Conservation Area. Priority will be given to establishing an onsite Conservation Area that provides nesting and foraging habitat for burrowing owls, as well as foraging habitat for raptors, migratory birds, and waterfowl.

Table 4-6 provides a checklist for determining if burrowing owl mitigation measures are needed for a project site and presents a range of options for satisfying needed mitigation requirements.

TABLE 4-6
BURROWING OWL MITIGATION CHECKLIST

☐	A general biological and any required focus surveys for each development application shall determine if burrowing owls are nesting on the development site (see Section 4.3.2, Required Biological Surveys).
☐	If surveys confirm that the site is occupied by burrowing owls, mitigation measures to minimize impacts to burrowing owls, their burrows, and foraging habitat should be incorporated into subsequent, project-level CEQA documents as enforceable conditions. Projects and situations vary and mitigation measures should be adapted to fit specific circumstances.
☐	For sites occupied by burrowing owl, a report for the development project should be prepared for the City of Chino. The report should include the following information: – Date and time of visit(s) including name of the qualified biologist conducting surveys, weather and visibility conditions, and survey methodology; – Description of the site including location, size, topography, vegetation communities, and animals observed during visit(s); – Maps and photographs of the site; – Results of focused surveys for burrowing owls, including a map showing the location of all burrow(s) (natural or artificial) and owl(s), as well as the numbers at each burrow, if present, and tracks, feathers, pellets, or other items (e.g., prey remains, animal scat); – Behavior of owls during the surveys; and – Any historical information (Natural Diversity Database, Department region files/Breeding Bird Survey data, American Birds records, Audubon Society, local bird club, other biologists, etc.) regarding the presence of burrowing owls on the site.
☐	If avoidance is feasible[1], then no disturbance should occur within 50 meters (approximately 160 feet) of occupied burrows during the nonbreeding season of September 1 through January 31 or within 75 meters (approximately 250 feet) during the breeding season of February 1 through August 31.
☐	If avoidance is not feasible, passive relocation shall be employed; owls should be excluded from burrows in the immediate impact zone and within a 50-meter (approximately 160-foot) buffer zone by installing one-way doors in burrow entrances. One-way doors (e.g., modified dryer vents) should be left in place 48 hours to ensure owls have left the burrow before excavation. Two natural or artificial burrows should be provided in the Conservation Area or within a City-approved Candidate Relocation Area for each occupied burrow that will be rendered biologically unsuitable by a given development project. The affected portion of the project site should be *monitored daily for one week* to confirm owl use of burrows before excavating burrows in the immediate impact zone. Whenever possible, burrows should be excavated using hand tools and refilled to prevent reoccupation. Sections of flexible plastic pipe should be inserted into the tunnels during excavation to maintain an escape route for any animals inside the burrow.
☐	Occupied burrows should not be disturbed during the nesting season (February 1 through August 31) unless a qualified biologist approved by CDFG verifies through non-invasive methods that either: 1) the birds have not begun egg-laying and incubation; or 2) that juveniles from the occupied burrows are foraging independently and are capable of independent survival.
☐	Pre-construction surveys of suitable habitat at the project site(s) and buffer zone(s) should be conducted within the 30 days prior to construction to ensure no additional burrowing owls have established territories since the initial surveys. If ground-disturbing activities are delayed or suspended for more than 30 days after the pre-construction survey, the site should be resurveyed.
☐	When destruction of occupied burrows is unavoidable, existing unsuitable burrows should be enhanced (enlarged or cleared of debris) or new burrows created (by installing artificial burrows) at a ratio of 2:1 within the Conservation Area or a Candidate Relocation Area. One example of an artificial burrow design is provided in Exhibit 9.
Note:	[1] For the purposes of this Section "feasible" refers to location of nests in open space or other areas not proposed for development or other invasive use.



Michael Brandman Associates

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Exhibit **9**

Artificial Nest Design for Burrowing Owls

THE PRESERVE • CHINO SUBAREA 2

APPENDIX A

NATURAL PLANT COMMUNITIES OCCURRING ONSITE

APPENDIX A

NATURAL PLANT COMMUNITIES OCCURRING ONSITE

Disturbed (Not included in Holland's descriptions)

In general, an area qualifies as "disturbed" if the total cover by vegetation is low (e.g., < 50%, pref. lower) and the relative cover by natives is lower still (e.g., < 40% = < 20% total cover). Presence of trash and debris piles or evidence of grading, trampling, equipment operations, stampede [sic], etc. should also be factored. This classification is not used interchangeably with the "ruderal" classification, which describes areas that consist predominantly of non-native weeds (e.g., >50% total cover with <10-20% rel. cover by natives).

This is the most common land cover found within Subarea 2. Types of disturbance found within the Project Area include, roads, structures, agriculture, dairy facilities, landfill, trails, parks, golf course, etc. This community also includes small, polluted dairy ponds. Approximately 3,501 acres or 64 percent of the Project Area qualifies as disturbed. This is due mainly to the presence of several dairies as well as other agricultural uses.

Non-native Grassland (42200)

Non-native grassland consists of a dense to sparse cover of annual grasses. It is often associated with numerous species of wildflowers, especially in years of heavy rainfall. Germination occurs with the onset of the late fall rains; growth, flowering, and seed-set occur from winter through spring. With a few exceptions, the plants are dead through the summer-fall dry season, persisting as seeds.

Within the Project Area, there are a total of 1,013 acres (20%) of non-native grasslands, all below the 566-foot inundation line. Some of these areas were recently or historically used for agriculture or grazing and support very little diversity in vegetation. In the most southern portions of Subarea 2, where grazing has been eliminated, the non-native grassland is dotted with California buckwheat (*Eriogonum fasciculatum*) with a few random California sagebrush plants (*Artemisia californica*). Eventually, if left undisturbed, this area consisting of approximately 108 acres could transition into coastal sage scrub habitat.

Southern Cottonwood-Willow Riparian Forest (61330)

Tall, open, broadleafed winter-deciduous riparian forests dominated by Fremont cottonwood (*Populus fremontii*) and several tree willows. Understories usually are shrubby willows (*Salix spp.).* This community occurs in sub-irrigated and frequently overflowed lands along rivers and streams. Other common species include mugwort (*Artemisia dougasiana),* mulefat *(Baccharis glutinosasa),* wild cucumber *(Marah macrocarpus)* and stinging nettle *(Urtica holosericea).*

Two main drainages, Chino and Mill creeks, flow into the Prado basin through the southern end of the Chino project. The western portion of Chino creek contains dense riparian woodlands that are usually saturated with water year-round due to the Prado Dam. Due to the dense nature of this habitat, it is difficult to map where one habitat ends and the next begins. The riparian vegetation communities are estimations and account for approximately 234 acres or 4 percent of the available habitat.

Ornamental Woodland (Not included in Holland's descriptions)

Ornamental woodlands are human created woodlands using non-native trees and shrubs. Common species of trees found within ornamental woodlands in Southern California include various species of gum tree (*Eucalyptus* spp.), tamarisk (*Tamarix* spp.) and Peruvian pepper trees (*Schinus molle*). Ornamental woodlands present a challenge for species conservation. On one hand, they are comprised of non-native species that often out-compete native tree species, provide little or no food source for native fauna and are sometimes even poisonous to wildlife. On the other hand, these woodlands often provide excellent nesting habitat for raptors and other birds. The endangered southwester willow flycatcher and least Bell's vireo are known to nest in dense stands of tamarisk. Ornamental woodlands also provide shade, wind protection, erosion control and esthetic value to humans.

Within the Project Area, there are several small areas containing ornamental woodlands. These woodlands are mostly contained in the County park and the various scattered windrows, but account for approximately 224 acres of habitat (4%) within the Project Area.

Southern Willow Scrub (63320)

Dense broadleafed, winter-deciduous riparian thickets dominated by several willow species, with scattered emergent cottonwoods and sycamores (*Platanus racemosa)*. Most stands are too dense to allow much understory development. Southern Willow Scrub is located in loose, sandy or fine gravelly alluvium deposited near stream channels during flood flows. This habitat, if not frequently flooded, will succeed into denser, more mature riparian habitats.

The two main drainages at the southern end of the Project Area contain varying degrees of southern willow scrub. There are also areas north of the 566-foot inundation line that support this habitat within the creeks. However, due to the dense nature of this habitat it is difficult to map where one habitat ends and the next begins. The estimated acreages for this plant community are approximate and account for approximately 144 acres or 2.6 percent of the available habitat.

Open Water (Not included in Holland's descriptions)

"Open water" are areas within riparian habitats which contain little or no vegetation, but have constant flow of water. These areas are used as foraging and stopping points for migrating and resident waterfowl and raptors. Areas within the Project Area containing open water include Prado Lake and the upper portion of Mill Creek, a few large dairy ponds and some small areas within Chino creek. Smaller dairy ponds, which offer little or no value to wildlife, are classified under disturbed. The total area of open water within the Project Area is 84 acres.

Mule Fat Scrub (63310)

A tall, herbaceous riparian scrub strongly dominated by Mulefat (*Baccharis viminea)*. This community is often an early successional stage of other riparian forest or woodland communities and is maintained by frequent flooding. Frequently occurs as a patchy understory in light gaps in Sycamore Alluvial Woodlands, especially under heavy grazing.

Within the Project Area, this habitat can be found intermittently within other riparian communities below the 566-foot inundation line and is estimated to cover approximately 45 acres (1%) of the Project Area.

Arundo Scrub (not included in Holland's descriptions)

This community is completely dominated by the introduced giant reed (*Arundo donax*). This hearty perennial grass can form impenetrable forests 30 feet high in any regularly wet area. The plant prefers low-gradient riparian areas, but can be found in almost any type of moist habitat. It is thought that this plant originated in India, before it was introduced to Europe. It was brought to America in the late 1700s or early 1800s for roofing material. This plant has now invaded sensitive habitats throughout the world. This community completely displaces native vegetation and wildlife if left unmanaged.

A large stand, approximately 45 acres (1%), of Arundo scrub can be found in Mill Creek below the 566-foot inundation line. It is presumed that there may also be smaller areas within Chino Creek riparian areas that contain this invasive species.

Coastal and Valley Freshwater Marsh (52410)

This community is dominated by perennial, emergent monocots. Often forming completely closed canopies. These marshes are found in areas with slow-moving water, and often permanently flooded by fresh water (rather than brackish, alkaline, or variable). Prolonged saturation permits accumulation of deep, peaty soils. Characteristic species include cattails (*Typha Domingensis* or *T. Latifolia),* sedges *(Cyperus* spp.*),* and tules *(Scirpus* spp.*).* This habitat is found along the coast and coastal valleys near river mouths and at the edges of lakes, springs and rivers. It has been greatly reduced due to development.

Within the Project Area, this habitat can be in the western portions found within the riparian habitat along Chino creek below the 566-foot inundation line. There are approximately 37 acres (1%) of this plant community occurring within the Project Area.

APPENDIX B

PLANT AND WILDLIFE SPECIES OBSERVED ONSITE

APPENDIX B

Plant Species Observed Onsite

Scientific Name	Common Name
Angiosperms (Dicotyledonae)	
ANACARDIACEAE	SUMAC OR CASHEW FAMILY
Toxicodendron diversilobum	Poison oak
APIACEAE	CARROT FAMILY
Conium maculatum	Poison hemlock
ASTERACEAE	SUNFLOWER FAMILY
Ambrosia psilostachya	Western ragweed
Artemisia californica	California sagebrush
Baccharis salicifolia	Mule fat
Cirsium vulgare	Bull thistle
Euthamia occidentalis	Western goldenrod
Heterotheca grandiflora	Telegraph weed
Isocoma menziesii	Coastal goldenbush
Silybum marianum	Milk thistle
Sonchus oleraceus	Common sow thistle
Stephanomeria virgata	Twiggy wreathplant
BORAGINAEEAE	BORAGE FAMILY
Amsinckia sp.	Fiddle neck
Cryptantha sp.	Cryptantha
BRASSICACEAE	MUSTARD FAMILY
Brassica nigra	Black mustard
Hirshfeldia incana	Short-podded mustard
Lepidium latifolim	Peppergrass
CACTACEAE	CACTUS FAMILY
Opuntia ficus-indica	Indian-fig
Opuntia littoralis	Coastal prickly pear
CHENOPODIACEAE	GOOSEFOOT FAMILY
Chenopodium album	Lamb's-quarter
Chenopodium murale	Nettle-leaved goosefoot
Salsola tragus	Russian thistle
CRASSULACEAE	STONECROP FAMILY
Crassula erecta	Dwarf stonecrop
Dudleya lanceolata	Lance-leaved dudleya
CONVOLVULACEAE	MORNING-GLORY FAMILY
Calystegia macrostegia	Morning-glory
CUSCUTACEAE	DODDER FAMILY
Cypressus spp.	Cypress
EUPHORBIACEAE	SPURGE FAMILY
Chamaesyce albomarginata	Rattlesnake weed
Eremocarpus sp.	Doveweed
Ricinus communis	Castor-bean

Plant Species Observed Onsite (Cont'd)

Scientific Name	Common Name
FABACEAE	PEA FAMILY
Lupinus sp.	Lupine
Medicago polymorpha	California bur-clover
Melilotus alba	White sweetclover
GERANIACEAE	GERANIUM FAMILY
Erodium cicutarium	Red-stemmed filaree
Geranium sp.	Geranium
LAMIACEAE	MINT FAMILY
Marrubium vulgare	Horehound
MALVACEAE	MALLOW FAMILY
Malva parviflora	Cheeseweed
MYRTACEAE	MYRTLE FAMILY
Eucalyptus globoratum	Eucalyptus (Blue gum)
Oenothera elata	Evening primrose
OLEACEAE	OLIVE FAMILY
Fraxinus sp.	Olive
PINUS	PINE FAMILY
Pinus spp.	Pine
POACEAE	GRASS FAMILY
Avena sp.	Wild Oat
POLYGONACEAE	BUCKWHEAT FAMILY
Eriogonum fasciculatum	California buckwheat
PLATANACEAE	SYCAMORE FAMILY
Platanus sp.	Sycamore
PRIMULACEAE	PRIMROSE FAMILY
Anagallis arvensis	Scarlet pimpernel
RUBIACEAE	MADDER FAMILY
Gallium angustifolium	Narrow-leaved bedstraw
SALICACEAE	WILLOW FAMILY
Populus fremontii ssp. *fremontii*	Fremont's cottonwood
Populus trichocarpa	Black cotttonwood
Salix gooddingii	Black willow
Salix hindsiana	Sandbar willow
Salix laevigata	Red willow
Salix lasiolepis	Arroyo willow
SOLANACEAE	NIGHTSHADE FAMILY
Datura wrightii	Jimson weed
Nicotiana glauca	Tree tobacco
Solanum douglasii	Douglas' nightshade
VITACEAE	GRAPE FAMILY
Vitis girdiana	Desert wild grape

Plant Species Observed Onsite (Cont'd)

Scientific Name	Common Name
Angiosperms (Monocotyledons)	
POACEAE	GRASS FAMILY
Arundo donax	Giant reed
Bromus diandrus	Ripgut brome
Bromus hordeaceus	Softchess
Bromus madritensis ssp.	Red brome
Distichlis spicata	Saltgrass
Hordeum vulgare	Barley

APPENDIX B

Wildlife Species Observed Onsite

Scientific Name	Common Name
Class Amphibia	**Amphibians**
BUFONIDAE	*TRUE TOADS*
Bufo boreas halophilus	California toad
Class Reptilia	**Reptiles**
COLUBRIDAE	SNAKES
Thamnophis hammondii	Two-striped garter snake
Class Aves	**Birds**
ARDEIDAE	HERONS
Ardea herodias	Great blue heron
Ardea alba	Great egret
Butorides virescens	Green heron
Egretta thula	Snowy egret
THRESKIORNITHIDAE	IBISES AND SPOONBILLS
Plegadis chihi	White-faced ibis
CATHARTIDAE	AMERICAN VULTURES
Cathartes aura	Turkey vulture
CIRCINAE	HARRIERS
Circus cyaneus	Northern harrier
ACCIPITRIDAE	HAWKS
Accipiter cooperii	Cooper's hawk
Buteo jamaicensis	Red-tailed hawk
Buteo lineatus	Red-shouldered hawk
Elanus leucurus	White-tailed kite
Falco mexicanus	Prairie falcon
Falco sparverius	American kestrel
ANATIDAE	WATERFOWL
Anas acuta	Northern pintail
Anas platyrhynchos	Mallard
Branta Canadensis	Canada goose
ALAUDIDAE	LARKS
Eremophila alpestris actia	California horned lark
CHARADRIIDAE	PLOVERS
Charadriidae vociferous	Killdeer
COLUMBIDAE	PIGEONS & DOVES
Columba livia	Rock dove
Columbina passerina	Common ground-dove
Zenaida macroura	Mourning dove
TYTONIDAE	BARN OWLS
Tyto alba	Barn owl
STRIGIDAE	TRUE OWLS
Speotyto cunicularia	Burrowing owl

Wildlife Species Observed Onsite (Cont'd)

Scientific Name	Common Name
TROCHILIDAE	HUMMINGBIRDS
Archilochus alexandri	Black-chinned hummingbird
Calypte anna	Anna's hummingbird
Selasphorus sp.	Rufous/Allen's-type hummingbird
ALCEDINIDAE	KINGFISHERS
Ceryle alcyon	Belted kingfisher
PICIDAE	WOODPECKERS
Colaptes auratus	Northern flicker
TYRANNIDAE	TYRANT FLYCATCHERS
Sayornis nigricans	Black phoebe
Sayornis saya	Say's phoebe
Tyrannus verticalis	Western kingbird
VIREONIDAE	VIREOS
Vireo gilvus	Warbling vireo
HIRUNDINIDAE	SWALLOWS
Hirundo pyrrhonota	Cliff swallow
TURDIDAE	THRUSHES
Catharus ustulatus	Swainson's thrush
CORVIDAE	JAYS & CROWS
Corvus brachyrhynchos	American crow
Corvus corax	Common raven
TIMALIIDAE	BABBLRES
Chamaea fasciata	Wrentit
MIMIDAE	THRASHERS
Mimus polyglottos	Northern mockingbird
PTILOGONATIDAE	SILKY-FLYCATCHERS
Phainopepla nitens	Phainopepla
LANIIDAE	SHRIKES
Lanius ludovicianus	Loggerhead shrike
STURNIDAE	STARLINGS
Sturnus vulgaris	European starling
PARULIDAE	WOOD WARBLERS
Dendroica coronata	Yellow-rumped warbler
Dendroica petechia	Yellow warbler
Wilsonia pusilla	Wilson's warbler
ICTERIDAE	BLACKBIRDS, MEADOWLARKS AND ORIOLES
Agelaius phoeniceus	Red-winged blackbird
Icerus cucullatus	Hooded oriole
Molothrus ater	Brown-headed cowbird
Sturnella neglecta	Western meadowlark
FRINGILLIDAE	FINCHES
Carduelis lawrencei	Lawrence's goldfinch
Carpodacus mexicanus	House finch

Wildlife Species Observed Onsite (Cont'd)

Scientific Name	**Common Name**
PLOCEIDAE	WEAVER FINCHES
Passer domesticus	House sparrow
Class Mammalia	**Mammals**
LEPORIDAE	HARES & RABBITS
Lepus californicus bennettii	Sand Diego black-tailed jackrabbit
Sylvilagus audubonii	Desert cottontail
SCIURIDAE	SQUIRRELS
Spermophilus beecheyi	California ground squirrel
CANIDAE	WOLVES
Canis familiaris	Domestic dog
Canis latrans	Coyote
GEOMYIDAE	POCKET GOPHERS
Thomomys bottae	Botta's pocket gopher
MURIDAE	MICE, RATS, & VOLES
Mus musculus	House mouse
Peromyscus maniculatus	Deer mouse
Reithrodontomys megalotis	Western harvest mouse
MUSTELIDAE	WEASELS, SKUNKS & OTTERS
Mephitis mephitis	Striped skunk
FELIDAE	CATS
Felis catus	Domestic cat
Lynx rufus	Bobcat
CERVIDAE	DEER
Odocoileus hermionus	Mule deer

APPENDIX C

PCR'S REGIONAL RAPTOR HABITAT ASSESSMENT

Memorandum

PCR

TO: Bob Prasse, City of Chino

DATE: July 26, 2002

CC:

FROM: Steve Nelson,
PCR Services Corporation

RE: **THE PRESERVE RAPTOR FORAGING HABITAT ASSESSMENT**

At the request of the City of Chino, **PCR Services Corporation (PCR)** submits the following independent assessment of impacts to raptor foraging habitat associated with The Preserve project. As we understand the City's request, this analysis will be used by city planning staff as input to the Recirculated Draft EIR now being prepared by Michael Brandman Associates.

The focus of this assessment is on the project-related loss of raptor habitat and the expected effect this loss will have on raptorial birds, as a taxonomic group, in the region. In addition, this assessment addresses both the incremental and cumulative impacts of the proposed project.

For the purpose of this assessment, the "region" is defined as the area encompassed by the Prado Flood Control Basin, the bottomlands making up the Chino Valley, and the adjacent Chino Hills to the west. Specifically, the region is defined by State Route 60 in the north, State Route 91 in the south, Interstate 15 in the east and State Route 57 in the west. In our opinion, the area included in this definition of region represents a biologically meaningful unit, or system, as it relates to the life histories of raptorial birds in general. As a group, raptors generally require foraging territory and prey availability over a relatively large home ranges, particularly during breeding. Outside of the breeding season, they continue to require large areas to forage and equally important, to disperse from natal territories. Not surprisingly, the home ranges of many raptors are measured in terms of square miles, rather than in terms of acres. From a biological standpoint, it is reasonable to assume that raptorial birds using the Chino Valley bottomland where the project is located interact and are not distinct populationally from raptorial birds of the same species using the Chino Hills. Further, it is assumed that the individuals of some species use both the bottomlands and the adjacent hills as part of their home ranges. Conversely, the extensive urbanization to the north and east, the Santa Ana Mountains to the south, and the Puente Hills as a distinct biological unit to the west, represent physical barriers, which logically confine the region to the boundaries delineated above.

After defining the region, PCR classified land uses/vegetation cover in terms of their suitability for use as foraging habitat.

Non-suitable habitat was defined as including:

- Urban and suburban development;
- Heavily vegetated areas where dense chaparral typically hinders foraging;

One Venture, Suite 150, Irvine, California 92618 INTERNET www.pcrnet.com TEL 949.753.7001 FAX 949.753.7002

- Small areas of open habitat that otherwise would be deemed suitable, but are rendered unsuitable due to their isolation;
- Dairy stockyards devoid of all vegetation and where cow manure is stockpiled; and
- Golf courses and turf play fields.

Suitable habitat was defined as including:

- Large and contiguous undeveloped areas with open native and/or naturalized vegetation, such as open woodlands, sage scrub, river bottoms and grasslands;
- Agricultural lands used as cropland (e.g., alfalfa) or in a fallow condition; and
- Windrows and woodlands used by foraging raptors to roost, nest and/or forage (e.g., accipiters) nearby open foraging habitat.

Although somewhat generalized for all species of birds of prey, we believe these definitions of suitable and non-suitable foraging habitat present an accurate basis for understanding the effects of the project on raptors, particularly in the context of the project's effects on regional populations.

As defined above, suitable and non-suitable habitat areas were mapped on to mylar overlayed on recent color aerial photographs of the region at a scale of 1"=500'. These were then digitized using ArcView GIS software for the analysis. The results of PCR's mapping of the existing conditions are summarized in Table 1, *The Preserve Regional Raptor Foraging Habitat Assessment Existing Conditions.* As shown, the region encompasses a total of approximately 124,500 acres, of which approximately 56,055 acres is considered to be suitable for raptor foraging. Approximately 3,364.1 acres of this suitable foraging habitat occurs within The Preserve Sub-Area 2 study area.

Project-related impacts (losses) to suitable raptor foraging habitat are summarized in Table 2, *The Preserve Regional Raptor Foraging Habitat Assessment Impact Analysis.* On an incremental basis, the project is expected to result in the loss of 1,256.1 acres of suitable habitat; that is, the loss of all suitable habitat within The Preserve Sub-Area 2 study area above the 566-foot elevation line.[1] This represents a loss of approximately 2.2 percent of all suitable habitat existing in the region. In our opinion this incremental loss would not have a significant adverse effect on regional raptor populations. We recognize this conclusion may not apply to all species, such as the burrowing owl; however, this loss would not be expected to reduce and result in serious declines for species of buteos, accipiters, falcons, vultures, harriers, kites, other owls and eagles.

[1] Michael Brandman Associates. April 2002. *City of Chino's AG Preserve Resources Management Plan.*

Table 1

The Preserve Regional Raptor Foraging Habitat Assessment Existing Conditions

Habitat Classification	Acreage Within Sub-Area 2*	Acreage Within Region, Outside Sub-Area 2	Total
Non-Suitable	2,080.5	65,800	68,445
Suitable			
Agriculture	2,832.8	13,500	15,255
Native Vegetation, including Willows/Woodlands	531.3	39,790	40,800
Suitable Subtotal	3,364.1	53,290	56,055
Total	**5,435**	**119,090**	**124,500**

*(acreages listed below are for the whole Sub-Area 2)

Source: PCR Services Corporation and MBA 2002.

Table 2

The Preserve Regional Raptor Foraging Habitat Assessment Impact Analysis

Habitat Classification	Impacts Within Sub-Area 2Above 566 ft Line*	Cumulative Impacts Within Region, Outside Sub-Area 2	Total
Non-Suitable	N/A	N/A	0
Suitable			
Agriculture	1,256.1	7150	8366
Willows/Woodlands	0	880	880
Suitable Subtotal	1,256.1	8,030	9,286.1
Total	**1,256.1**	**8,030**	**9,286.1**

*(acreages listed below are within the 566 ft line defined by MBA only)

Source: PCR Services Corporation and MBA 2002.

On a cumulative basis, impacts to raptor habitat are expected from thirteen projects listed in The Preserve Chino Sphere of Influence Sub-Area 2 Draft Environmental Impact Report. PCR does not know of any major projects throughout the rest of the study area region. Using exhibit 4.2-1 Cumulative Projects from the report, PCR found the general location and mapped the approximate boundaries of each project on United States Geological Survey topographical quadrangle maps of Prado Dam and Corona North. Acreages for seven of the projects were listed in the EIR. If a project was defined by unit size, then each unit was assigned a ¼ acre lot to calculate total acreage.

Cumulatively, The Preserve project and others planned and/or approved in the region will result in the loss of approximately 9,286 acres of suitable raptor foraging habitat. This total represents approximately 16.5 percent of the existing habitat available to raptors in the region. In PCR's opinion, this cumulative loss is a significant adverse impact to regional populations of raptors according to the threshold criteria used in the EIR.

APPENDIX D

LSA'S ASSESSMENT OF IMPACT AND MITIGATION OPTIONS: THE PRESERVE, CHINO

LSA

LSA ASSOCIATES, INC.
20 EXECUTIVE PARK, SUITE 200
IRVINE, CALIFORNIA 92614-4731

949.553.0666 TEL
949.553.8076 FAX

OTHER OFFICES: FT. COLLINS
BERKELEY RIVERSIDE
PT. RICHMOND ROCKLIN

December 20, 2002

Ms. Jeanne Cockrell
Lewis Operating Corp.
1156 Mountain Avenue
P.O. Box 670
Upland, California 91785-0670

Subject: Assessment of Impact and Mitigation Options: The Preserve, Chino

Dear Ms. Cockrell:

LSA Associates, Inc. (LSA) has been retained by Lewis Operating Corp. (Lewis) to evaluate the analysis of impacts to biological resources and proposed mitigation options described in the Partial Recirculation of the Draft EIR for The Preserve (Chino Subarea 2) project, in Chino, California. Specifically, LSA is focusing on the impacts to potential raptor foraging habitat and the adequacy of the proposed mitigation. LSA's analysis is based on a field overview of the project area conducted on June 1, 2002; inspection of an aerial photograph provided by L.D. King, Inc.; ground level photographs of portions of the project and adjacent areas taken by LSA on December 11, 2002; and the Partial Recirculation of the Draft EIR (August 2002). LSA's opinion is also based on its experience as professional preparers of California Environmental Quality Act (CEQA) documentation throughout the State of California.

BIOLOGICAL VALUES OF EXISTING HABITATS

For this type of evaluation, it is important to understand the biological values of existing habitats in the project area, as well as other raptor foraging habitat in the region. LSA photographed and evaluated typical examples of several categories of land as mapped by Michael Brandman Associates (MBA) for the Draft EIR. (See Figures 1 through 6.)

Dairies

This is the single largest land cover type within The Preserve, totaling 1,436 acres. Approximately 1,084 acres are located above the 566-foot inundation line. Based on LSA's field review and inspection of the aerial photograph, this acreage represents quite intensive, "feedlot" type operations, with developed milking facilities and extensive areas covered deeply by manure (Figures 2a and 2b). Very little vegetation, especially native vegetation, occurs in these areas, and these areas do not provide valuable wildlife habitat.

Pasture

Areas that are called "pasture" in the DEIR appear to be integral parts of dairy operations and have somewhat more vegetative cover than the feedlot areas but little native vegetation (Figures 3a and 3b). Approximately 496 acres of pasture exist above the 566-foot inundation line. These areas have

similar characteristics to some of the cultivated and fallow fields but are generally smaller areas that are more immediately adjacent to the intensive dairy operations. These pastures provide some foraging area, although they are generally not extensive, and most suitable for smaller, common species, such as the American kestrel.

Active Fields

There are 703 acres of active agricultural fields above the 566-foot inundation line. These fields appear to be disced regularly, followed by the planting of crops (often alfalfa). There are certainly portions of this cycle (such as when crops are growing or immediately after harvest) during which these areas provide habitat for foraging birds, including raptors (Figure 4). However, after the fields have been disced and before planting, their habitat value is limited.

Fallow Fields

These fields, as mapped by MBA, are disturbed much less often than the active fields and pastures described above. Less than one acre of fallow fields exist above the 566-foot inundation line. The remaining 545 acres located below the 566-foot line are more expansive and more removed from the intensive agricultural operations (Figure 5). Consequently, they can develop a larger small mammal population and provide higher habitat value for raptors, as well as a variety of insectivorous and seed eating birds. These fallow fields below the 566-foot line are not proposed for urban development but are zoned as open space or agricultural lands.

Annual Grassland

There are no substantial amounts of annual grasslands within the project area, and this is not one of the land cover types mapped for the Draft EIR. There are still considerable amounts of this habitat type within Chino Hills, both in Chino Hills State Park and on privately held, undeveloped land in the vicinity of the Park and the project area (Figure 6). Strictly speaking, this is not a native habitat type, due to dominance in most cases by nonnative annual grasses. However, it is considered a "naturalized" habitat type that possesses many of the habitat attributes of the native grasslands that were once common in California. Annual grassland typically supports relatively high small mammal populations and is considered one of the most valuable habitat types for raptor species.

ASSESSMENT OF PROJECT IMPACTS AND MITIGATION: RAPTOR FORAGING HABITAT

LSA concurs with the analysis of impacts to raptor habitat provided by PCR that is included in the partial recirculation of the Draft EIR. The feedlot type dairy operations should not be considered suitable raptor foraging habitat, and loss of these areas should not be considered significant. The approximately 1,200 acres of pasture, active fields, and fallow fields above the 566-foot elevation line provide some value for raptor foraging. However, LSA would not consider the loss of this area to be significant at the project level for three reasons: 1) the habitat is of limited value; 2) the amount of habitat is a relatively small percentage of the overall habitat available in the region, as described by PCR; and 3) the habitat loss should be considered with respect to its overall value within the project

area, i.e., a larger area (approximately 1,525 acres) of significantly higher habitat value will be preserved in the project area.

LSA would agree that the loss of the agricultural land (other than the dairy operations) would be considered a contribution to cumulative loss of this type of habitat in the region, which would have a significant effect on the environment. Obviously, this type of impact is directly related to loss of agricultural land and/or open space, which cannot be offset by the creation of new land. The only feasible mitigation for this type of cumulative habitat loss is to protect against the loss of a reasonable amount of similar land types. For example, the Multi-Species Conservation Plan (MSCP) in San Diego County calls for long-term preservation of 0.5 acre of grassland for every acre impacted, which would theoretically result in the preservation of one-third of the available grassland in the planning area. This approach was approved by the County of San Diego, the U.S. Fish and Wildlife Service, and California Department of Fish and Game (CDFG) through the EIS/EIR for the MSCP, and CDFG frequently recommends the same preservation to development ratio in its comments on other projects in Southern California. This recommended preservation of one-third of potential raptor foraging habitat can be compared with The Preserve project, which will preserve a higher percentage (56 percent) of habitat that is far less valuable than the annual grassland in the San Diego MSCP. The zoning overlay by the City to provide assurance of long-term open space preservation (with agricultural or other uses that are no more intensive than current uses in this open space) could be considered adequate mitigation for the project's contribution to cumulative impacts to existing raptor foraging habitat. The 300-acre conservation area identified in the Draft EIR provides valuable additional mitigation, by either adding habitat value to the on-site preservation area or providing up to 300 acres of high-quality off-site preservation area. In either case, the retention of land below the 566-foot inundation line in agricultural and open space uses, combined with the 300-acre conservation area, should be considered more than adequate mitigation for the loss of 1,200 acres of agricultural land that provides some raptor foraging habitat of marginal value. Of course, as noted in the Draft EIR, additional mitigation is required to reduce impacts to individual burrowing owl sites.

CONCLUSION

The Recirculated Draft EIR's analysis of impacts to raptor foraging habitat and the identification of feasible mitigation measures are appropriate and consistent with other projects in the region. The acknowledgment that there will remain significant impacts to raptor foraging habitat and burrowing owls after mitigation is quite conservative and is based on the inescapable fact that there will be a net loss of habitat in the project area.

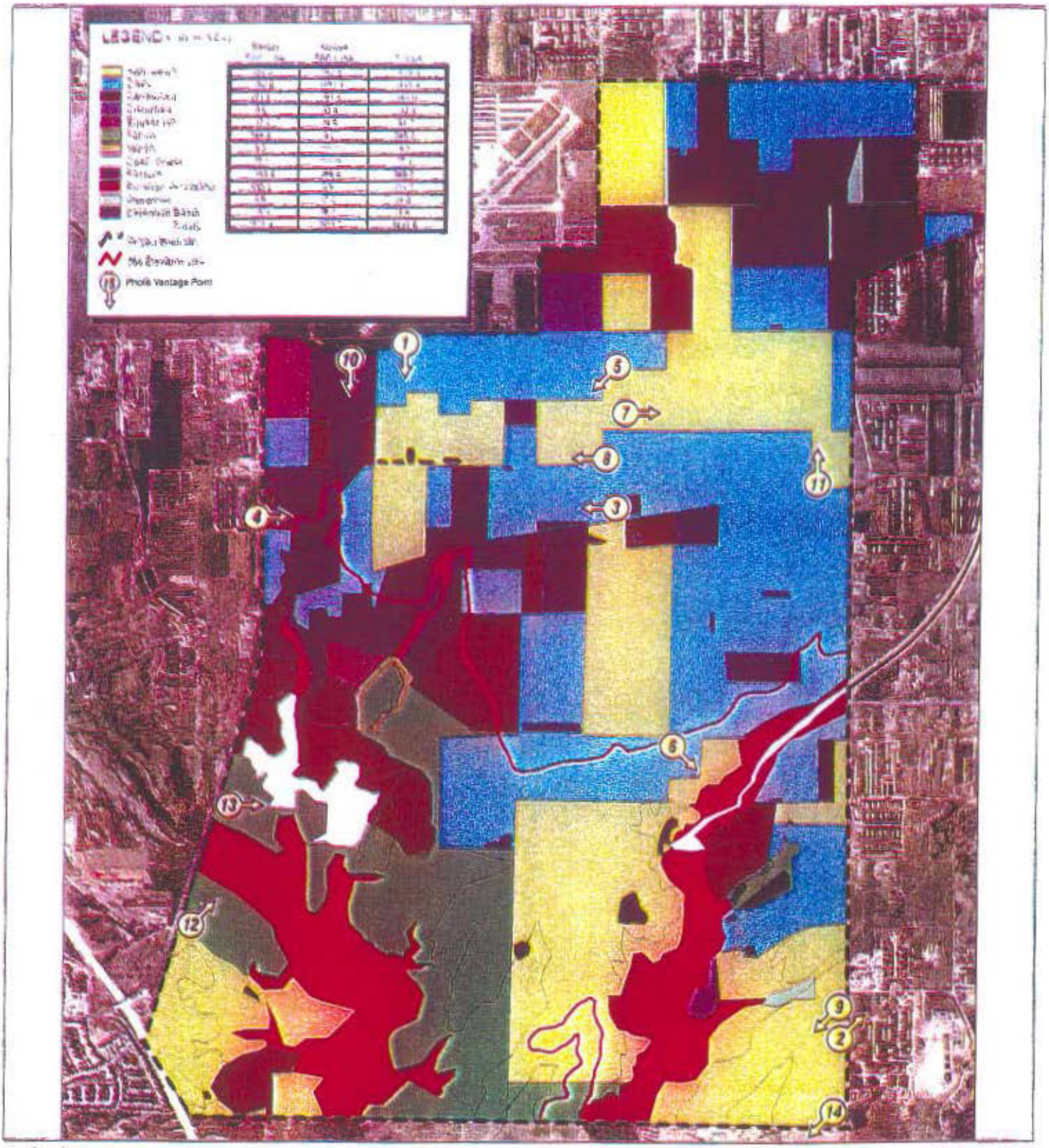
Sincerely,

LSA ASSOCIATES, INC.

Art Homrighausen

Art Homrighausen
Principal

Attachments: Figures



LSA

FIGURE 1

N

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FEET

Chino Reserve
Photo Key Map

BASE MAP SOURCE: MICHAEL BRANDMAN ASSOCIATES.

I:\TU230\G\Photos\Key Map.cdr (12/18/02)

Photo 1. Dairy operation. View to the south.

Photo 2. Dairy operation. View to the northeast.

LSA

FIGURE 2A

Chino Reserve

Site Photographs

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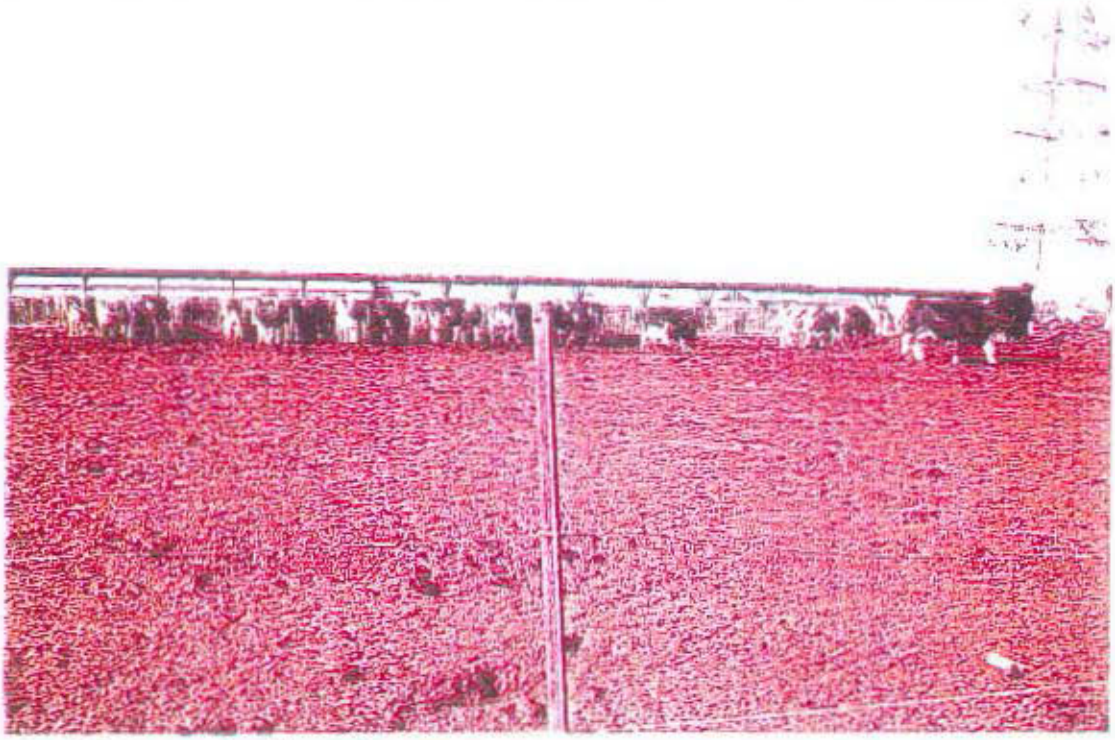

Photo 3. Dairy operation. View to the west.

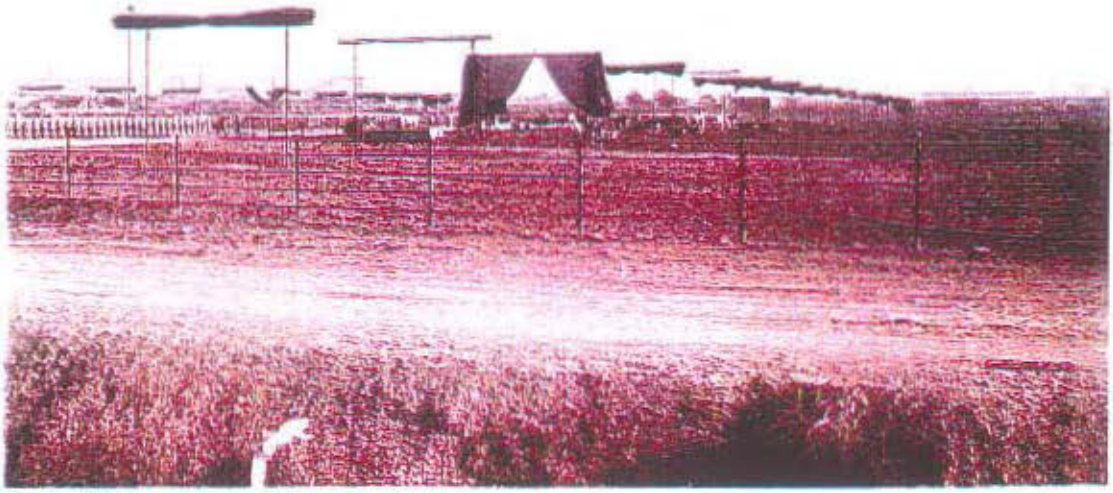

Photo 4. Dairy operation. View to the east.

LSA

FIGURE 2B

Chino Reserve

Site Photographs

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Photo 5. Pasture. View to the southwest.

Photo 6. Pasture. View to the southeast.

LSA

FIGURE 3A

Chino Reserve

Site Photographs

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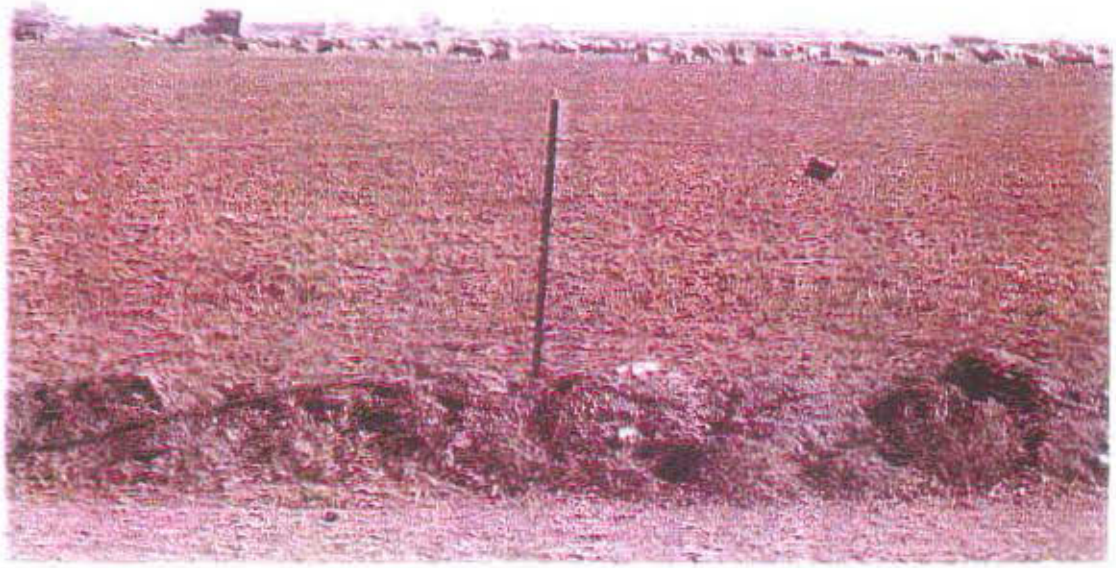

Photo 7. Pasture. View to the east.

LSA

FIGURE 3B

Chino Reserve

Site Photographs

I:\TU230\G\Photos\3B.cdr (12/19/02)

Photo 8. Active agricultural field. View to the west.

Photo 9. Active agricultural field. View to the southwest.

LSA

FIGURE 4A

Chino Reserve

Site Photographs

I:\TU230\G\Photos\4A.cdr (12/19/02)

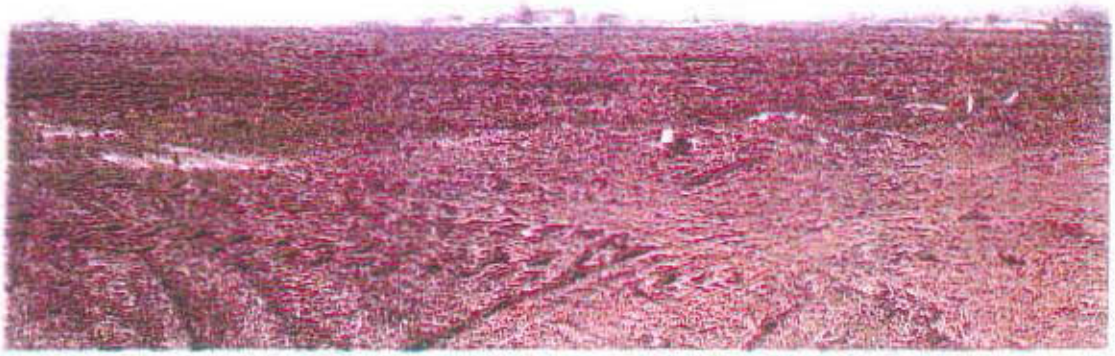

Photo 10. Active agricultural field. View to the south.

Photo 11. Active agricultural field. View to the north.

LSA

FIGURE 4B

Chino Reserve

Site Photographs

I:\TU230\G\Photos4B.cdr (12/19/02)

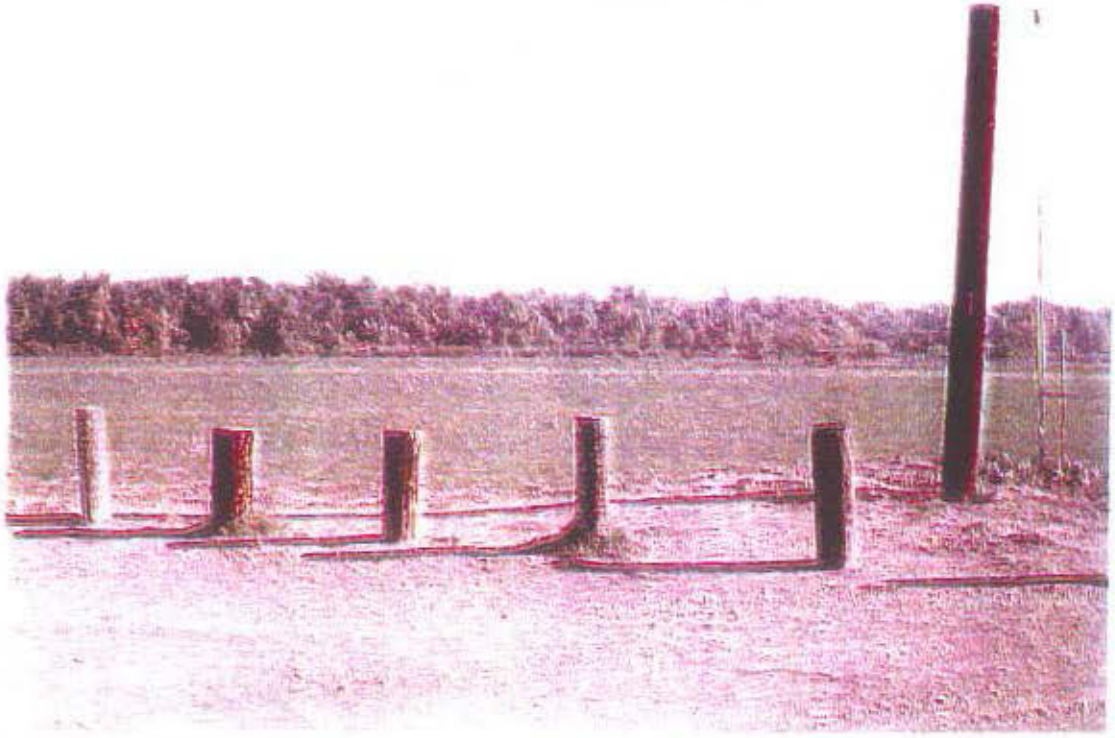

Photo 12. Fallow. View to the northeast.

Photo 13. Fallow. View to the east.

LSA

FIGURE 5A

Chino Reserve

Site Photographs

I:\TJ220\G\Photos\5A.cdr (12/19/02)

Photo 14. Fallow. View to the southwest.

LSA

FIGURE 5B

Chino Reserve

Site Photographs

Photo 15. Grassland. View to the south.

Photo 16. Grassland. View to the southwest.

LSA

FIGURE 6

Chino Reserve

Site Photographs

I:\TU230\CD\Photos\6.cdr (12/19/02)

APPENDIX E

OPEN SPACE USES

Open Space Designations

The open space land use designations are divided into five land use designations: Agriculture, Open Space-Recreation, Agriculture/Open Space-Natural, Open Space-Natural and Open Space-Water. Each subcategory includes a description of the intended character, allowable uses, and development standards as summarized in Table 5.

The open space land use designations address a specific range of uses intended to help preserve the historic, agriculture character of Chino and to protect open space and biological resources.

Most of the land within the open space designations is also within the 566-foot elevation dam inundation area. The open space designations within this area have been designed to recognize flood hazards and support and protect the biological habitat and open space resource values inherent in this area from incompatible land uses that could damage these resources.

Agriculture (AG)

AG1 Intended character: The Agricultural Land Use Designation is intended to provide for agricultural uses including farming, stables, pastures, and grazing. Uses and structures in AG designated areas below the 566' dam inundation elevation must comply with the requirements of the Dam Inundation Overlay, and must also comply with the Resource Management Plan which provides for the protection and enhancement of biological resources.

AG2 Permitted Land Uses

a. Commercial row, field, tree and nursery crops cultivation.
b. Grazing.
c. Nurseries
d. Conservation and habitat enhancement areas
e. Uses permitted by the General Agriculture Zone, Section 20.11.030 of the Zoning Ordinance except as modified herein and as restricted by the Dam Inundation Overlay.
f. Public infrastructure facilities including but not limited to those necessary for; drainage and flood control including the retention or detention of flood waters and other similar facilities necessary to control downstream erosion; controlling or reducing water runoff pollutants; public communications; facilities necessary to provide for public safety or health.

AG3 Uses Subject to a Special Conditional Use Permit

a. Per the Conditionally Permitted Land Uses for the AG zone, Section 20.11.030 of the Zoning Ordinance, except as modified herein and as restricted by the Dam Inundation Overlay.
b. Kennels and Catteries outside the Dam Inundation Overlay.

AG4 Administratively Permitted and Incidental Uses

a. As allowed by the AG zone, Section 20.11.030 of the Zoning Ordinance.

AG5 Prohibited Uses

a. New dairies and expansions of existing dairies, calf nurseries and other similar intense animal uses are prohibited within the Dam Inundation Overlay (area below the 566' elevation).
b. Animal clinics and hospitals.
c. Animal Keeping in excess of established density standards as specified in Section 20.11.030 of the zoning ordinance, for AG designated properties within the Dam Inundation Overlay.

d. Cemeteries
e. Kennels and catteries within the Dam Inundation Overlay.
f. Educational Services as they are specified by Section 20.11.030 of the Zoning Ordinance, except that home schools are a permitted use.
g. Storefront Worship Facilities, as specified by Section 20.11.030 of the Zoning Ordinance, within the Dam Inundation Overlay.

AG6 Development Regulations

a. Minimum lot size: 10 Acres.
b. Minimum lot width: None.
c. Minimum front setback: 25 ft.
d. Minimum side and rear setbacks: None.
e. Maximum site coverage: None.
f. Maximum building height: 35 ft.
g. Setbacks to avoid impacts to biological resources: Additional setbacks for structures or uses may be required if determined by the Director of Community Development to be necessary to ameliorate negative impacts on biological resources that adjoin such structure or use.

AG7 Performance Standards

a. All development and all land uses below the 566' dam inundation elevation shall comply with the requirements of the Dam Inundation Overlay.

b. Portions of the AG Land Use Designation are located in areas that either have significant biological resources and/or have the potential to negatively affect such resources. A Resource Management Plan (RMP) has been prepared as part of the environmental mitigation program for The Preserve in order to address and protect these resources. All developments within the AG designation must comply with the requirements and guidelines of the RMP.

Land Use Designation	*Agriculture*	*Agriculture/Open Space-Natural*	*Open Space-Recreation*	*Open Space-Natural*
Development Requirements				
Minimum Lot Size	10 Acres	None	None	None
Minimum Lot Width	None	None	None	None
Minimum Front Setback	25 ft.	None	None[2]	None
Minimum Side and Rear setbacks	None	None	None[2]	None
Maximum Site Coverage	None	None	None	None
Maximum Building Height	35 ft.	35 ft.	35 ft.	35 ft.

Agriculture/Open Space-Natural (AG/OSN)

A/OS1 Intended character: The Agricultural/Open Space-Natural Land Use Designation is intended to provide for limited agricultural and open space uses, including passive recreation, trails, crop farming, and open space. It is also intended to protect important biological resources found within lands designated AG/OSN from incompatible land uses that could damage these resources. Land uses in AG/OSN designated areas must be compatible and coordinated with the Resource Management Plan, which provides for the protection and enhancement of biological resources. They must also comply with the requirements of the Dam Inundation Overlay.

A/OS2 Permitted Land Uses

a. Commercial row, field, tree and nursery crops cultivation in compliance with section 20.11.040.B.1 of the Chino Zoning Ordinance, except that expansions of such crop farming to areas that have not been farmed within the previous 5 years are subject to an Administrative Approval.
b. Continuation of grazing where grazing has occurred within the previous 5 years. Areas where grazing has not occurred within the past 5 years require an Administrative Approval. The Administrative Approval must also comply with any applicable requirements or standards of the Resource Management Plan.
c. Conservation Areas (wildlife/natural habitats and sanctuaries and habitat enhancement areas).
d. Trails.
e. Public infrastructure facilities including but not limited to those necessary for; drainage and flood control including the retention or detention of flood waters and other similar facilities necessary to control downstream erosion; controlling or reducing water runoff pollutants; public communications; facilities necessary to provide for public safety or health.

A/OS3 Prohibited Uses

a. Expansions or new dairies, calf nurseries, and other similar intense animal uses.
b. Cemeteries
c. Athletic fields.
d. Auditoriums, Stadiums, and other similar facilities.
e. Golf Courses and miniature golf.
f. Tennis and swimming clubs.
g. All off-road vehicles and motorcycles.

A/OS4 Uses Subject to a Special Conditional Use Permit

a. Interpretive Facilities
b. Low-intensity public parks and other passive recreation uses provided that they do not negatively impact wildlife and other biological resources.
c. Major Communications Facilities as defined by the Chino Zoning Ordinance and in compliance with section 20.09.050.D.9 of the Zoning Ordinance.
d. Utility stations and associated equipment buildings.
e. Apiaries
f. Public recreational facilities owned or controlled by a public agency. Examples of such facilities include but are not limited to: historic and monument sites; recreational or organizational camps; botanical gardens and arboretums; hunting and fishing clubs. Development shall be subject to the criteria listed below:

(i) Landscaping plans should minimize any impact on existing native species especially those species that are of high biological value. In addition, restorative landscaping should incorporate indigenous plant materials as a means of mitigating visual impacts associated with the construction of new buildings, structures or other improvements within the zone.
(ii) Buildings, structures and improvements should incorporate designs in which scale, mass, and height respect the undisturbed character of the area. Designs should follow existing topography, blend in with the natural landscape and otherwise minimize their visual prominence.

(iii) The use of herbicides to control or kill vegetation is not permitted.

g. Expansions to the Prado Regional Park facility in areas adjacent to the developed or improved portions of the facility. Such expansion must also comply with any applicable requirements or standards of the Resource Management Plan

A/OS5 Administratively Permitted and Incidental Uses

a. As allowed by the OS Zone, Section 20.11.030 of the Zoning Ordinance.

A/OS6 Development Standards

a. Minimum lot size: None.
b. Minimum lot width: None.
c. Minimum front, side and rear setbacks: None.
d. Maximum site coverage: None.
e. Maximum building height: 35 ft.
f. Setbacks to avoid impacts to biological resources: Additional setbacks for structures or uses may be required if determined by the Director of Community Development to be necessary to ameliorate negative impacts on biological resources that adjoin such structure or use.

A/OS7 Performance Standards

a. All development and all land uses below the 566' dam inundation elevation shall comply with the requirements of the Dam Inundation Overlay.

b. The AG/OSN Land Use Designation is located in areas that either have significant biological resources and/or have the potential to negatively affect such resources. A Resource Management Plan (RMP) has been prepared as part of the environmental mitigation program for The Preserve in order to address and protect these resources. All developments within the AG/OSN designation must comply with the requirements and guidelines of the RMP.

A/OS8 Development Standards

a. Minimum lot size: None.
b. Minimum lot width: None.
c. Minimum front, side and rear setbacks: None.
d. Maximum site coverage: None.
e. Maximum building height: 35 ft.
f. Setbacks to avoid impacts to biological resources: Additional setbacks for structures or uses may be required if determined by the Director of Community Development to be necessary to ameliorate negative impacts on biological resources that adjoin such structure or use.

Open Space-Recreation (OS-R)

OSR1 Intended character: The Open Space-Recreation Land Use Designation is intended to establish open space areas for active and passive recreation and to provide protection from environmental hazards.

OSR2 Permitted Land Uses

a. Caretaker quarters.
b. Child daycare associated with a public facility (community center, public park, etc.).
c. Commercial row, field, tree and nursery crops cultivation in compliance with section 20.11.040.B.1 of the Chino Zoning Ordinance.

d. Conservation areas (wildlife/natural habitats, habitat enhancement areas and sanctuaries)
e. Equestrian facilities.
f. Minor Communications Facilities subject to an Administrative Approval as provided in the Chino Zoning Ordinance and in compliance with Section 20.09.050.D.9 of the Zoning Ordinance.
g. Public parks and related facilities (community centers, senior centers, and other community buildings/structures, etc.)
h. Temporary Facilities subject to an Administrative Approval as provided in the Chino Zoning Ordinance and in compliance with Section 20.11.040.B.29 of the Zoning Ordinance. (Includes facilities which do not require the construction /installation of any structures)
i. Public infrastructure facilities including but not limited to those necessary for; drainage and flood control including the retention or detention of flood waters and other similar facilities necessary to control downstream erosion; controlling or reducing water runoff pollutants; public communications; facilities necessary to provide for public safety or health.

OSR3 Prohibited Uses

a. Expansions or new dairies, calf nurseries, and other similar intense animal uses.

OSR4 Uses Subject to a Special Conditional Use Permit

a. Major Communications Facilities as defined by the Chino Zoning Ordinance and in compliance with Section 20.09.050.D.9 of the Zoning Ordinance.

b. Eating places in conjunction with and incidental to permitted or conditionally permitted recreational uses. (Includes restaurants, convenience foods and specialty foods). Alcoholic beverage sales in conjunction with and incidental to eating places may be permitted subject to approval of a Special Conditional Use Permit and in compliance with Section 20.11.040.B.22 of the Zoning Ordinance.

c. Sporting and Recreational Camps.
d. Trailer Parks and Campsites.
e. RV Storage above the 566' Dam Inundation Elevation.
f. Athletic Fields (For commercial uses, only. Does not include those provided as part of a public park.)
g. Regulation Golf Courses (includes incidental retail activities supporting golf course operations, such as pro shops and eating establishments)
h. Live entertainment incidental to and in conjunction with another permitted or conditionally permitted use.
i. Skating rinks.
j. Sports and Recreation Centers (private and commercial facilities).
k. Tennis and swimming clubs
l. Employer provided on-site daycare
m. Utility stations and associated equipment buildings
n. Apiaries
o. Cemeteries.

OSR5 Administratively Permitted and Incidental Uses

a. As allowed by the OS Zone, Section 20.0110.30 of the Zoning Ordinance.
b. Incidental processing drying & packing of agricultural commodities produced on site.
c. Incidental, seasonal sales stands for row, field, trees & nursery crops produced on site.

OSR6 Prohibited Uses

a. Expansions or new dairies, calf nurseries and other similar intense animal uses.

OSR7 Development Regulations

a. Minimum lot size: None.
b. Minimum lot width: None.
c. Minimum front, side and rear setbacks:
   1. None. Unless adjacent to residentially designated property, in which case a minimum of 30 ft. setback shall apply to all structures.
d. Maximum site coverage: None.
e. Maximum building height: 35 ft.
f. Setbacks to avoid impacts to biological resources: Additional setbacks for structures or uses may be required if determined by the Director of Community Development to be necessary to ameliorate negative impacts on biological resources that adjoin such structure or use.

Open Space-Natural (OS-N)

OSN1 Intended character: The Open Space-Natural Land Use Designation is intended to accommodate permanent natural open space, wildlife preserves, natural drainage and stream courses, cultural and historic resources, and protect natural plant and animal habitats. This designation also permits the use of open space areas for crop farming, passive outdoor recreational uses and other low intensity recreational uses in some instances.

OSN2 Permitted Land Uses

a. Conservation Areas (wildlife/natural habitats and sanctuaries and habitat enhancement areas).
b. Trails.
c. Commercial row, field, tree and nursery crops cultivation in compliance with section 20.11.040.B.1 of the Chino Zoning Ordinance is permitted for:
   1. Land currently under cultivation
   2. Land that has been under cultivation within the previous five years
   3. Lands that have been used for agricultural uses other than cultivation within the previous five years (e.g. dairies, livestock raising, etc.)
d. Continuation of grazing on lands where grazing has occurred within the previous 5 years. Areas where grazing has not occurred within the previous 5 years require an Administrative Approval. The Administrative Approval must also comply with any applicable requirements or standards of the Resource Management Plan.

e. Public infrastructure facilities including but not limited to those necessary for: drainage and flood control, including the retention or detention of flood waters and other similar facilities necessary to control downstream erosion; controlling or reducing water runoff pollutants; public communications; facilities necessary to provide for public safety or health.

OSN3 Uses Subject to a Special Conditional Use Permit

a. Low intensity public parks and passive recreation uses provided that they do not negatively impact biological resources.
b. Interpretive facilities and outdoor exhibits.
c. Limited access roads servicing permitted facilities.
d. Expansions of commercial row, field, tree and nursery crops cultivation, in compliance with section 20.11.040.B.1 of the Chino Zoning Ordinance, if such expansion does not meet any of the conditions specified in section OSN2(c), above. Such expansion must

also comply with any applicable requirements or standards of the Resource Management Plan.

e. Public recreational facilities owned or controlled by a public agency. Examples of such facilities include but are not limited to: historic and monument sites; recreational or organizational camps; botanical gardens and arboretums; hunting and fishing clubs. Development shall be subject to the criteria listed below:

   1. The use of herbicides to control or kill vegetation is not permitted.

   2. Landscaping plans should minimize any impact on existing native species especially those species that are of high biological value. In addition, restorative landscaping should incorporate indigenous plant materials as a means of mitigating visual impacts associated with the construction of new buildings.

   3. Buildings, structures and improvements should incorporate designs in which scale, mass, and height respect the undisturbed character of the area. Designs should follow existing topography, blend in with the natural landscape and otherwise minimize their visual prominence.

f. Expansions to the Prado Regional Park facility in areas adjacent to the developed or improved portions of the facility. Such expansion must also comply with any applicable requirements or standards of the Resource Management Plan

OSN4 Prohibited Uses

a. New and expansions of existing dairies, calf nurseries and other similar intense animal uses.
b. Cemeteries
c. Athletic fields.
d. Auditoriums, Stadiums, and other similar facilities.
e. Golf Courses and miniature golf.
f. Tennis and swimming clubs.
g. All off-road vehicles and motorcycles.

OSN5 Administratively Permitted and Incidental Uses

a. As allowed by the GS Zone Section 20.11.030 of the Zoning Ordinance.
b. Administratively permitted agricultural uses referenced under Section OSN 2.

OSN6 Performance Standards

a. All development and all land uses below the 566' dam inundation elevation shall comply with the requirements of the Dam Inundation Overlay.

b. The OS-N Land Use Designation is located in areas that either have significant biological resources and/or have the potential to negatively affect such resources. A Resource Management Plan (RMP) has been prepared as part of the environmental mitigation program for The Preserve in order to address and protect these resources. All developments within the OS-N designation must comply with the requirements and guidelines of the RMP.

OSN7 Development Regulations

i. Minimum lot size: None
ii. Minimum lot width: None.
iii. Minimum front, side and rear setbacks: None

iv. Maximum site coverage: None.
v. Maximum site coverage: None.
vi. Maximum building height: 35 ft.
vii. Setbacks to avoid impacts to biological resources: Additional setbacks for structures or uses may be required if determined by the Director of Community Development to be necessary to ameliorate negative impacts on biological resources that adjoin such structure or use.

APPENDIX F

CDFG BURROWING OWL RELOCATION PROTOCOL

State of California

Memorandum

: "Div. Chiefs - IFD, BDD, NED, & WMD
Reg. Mgrs. - Regions 1, 2, 3, 4, & 5

Date : October 17, 1995

From : Department of Fish and Game

Subject :
Staff Report on Burrowing Owl Mitigation

I am hereby transmitting the Staff Report on Burrowing Owl Mitigation for your use in reviewing projects (California Environmental Quality Act [CEQA] and others) which may affect burrowing owl habitat. The Staff Report has been developed during the last several months by the Environmental Services Division (ESD) in cooperation with the Wildlife Management Division (WMD) and regions 1, 2, and 4. It has been sent out for public review and redrafted as appropriate.

Either the mitigation measures in the staff report may be used or project specific measures may be developed. Alterative project specific measures proposed by the Department divisions/regions or by project sponsors will also be considered. However, such mitigation measures must be submitted to ESD for review. The review process will focus on the consistency of the proposed measure with Department, Fish and Game Commission, and legislative policy and with laws regarding raptor species. ESD will coordinate project specific mitigation measure review with WMD.

If you have any questions regarding the report, please contact Mr. Ron Rempel, Supervising Biologist, Environmental Services Division, telephone (916) 654-9980.

COPY Original signed by C.F. Raysbrook

C. F. Raysbrook
Interim Director

Attachment

cc: Mr. Ron Rempel
Department of Fish and Game
Sacramento

STAFF REPORT ON BURROWING OWL MITIGATION

Introduction

The Legislature and the Fish and Game Commission have developed the policies, standards and regulatory mandates to protect native species of fish and wildlife. In order to determine how the Department of Fish and Game (Department) could judge the adequacy of mitigation measures designed to offset impacts to burrowing owls *(Speotyto cunicularia;* A.O.U. 1991) staff (WMD, ESD, and Regions) has prepared this report. To ensure compliance with legislative and commission policy, mitigation requirements which are consistent with this report should be incorporated into: (1) Department comments to Lead Agencies and project sponsors pursuant to the California Environmental Quality Act (CEQA); and (2) other authorizations the Department gives to project proponents for projects impacting burrowing owls.

This report is designed to provide the Department (including regional offices and divisions), CEQA Lead Agencies and project proponents the context in which the Environmental Services Division (ESD) will review proposed project specific mitigation measures. This report also includes preapproved mitigation measures which have been judged to be consistent with policies, standards and legal mandates of the Legislature,. the Fish and Game Commission and the Department's public trust responsibilities. Implementation of mitigation measures consistent with this report are intended to help achieve the conservation of burrowing owls and should compliment multi-species habitat conservation planning efforts currently underway. The *Burrowing Owl Survey Protocol and Mitigation Guidelines* developed by The California Burrowing Owl Consortium (CBOC 1993) were taken into consideration in the preparation of this staff report as were comments from other interested parties.

A range-wide conservation strategy for this species is needed. Any range-wide conservation strategy should establish criteria for avoiding the need to list the species pursuant to either the California or federal Endangered Species Acts through preservation of existing habitat, population expansion into former habitat, recruitment of young into the population, and other specific efforts.

California's burrowing owl population is clearly declining and, if declines continue, the species may qualify for listing. Because of the intense pressure for urban development within suitable burrowing owl nesting and foraging habitat (open, flat and gently rolling grasslands and grass/shrub lands) in California, conflicts between owls and development projects often occur. Owl survival can be adversely affected by disturbance and foraging habitat loss even when impacts to individual birds and nests/burrows are avoided. Adequate information about the presence of owls is often unavailable prior to project approval. Following project approval there is no legal mechanism through which to seek mitigation other than avoidance of occupied burrows or nests. The absence of standardized survey methods often impedes consistent impact assessment.

Burrowing Owl Habitat Description

Burrowing owl habitat can be found in annual and perennial grasslands, deserts, and arid scrublands characterized by low-growing vegetation (Zarn 1974). Suitable owl habitat may also include trees and shrubs if the canopy covers less than 30 percent of the ground surface. Burrows are the essential component of burrowing owl habitat. Both natural and artificial burrows provide protection, shelter, and nests for burrowing owls (Henny and Blus 1981). Burrowing owls typically use burrows made by fossorial mammals, such as ground squirrels or badgers, but also may use man-made structures such as cement culverts; cement, asphalt, or wood debris piles; or openings beneath cement or asphalt pavement.

Occupied Burrowing Owl Habitat

Burrowing owls may use a site for breeding, wintering, foraging, and/or migration stopovers. Occupancy of suitable burrowing owl habitat can be verified at a site by detecting a burrowing owl, its molted feathers, cast pellets, prey remains, eggshell fragments, or excrement at or near a burrow entrance. Burrowing owls exhibit high site fidelity, reusing burrows year after year (Rich 1984, Feeney 1992). A site should be assumed occupied if at least one burrowing owl has been observed occupying a burrow there within the last three years (Rich 1984).

CEQA Project Review

The measures included in this report are intended to provide a decision-making process that should be implemented whenever-there is potential for-an action or project to adversely affect burrowing owls. For projects subject to the California Environmental Quality Act (CEQA), the process begins by conducting surveys to determine if burrowing owls are foraging or nesting on or adjacent to the project site. If surveys confirm that the site is occupied habitat, mitigation measures to minimize impacts to burrowing owls, their burrows and foraging habitat should be incorporated into the CEQA document as enforceable conditions. The measures in this document are intended to conserve the species by protecting and maintaining viable' populations of the species throughout their range in California. This may often result in protecting and managing habitat for the species at sites away from rapidly urbanizing/developing areas. Projects and situations vary and mitigation measures should be adapted to fit specific circumstances.

Projects not subject to CEQA review may have to be handled separately since the legal authority the Department has with respect to burrowing owls in this type of situation is often limited. The burrowing owl is protected from "take" (Section 3503.5 of the Fish and Game Code) but unoccupied habitat is likely to be lost for activities not subject to CEQA.

Legal Status

The burrowing owl is a migratory species protected by international treaty under the Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. 703-711). The MBTA makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed in 50 C.F.R. Part 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 C.F.R. 21). Sections 3505, 3503.5, and 3800 of the California Department of Fish and Game Code prohibit the take, possession, or destruction of birds, their nests or eggs. To avoid violation of the take provisions of these laws generally requires that project-related disturbance at active nesting territories be reduced or eliminated during the nesting cycle (February 1 to August 31). Disturbance that causes nest abandonment and/or loss of reproductive effort (e.g., killing or abandonment of eggs or young) may be considered "take"' and is potentially punishable by fines and/or imprisonment.

The burrowing owl is a Species of Special Concern to California because of declines of suitable habitat and both localized and statewide population declines. Guidelines for the Implementation of the California Environmental Quality Act (CEQA) provide that a species be considered as endangered or "rare" regardless of appearance on a formal list for the purposes of the CEQA (Guidelines, Section 15380, subsections b and d). The CEQA requires a mandatory findings of significance if impacts to threatened or endangered species are likely to occur (Sections 21001 (c), 2103; Guidelines 15380, 15064, 15065). To be legally adequate, mitigation measures must be capable of "avoiding the impact altogether by not taking a certain action or parts of an action"; "minimizing impacts by limiting the degree or magnitude of the action and its implementation"; "rectifying the impact by repairing, rehabilitating or restoring the impacted environment"; "or reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action" (Guidelines, Section 15370). Avoidance or mitigation to reduce impacts to less than significant levels must be included in a project or the CEQA lead agency must make and justify findings of overriding considerations.

Impact Assessment

Habitat Assessment

The project site and a 150 meter (approximately 500 ft.) buffer (where possible and appropriate based on habitat) should be surveyed to assess the presence of burrowing owls and their habitat (Thomsen 1971, Martin 1973). If occupied habitat is detected on or adjacent to the site, measures to avoid, minimize, or mitigate the project's impacts to the species should be incorporated into the project, including burrow preconstruction surveys to ensure avoidance of direct take. It is also recommended that preconstruction surveys be conducted if the species was not detected but is likely to occur on the project site.

Burrowing Owl and Burrow Surveys

Burrowing owl and burrow surveys should be conducted during both the wintering and nesting seasons, unless the species is detected on the first survey. If possible, the winter survey should be conducted between December 1 and January 31 (when wintering owls are most likely to be present) and the nesting season survey should be conducted between April 15 and July 15 (the peak of the breeding season). Surveys conducted from two hours before sunset to one hour after, or from one hour before to two hours after sunrise, are also preferable.

Surveys should be conducted by walking suitable habitat on the entire project site and (where possible) in areas within 150 meters (approx. 500 ft.) of the project impact zone. The 150-meter buffer zone is surveyed to identify burrows and owls outside of the project area which may be impacted by factors -such as noise and vibration (heavy equipment, etc.) during project construction. Pedestrian survey transects should be spaced to allow 100 percent visual coverage of the ground surface. The distance between transect center lines should be no more than 30 meters (approx. 100 ft.) and should be reduced to account for differences in terrain, vegetation density, and ground surface visibility. To effectively survey large projects (100 acres or larger), two or more surveyors should be used to walk adjacent transects. To avoid impacts to owls from surveyors, owls and/or occupied burrows should be avoided by a minimum of 50 meters (approx. 160 ft.) wherever practical. Disturbance to occupied burrows should be avoided during all seasons.

Definition of Impacts

The following should be considered impacts to the species:

- Disturbance within 50 meters (approx. 160 ft.) Which may result in harassment of owls at occupied burrows;
- Destruction of natural and artificial burrows (culverts, concrete slabs and debris piles that provide shelter to burrowing owls); and
- Destruction and/or degradation of foraging habitat adjacent (within 100 m) of an occupied burrow(s).

Written Report

A report for the project should be prepared for the Department and copies should be submitted to the Regional contact and to the Wildlife Management Division Bird and Mammal Conservation Program. The report should include the following information:

- Date and time of visit(s) including name of the qualified biologist conducting surveys, weather and visibility conditions, and survey methodology;

- Description of the site including location, size, topography, vegetation communities, and animals observed during visit(s);

- Assessment of habitat suitability for burrowing owls;

- Map and photographs of the site;

- Results of transect surveys including a map showing the location of all burrow(s) (natural or artificial) and owl(s), including the numbers at each burrow if present and tracks, feathers, pellets, or other items (prey remains, animal scat);

- Behavior of owls during the surveys;

- Summary of both winter and nesting season surveys including any productivity information and a map showing territorial boundaries and home ranges; and

- Any historical information (Natural Diversity Database, Department regional files? Breeding Bird Survey data, American Birds records, Audubon Society, local bird club, other biologists, etc.) regarding the presence of burrowing owls on the site.

Mitigation

The objective of these measures is to avoid and minimize impacts to burrowing owls at a project site and preserve habitat that will support viable owls populations. If burrowing owls are detected using the project area, mitigation measures to minimize and offset the potential impacts should be included as enforceable measures during the CEQA process.

Mitigation actions should be carried out from September 1 to January 31 which is prior to the nesting season (Thomsen 1971, Zam 1974). Since the timing of nesting activity may vary with latitude and climatic conditions, this time frame should be adjusted accordingly. Preconstruction surveys of suitable habitat at the project site(s) and buffer zone(s) should be conducted within the 30 days prior to construction to ensure no additional, burrowing owls have established territories since the initial surveys. If ground disturbing activities are delayed or suspended for more than 30 days after the preconstruction survey, the site should be resurveyed.

Although the mitigation measures may be included as enforceable project conditions in the CEQA process, it may also be desirable to formalize them in a Memorandum of Understanding (MOU) between the Department and the project sponsor. An MOU is needed when lands (fee title or conservation easement) are being transferred to the Department.

Specific Mitigation Measures

1. Occupied burrows should not be disturbed during the nesting season (February 1 through August 3 1) unless a qualified biologist approved by the Department verifies through non-invasive methods that either: (1) the birds have not begun egg-laying and incubation; or (2) that juveniles from the occupied burrows are foraging independently and are capable of independent survival.

2. To offset the loss of foraging and burrow habitat on the project site, a minimum of 6.5 acres of foraging habitat (calculated on a 100 m {approx. 300 ft.} foraging radius around the burrow) per pair or unpaired resident bird, should be acquired and permanently protected. The protected lands should be adjacent to occupied burrowing owl habitat and at a location acceptable to the Department. *Protection of additional habitat acreage per pair or unpaired resident bird may be applicable in some instances.* The CBOC has also developed mitigation guidelines (CBOC 1993) that can be incorporated by CEQA lead agencies and which are consistent with this staff report.

3. When destruction of occupied burrows is unavoidable, existing unsuitable burrows should be enhanced (enlarged or cleared of debris) or new burrows created (by installing artificial burrows) at a ratio of 2:1 on the protected lands site. One example of an artificial burrow design is provided in Attachment A.

4. If owls must be moved away from the disturbance area, passive relocation techniques (as described below) should be used rather than trapping. At least one or more weeks will be necessary to accomplish this and allow the owls to acclimate to alternate burrows.

5. The project sponsor should provide funding for long-term management and monitoring of the protected lands. The monitoring plan should include success criteria, remedial measures, and an annual report to the Department.

Impact Avoidance

If avoidance is the preferred method of dealing with potential project impacts, then no disturbance should occur within 50 meters (approx. 160 ft.) of occupied burrows during the nonbreeding season of September 1 through January 31 or within 75 meters (approx. 250 ft.) during the breeding season of February 1 through August 31. Avoidance also requires that a minimum of 6.5 acres of foraging habitat be *permanently* preserved contiguous with occupied burrow sites for each pair of breeding burrowing owls (with or without dependent young) or single unpaired resident bird. The configuration of the protected habitat should be approved by the Department.

Reproductive Success of Burrowing Owls Using Artificial Nest Burrows in Southeastern Idaho

by Bruce Olenick

Artificial nest burrows were implanted in southeastern Idaho f'or burrowing owls in the spring of 1986. These artificial burrows consisted of a 12" x 12" x 8" wood nesting chamber with removable top and a 6 foot corrugated and perforated plastic drainage pipe 6 inches in diameter (Fig. 1). Earlier investigators claimed that artificial burrows must provide a natural dirt floor to allow burrowing owls to modify the nesting tunnel and chamber. Contrary to this, the artificial burrow introduced here does not allow owls to modify the entrance or tunnel. The inability to change the physical dimensions of the burrow tunnel does not seem to reflect the owls' breeding success or deter them from using this burrow design.

In 1936, 22 artificial burrows were inhabited. Thirteen nesting attempts yielded an average clutch size of 8.3 eggs per breeding pair. Eight nests successfully hatched at least 1 nestling. In these nests, *67 of 75* eggs hatched (59.3%) and an estimated 61 nestlings (91.0%) fledged. An analysis of the egg laying and incubation periods showed that incubation commenced well after egg laying bega. Average clutch size at the start of incubation was 5.6 eggs. Most eggs tended to hatch synchronously in all successful nests.

Although the initial cost of constructing this burrow design may be slightly higher than a burrow consisting entirely of wood, the plastic pipe burrow offers the following advantages: (1) it lasts several field seasons without rotting or collapsing; (2) it may prevent or retard predation; (3) construction time is minimal; (4) it is easy to transport, especially over long distances; and (5) the flexible tunnel simplifies installation. The use of this artificial nest burrow design was highly successful and may prove to be a great resource technique for future management of this species.

For additional information on constructing this artificial nest burrow, contact Bruce Olenick, Department of Biology, Idaho State University, Pocatello, ID 83209.

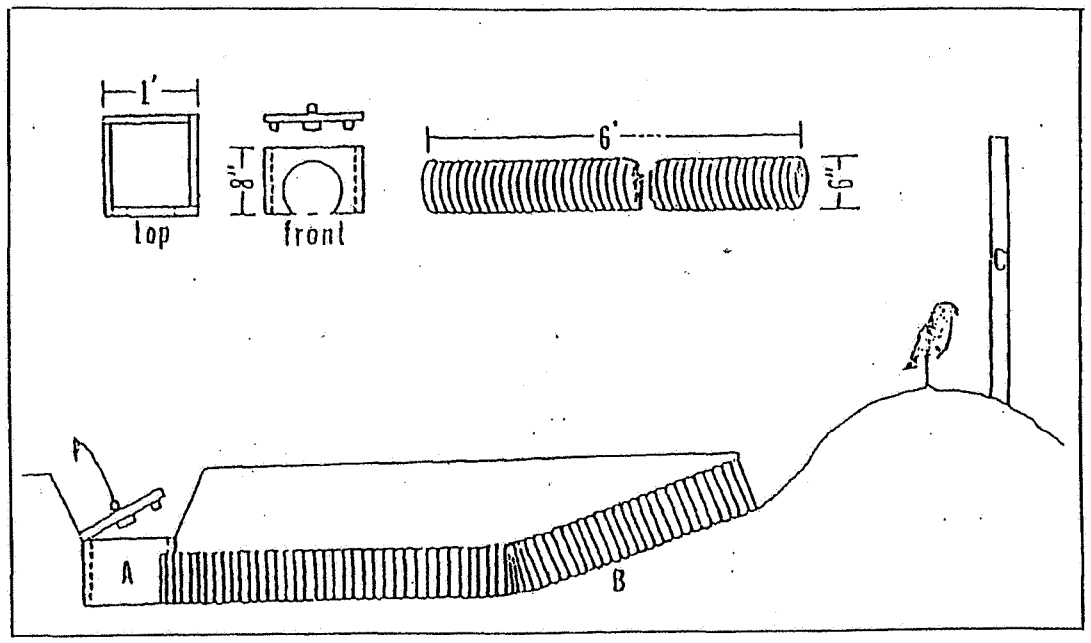

fig. 1 Artificial nest burrow design for burrowing owls Entire unit (including nest chamber) is buried 12" -- 18" below ground for maintaining thermal stability of the nest chamber. A= nest chamber, B = plastic pipe. C = perch.

ATTACHMENT A

APPENDIX G

SUGGESTED STEPS FOR INITIATING AN ACTIVE RELOCATION PROGRAM

APPENDIX G

SUGGESTED STEPS FOR INITIATING AN ACTIVE RELOCATION PROGRAM

1. **Reintroduction Site Selection.** Selection of an appropriate location for the reintroduction site is critical to the success of the program. Several habitat evaluation factors need to be taken into account when choosing a site. The following criteria should be used to determine "suitability" of any considered site. Properties containing any combination of these criteria can be considered suitable. The more criteria a property has; the higher quality or more suitable the habitat is.

   - Short, native or non-native grassland (prairies, pastures, meadows, and some agricultural fields);
   - Flat terrain;
   - Ground squirrel burrow complexes (or artificial irrigation-type pipes), particularly mounds;
   - Minimum raptor perches (tall trees, utility poles, etc.);
   - Open, bare areas; and
   - Berms or creek banks.

2. **Assessment of Prey Species.** A general assessment of available prey species should be conducted of any site considered for the reintroduction program. If available prey is low due to previous agricultural activities (pesticides, disking, etc.), inoculation of the site with suitable prey species and ground squirrel may be needed.

3. **Construction of Enclosures.** An enclosure will need to be created for each pair of owls to be relocated. Each enclosure should be about 20 feet x 20 feet and approximately 6 to 8 feet high. Metal poles and netting is normally used to construct enclosures. Enclosure sites should be placed in areas with active or inactive squirrel burrows and should be approximately 100 feet apart from each other if more than one pair are to be relocated at one time. One artificial burrow per enclosure will also be constructed to avoid potential competition between squirrels and owls. Estimated cost of each enclosure is $1,000. An enclosure remains in place until the pair of burrowing owls have acclimated to the new site, usually 1-4 months and can be reused for subsequent relocation efforts.

4. **Trapping of Burrowing Owls.** The following are general considerations for sites to be trapped for relocation purposes:

   a) Occupied burrows should not be disturbed during the nesting season, from February 15 through August 31, or until it is determined by CDFG that the birds are not nesting or rearing young. This is usually verified by use of a fiber-optic camera by a qualified,

approved biologist. However, it is recommended that owls be moved between December 15 and February 28.

b) Active burrows will be monitored by a qualified biologist for one week prior to any relocation activity to ensure all young have fledged and/or the nest is not active. At this time of year, adults are within the courtship period. Females may be preparing to lay eggs, thus fidelity to the new site will be stronger when both male and female are moved to the new site.

c) Once it has been established that no young are within the nest, the owls will be trapped using a noose carpet or bow-net by a qualified permitted biologist.

d) The captured owls will be banded using USFWS metal bands *and* colored bands then transported in a small padded kennel (such as a cat kennel) with windows covered.

e) Once owls have been trapped and relocated to the reintroduction enclosures, existing burrows will be systematically collapsed.

5. **Biological Monitoring of Relocated Burrowing Owls.** Biological monitoring of burrowing owls will be conducted on a daily basis during the breeding season and while the owls are in captivity. Supplemental feeding will be conducted daily (two mice and five crickets per day per bird) while owls are within the enclosure. Once released, food will be gradually diminished to zero over time. Estimated cost for food is $5/owl/day, as well as monitoring (approximately $100/day). It is estimated that the owls will be in the enclosures for a minimum of 6 weeks and up to a maximum of 4 months.

6. **Release from Enclosures.** Once owls have laid eggs, enclosures will be taken down. If pairs have not laid eggs, it is recommended that enclosures and supplemental feeding be maintained until the owls have been in captivity for 1-4 months, depending on behavior of the owls and the status of the development project.

7. **Habitat Maintenance.** A Relocation Area will need to be inspected bi-monthly to ensure the site is free of vandalism, that the habitat is maintained suitable and to monitor the health and success of the owls.

8. **Relocation Costs.** Total estimated cost to actively relocate one pair of owls is approximately $15,000. Expenses are the responsibility of the applicant or developer.

9. **Annual Reporting.** An annual report will be submitted to CDFG, USFWS and the City of Chino each year that owls are relocated. Reports will include the following data:

- Number of owls relocated, band numbers, and color bands;
- Location from where owls were taken and associated project name;
- Dates owls were relocated;
- Nesting success data (nesting attempts, eggs laid, eggs hatched, chicks fledged);
- Predation and types of predators seen onsite;
- Use of artificial burrows versus squirrel burrows; and
- Any other pertinent data needed to evaluate success of the program.

APPENDIX H

MITIGATION FEE ESTABLISHMENT AND INCLUDED COSTS

BIOLOGICAL RESOURCES BASELINE CONDITIONS REPORT FOR SUBAREA 2 OF THE CHINO VALLEY DAIRY PRESERVE

Prepared for:

City of Chino
Community Development Department
13220 Central Avenue
Chino, CA

Prepared by:

Michael Brandman Associates
15901 Red Hill Avenue, Suite 200
Costa Mesa, CA 92626

March 2000

BIOLOGICAL RESOURCES

1.0 INTRODUCTION

This report describes the existing biological resources identified by Michael Brandman Associates (MBA) in February and March 2000. This report includes existing biological character of the site in terms of plant communities, flora, wildlife and wildlife habitats, provides an assessment of the sensitive resources found on the site, and analyzes the biological significance of the site in relation to federal, state, and local laws and policies.

The Corona Sub Area 2 site is located in the along the southwestern border of the County of San Bernardino. The site begins at the intersection of Merril Avenue and Carpenter Street. The boundary continues south along Carpenter Street to the intersection of Remington Street. Here the boundary turns east along Remington Street to the intersection of Remington Street and the County of San Bernardino line. The boundary turns and follows the County line southwest. A small turn in the County line soon redirects the boundary due south. As the County line crosses Schleisman Road, the County line is represented by Hellman Avenue. Continuing south beyond the intersection of River Road, the Hellman Avenue becomes an unimproved dirt road. The dirt road turns sharply west and passes the Orange County Water District Field Office, still representing the County line. Following this line of sight due west across the Prado Basin and adjacent undeveloped areas, the County line meets State Highway 71. At this point the site boundary follows the alignment of State Highway 71 northwest. The site boundary turns northeast and follows State Highway 83/Euclid Avenue at the intersection of State Highway 71 and State Highway 83/Euclid Avenue. The boundary follows the general northerly direction of Euclid Avenue until the intersection of Euclid Avenue and Kimball Avenue, where the boundary turns to the east along Kimball Avenue. At the intersection of Kimbell Avenue and Cucamonga Avenue, the boundary turns north along Cucamonga Avenue, turns east in the airport, and finally turns north along Grove Avenue alignment. When Grove Avenue and Merril Avenue intersect, the boundary turns east and follows Merril Avenue back the original intersection of Merril Avenue and Carpenter Street.

The site is located within the County of San Bernardino and is proposed to be annexed into the City of Chino (Exhibit 1). The site is 5,400 acres in size and would be developed as a residential communities. The site is depicted on the U.S. Geological Survey (USGS) Prado Dam and Corona North Quadrangles, California, Township 2S, Range 7W, sections 21, 22, 27, 28, 31, 32, and 33, Township 3S, Range 7W, sections 4, 5, 6, 7, 8, and 9 (both quadrangles dated 1966 and photo revised in 1981)(Exhibit 2). General land uses in the area include dairy lands, residential, agricultural, flood control, and natural areas.

Documents used in preparing this section include:

2.0 ENVIRONMENTAL SETTING

TOPOGRAPHY AND SOILS

The Chino Sub Area 2 site is a 5,400 acre parcel in the unincorporated portion of southwestern San Bernardino County, California. The southwestern portion of the site is occupied by Prado Regional Park. The park includes the areas surrounding Prado Lake, Chino Creek, and the Prado Recreational Dog Training Facility. The area immediately surrounding Prado Lake is vegetated with ornamental trees. However, raptor and water fowl utilization is prevalent throughout the park. South and

southeast of the Prado Lake area are fallow fields. These fallow fields may provide foraging habitat for raptors and habitat for general wildlife species. The spillway for Prado Lake (contained behind two dams) drains south-southeast into Chino Creek near the southern boundary of the site. Before entering the site at the western boundary, Cypress Channel merges into Chino Creek. Chino Creek flows under State Highway 83/Euclid Avenue southeast and continues beyond the southern boundary of the site. This drainage is generally found cutting across the southwestern corner of the site. Due south of Prado Lake, beyond Chino Creek, is the Prado Recreation Dog Training Facility. This facility includes three small ponds. The park continues from the Prado Lake vicinity southwest until the alignment of Mill Creek to the east. The northern edge of Prado Regional Park is lined by dairy related land uses.

Along the western site boundary, northeast of the intersection of Hellman Avenue and Corona Road, the Cucamonga Creek Flood Control Channel enters the site. Here at the eastern border of the site, the drainage converts from a concrete lined drainage to natural bottom. Also, the drainage is referred to as Mill Creek from this point south. The drainage flows south-southeast and enters into Orange County Water District's denitrification ponds just beyond the southern boundary of the Chino Sub Area 2 boundary. Mill Creek is generally found cutting across the southeastern corner of the Chino Sub Area 2 site. Chino Creek and Mill Creek form a general "V" shape, converging in Prado Basin to the south of the Chino Sub Area 2 site. Both Mill Creek and Chino Creek are lined with riparian habitats.

Between Mill Creek and the Chino Sub Area 2 site boundary to the southeast lies dairy and agricultural lands. The northern half of this area is occupied by dairy lands and one plant nursery. The impacts within the dairy areas were extremely high. Drainages in this area were completely impacted, mostly with a series of detention basins. The southern half of this area was utilized for agricultural purposes. One small recreational paint gun facility is operating along McCarty Road, immediately east of Mill Creek. The southern site boundary is identified by the Orange County Water District's field office and Raugans's shooting range. Northeast of the shooting facility on the western side of Mill Creek is an old olive orchard. Recent fires have burned portions of the orchard and the riparian corridor lining Mill Creek.

At the center of the Chino Sub Area 2 site is the California Institute for Women. The remaining lands within the Chino Sub Area 2 site, north of the Prado Regional Park, are utilized for dairies and dairy associated uses. The dairies typically include a series of shelters for the cattle, milking stations, processing buildings, and other dairy related facilities. The ground cover in these areas is typically comprised of barren soil, with excessive amounts of cattle waste. Vegetation within the dairy compounds tends to be non-native ornamental plants and grazing fields. Some remnant Eucalyptus windrows still occur within the dairies. The topography within the dairy areas is generally flat with a general south oriented downward slope towards Prado Basin to the south. Most of the small drainages have been heavily impacted and in most cases is being currently disturbed and channelized. The habitats in this area exhibit poor conditions for most wildlife and the extremely high concentration of cattle waste has compromised the health of the stock ponds, detention basins, and natural low areas in the region. Most of the standing water within the dairy areas was not being utilized by water fowl. Though the site survey were early for the spring migratory season, resident birds would have been expected in higher numbers assuming these aquatic sources were of higher quality. The southern boundary of the dairy lands generally follows the northern boundary of the Prado Regional Park, skirting east to Mill Creek and then occupying the areas east of Mill Creek south to the site boundary.

LITERATURE REVIEW RESULTS AND ENVIRONMENTAL POLICY

Prior to initial field investigations, MBA ecologists reviewed the results of an extensive literature review to determine the potential resources that may be encountered on the subject property. The literature review began with a review of relevant literature on the biological resources of the study area and the surrounding vicinity. The CDFG's Natural Diversity Database and California Native Plant Society's Electronic Inventory of Rare and Endangered Vascular Plants of California were reviewed for all pertinent information regarding the localities of known observations of sensitive resources in the vicinity of the subject property. A list of "potential" species was derived from those species identified by the CNDDB, CNPS Electronic Inventory, recommendations of regulatory agencies, and the experience of biologists/ecologists conducting the field investigations. The federal register listings, protocols, and species data provided by the USFWS were reviewed in conjunction with anticipated federally listed species potentially occurring within the vicinity. The CDFG documentation on state sensitive species was also reviewed.

Sensitive biological resources are habitats or individual species that have special recognition by federal, state, or local conservation agencies and organizations as endangered, threatened, or rare. The CDFG, the USFWS, and special groups like the CNPS maintain watch lists of such resources. All resources utilized in this study are listed in Section 6, References.

Federal Protection and Classifications

Federal Endangered Species Act (FESA)

The Federal Endangered Species Act of 1973 defines an endangered species as "any species which is in danger of extinction throughout all or a significant portion of its range ..." Threatened species are defined as "any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range." Under provisions of Section 9(a)(1)(B) of the FESA it is unlawful to "take" any listed species. "Take" is defined as follows in Section 3(18) of the Act: "... harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Further, the USFWS, through regulation, has interpreted the terms "harm" and "harass" to include certain types of habitat modification as forms of "take". These interpretations, however, are generally considered and applied on a case-by-case basis and often vary from species to species. In a case where a property owner seeks permission from a federal agency for an action which could affect a federally-listed plant and animal species, the property owner and agency are required to consult with USFWS. Section 9(a)(2)(b) of the federal Endangered Species Act addresses the protections afforded to listed plants.

For purposes of this assessment the following acronyms are used for federal status species:

FE - Federally listed as Endangered
FT - Federally listed as Threatened
FPE - Federally proposed for listing as Endangered
FPT - Federally proposed for listing as Threatened
FPD - Federally proposed for delisting
FC - Federal candidate species
FSC - Federal species of concern

Clean Water Act (CWA)

Pursuant to Section 404 of the Clean Water Act, the United States Army Corps of Engineers (USACE) regulates the discharge of dredged and/or fill material into waters of the United States. The term "waters of the United States" is defined at 33 CFR Part 328 as: (1) all navigable waters (including all waters subject to the ebb and flow of the tide); (2) all interstate waters and wetlands; (3) all other waters, such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sand flats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce; (4) all impoundments of waters mentioned above; (5) all tributaries to waters mentioned above; (6) the territorial seas; and (7) all wetlands adjacent to waters mentioned above.

In the absence of wetlands, the limits of USACE jurisdiction in non-tidal waters, such as rivers, lakes and intermittent streams, extend to the ordinary high water mark (OHWM), which is defined at 33 CFR 328.3(e) as:

... that line on the shore established by the fluctuation of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

Typically in Southern California, the OHWM is indicated by the presence of an incised streambed with defined bank shelving. However, in court cases the interpretation of the lateral extent of the OHWM, various criteria have been used, including vegetation and soil characteristics.

If the water of the United States consists only of wetlands, the limits of USACE jurisdiction extends to the limit of the wetlands which is defined at 33 CFR 328.3 (b) as:

... those areas that are inundated, or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas.

The definition of wetlands has increasingly been interpreted by the USACE to extend beyond the original concept of wetlands as swamps, marshes, and bogs to encompass much drier areas, including some hardwood forests, fields, and cultivated farmland, that may be saturated with rain water for short periods of time during the course of a year.

Migratory Bird Treaty Act (MBTA)

The Migratory Bird Treaty Act protects all common wild birds found in the United States except the house sparrow, starling, feral pigeon, and resident game birds such as pheasant, grouse, quail, and wild turkeys. Resident game birds are managed separately by each State. A reference list of migratory game birds is found in Title 50, Code of Federal Regulations, Part 10. The Bald Eagle Protection Act provides further protection to all Bald and Golden eagles. The Endangered Species Act further protects endangered species like the Peregrine falcon, the Northern spotted owl, and the Bald Eagle.

The Migratory Bird Treaty Act makes it unlawful for anyone to kill, capture, collect, possess, buy, sell, trade, ship, import, or export any migratory bird, including feathers, parts, nests, or

eggs. The Bald Eagle Protection Act prohibits all commercial activities and some non-commercial activities involving Bald or Golden eagles, including their feathers or parts. The Endangered Species Act makes it illegal to sell, harm, harass, possess or remove protected animals from the wild.

State of California Protection and Classifications

California Endangered Species Act (CESA)

California's Endangered Species Act defines an endangered species as "...a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant which is in serious danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, or disease." The State defines a threatened species as "... a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that, although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future in the absence of the special protection and management efforts required by this chapter. Any animal determined by the commission as rare on or before January 1, 1985 is a threatened species." Candidate species are defined as "... a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that the commission has formally noticed as being under review by the department for addition to either the list of endangered species or the list of threatened species, or a species for which the commission has published a notice of proposed regulation to add the species to either list." Candidate species may be afforded temporary protection as though they were already listed as threatened or endangered at the discretion of the Fish and Game Commission. Unlike the federal ESA, CESA does not include listing provisions for invertebrate species.

Article 3, Sections 2080 through 2085, of the California Endangered Species Act addresses the taking of threatened or endangered species by stating "No person shall import into this state, export out of this state, or take, possess, purchase, or sell within this state, any species, or any part or product thereof, that the commission determines to be an endangered species or a threatened species, or attempt any of those acts, except as otherwise provided..." Under the California Endangered Species Act, "take" is defined as " ...hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." Exceptions authorized by the state to allow "take" require "... permits or memorandums of understanding..." and can be authorized for "... endangered species, threatened species, or candidate species for Scientific, educational, or management purposes." Sections 1901 and 1913 of the California Fish and Game Code provide that notification is required prior to disturbance.

Additionally, some sensitive mammals and birds are protected by the state as Fully Protected Mammals or Fully Protected Birds, as described in the California Fish and Game Code, Sections 4700 and 3511, respectively. California Species of Special Concern ("special" animals and plants) listings include special status species, including all state and federal protected and candidate taxa, Bureau of Land Management (BLM) and United States Forest Service (USFS) sensitive species, species considered to be declining or rare by the California Native Plant Society or National Audubon Society, and a selection of species which are considered to be under population stress but are not formally proposed for listing. This list is primarily a working document for the CDFG's CNDDB project. Informally listed taxa are not protected per se, but warrant consideration in the preparation of biotic assessments. For some species, the CNDDB is only concerned with specific portions of the life history, such as roosts, rookeries, or nest sites.

SE - State listed as Endangered
ST - State listed as Threatened
SCE - State candidate for listing as Endangered
SCT - State candidate for listing as Threatened
FP - State Fully Protected
P - State Protected
CSC - California Special Concern Species

Special Interest Groups Protection and Classifications

California Native Plant Society (CNPS)

The California Native Plant Society is a California resource conservation organization that has developed an inventory of California's sensitive plant species (Skinner and Pavlik 1994). This inventory is the summary of information on the distribution, rarity, and endangerment of California's vascular plants. This rare plant inventory is comprised of four lists.

1A- Presumed extinct in California
1B- Rare or Endangered in California and elsewhere
2- Rare or Endangered in California, more common elsewhere
3- Plants for which we need more information – review list
4- Plants of limited distribution watch list

Resource Agency Policies and Regulations

Federal authorization of incidental take of a listed species by a private individual or private entity is granted in one of the following ways:

- ESA Section 7 Permit: Applies to federal agencies undertaking an action (i.e., permit or license issuance or federal funding) that may affect an endangered species or a proposed species (or habitat).[4] Federal agencies are obligated to consult with the USFWS regarding proposed actions before issuing permits. Consultation between the "action agency" and USFWS may be formal or informal if it is determined that the agency action is not likely to adversely affect listed or proposed species or critical habitat. Private applicants may participate in the process, in accordance with USFWS regulations.
- ESA Section 10(a) Permit: Applies if project implementation is anticipated to result in incidental take (i.e., inadvertent and incidental to otherwise lawful activities) of federally-listed endangered and threatened species by non-federal entities. As issuance of an incidental take permit is a federal action subject to the National Environmental Policy Act (NEPA), a Habitat Conservation Plan (HCP) and accompanying NEPA documentation (Environmental Assessment and Environmental Impact Statement or Finding of No Significant Impact) must be prepared and submitted to USFWS for approval prior to permit issuance. In Riverside County, a countywide HCP and "blanket" 10(a) permit already exist for the incidental take of the Stephens' kangaroo rat (Dipodomys stephensi). Therefore, incidental take requires only habitat acreage-based fee payment to the Riverside County Habitat Conservation Authority, the permit-issuing authority.

[4] *16 U.S.C. & 1536 (a)(2); 50 CFR & 402.14.*

- ESA Special Rule, Section 4(d): USFWS may initiate a special rule to allow incidental take of a threatened species in conjunction with a state-initiated plan (i.e., NCCP, MSHCP). Although a Multi-Species Habitat Conservation Plan (MSHCP) exists for western Riverside County, focused on the Stephens' kangaroo rat, and thus a Section 10 (a)(1)(b) permit, the County is nonetheless subject to Section 10 of the ESA with regard to the California gnatcatcher.
- CDFG Section 2081.5: CDFG is authorized to issue a permit or Memorandum of Understanding or approve or enter into an NCCP, HCP, Habitat Management Plan (HMP) or amendment thereto if the conditions of Section 2081 are met. *Such conditions include the following:*
  - *The take is incidental to an otherwise lawful activity.*
  - *The impacts of the take shall be minimized and fully mitigated. The measure required to meet this obligation shall be roughly proportional in extent to the impact of the authorized taking on the species.*
  - *The permit is consistent with any regulations adopted pursuant to Section 2112 and 2114.*

FIELD RECONNAISSANCE RESULTS

Habitat Classification and Natural Community Mapping

Natural communities identified as occurring on the site included native riparian woodlands, non-native pastures and fields, and a variety of disturbance related designations. The acreage of each community onsite is located in Table 1. Exhibit 3 illustrates the location of the natural communities on the site. These communities are grouped into designations of high, medium, and low sensitivity areas as shown in Exhibit 4.

TABLE 1
NATURAL COMMUNITIES ON THE CHINO SUB AREA 2 SITE, SAN BERNARDINO COUNTY, CALIFORNIA

Natural Community	Area (acres)
Fallow	516.102
Agriculture	570.850
Dairy	1441.216
Developed	472.403
Disturbed	43.210
Equestrian	52.240
Detention Basins/Drainages	88.791
Marsh	23.565
Open Water	63.418
Pasture	1687.776
Riparian Woodland	549.431
Windrows	24.231
Total	**5533.233**

High Sensitivity Habitats

Riparian Woodland (NA) (acres)

The riparian woodland contains dense, broadleaved, winter-deciduous riparian thickets dominated by several willow species and is associated with seasonally flooded or saturated stream and river corridors. It typically forms thickets in riparian zones along alluvial fan stream channels, adjacent sandy or gravelly floodplains, and low stream terraces in southern California. The riparian woodland is an early seral community to southern cottonwood-willow riparian forest. Most stands are too dense to allow much under story development. Characteristic species of this community include black willow (*Salix gooddingii*), Arroyo willow (*Salix lasiolepis*), red willow (*Salix laevigata*), and mulefat (*Bacharis salicifolia*).

Detention Basins/Drainages (NA) (acres)

Detention basins were identified throughout the site. These basins varied in quality based on the dairy related impacts. The majority of the basins are created to control dairy activity run-off. At the lower elevation portions of the individual properties, the owners create small detention basins. These basins accumulate the surface flow from the dairy after heavy rains. Consequentially, the water quality of the basins reflects the high concentration of cattle in the area. In some cases, these basins have been placed in what may have historically been drainages and areas potentially regulated by the United States Army Corps of Engineers and California Department of Fish and Game. One small detention basin occurs in the southern portion of the site. This basin is a result of pumped water and does provide some use to waterfowl and amphibian species.

Open Water (NA) (acres)

These habitats include the Prado Lakes. This habitat provides foraging habitat for raptors and other wildlife species.

Marsh (NA) (acres)

The marsh habitats occur adjacent to the riparian corridors of Chino and Mill Creeks. These habitats potentially host a variety of special status species including waterfowl.

Medium Sensitivity Habitats

Fallow (NA) (acres)

Fallow fields cover the southwestern portion of the site. These fields appear to be fallow agricultural fields. Some fields appear to have recent discing activities, most likely for fire prevention. These habitats are likely used as foraging habitat by local raptor species.

Windrows (NA) (acres)

Windrows are typically a result of historic agricultural activities. The windrows are dominated by blue gum (*Eucalyptus globoratum*). These communities though comprised of non-native species, typically provide an element of historical significance. Eucalyptus windrows on the site are located both within the dairy preserve and the riparian woodland designations. These habitats provide nesting and foraging perches for bird and raptor species.

Low Sensitivity Habitats

Agricultural (NA) (acres)

The agricultural fields onsite are composed of domestic grain production. These areas are comprised of nearly homogenous stands of domestic grains. However, many □weedy□ species have invaded these areas. Weedy species typically found throughout the fields included wild oat (*Avena* sp.), ripgut brome (*Bromus diandrus*), red brome (*Bromus madritensis* ssp. *rubens*), soft chess (*Bromus hordeaceus*), black mustard (*Brassica nigra*), red-stemmed filaree (*Erodium cicutarium*), and cheeseweed (*Malva parviflora*). Two areas of rock outcropping are included in the acreage of the agricultural areas.

Dairy (NA) (acres)

The dairy areas include many different characteristics. These areas are extremely impacted. Native vegetation does not occur within these areas. The only vegetation within the dairy lands is planted ornamental landscaping, and grazing fields of introduced opportunistic weedy species. Bird activity is relatively high within these areas, but bird diversity however is quite low. Bird species occurring within the dairies are dominated by brewer's blackbird (*Euphagus cyanocephalus*), European starling (*Sturnus vulgaris*), and brown-headed cowbirds (*Molothrus ater*), the later two are introduced and undesirable species.

Developed (NA) (acres)

Areas designated as developed refer to permanent structures or commercial utilizations. Within the study area these uses include the California Institute for Women, Prado Regional Park, Prado Recreational Dog Training Facility, Chino Airport, and commercial nurseries.

Disturbed (NA) (acres)

Two areas are designated as disturbed a commercial paint gun facility and a heavily disturbed parcel southeast of Chino Airport.

Equestrian (NA) (acres)

Two equestrian facilities occur within the Chino Sub Area 2 site. These facilities appear to produce lower impacts on natural resources than the dairy lands. The equestrian facilities are clean and well maintained. These areas are devoid of natural vegetation communities. Most areas have clean soil surfaces due to the constant impact of the horses and pedestrian traffic. These area provide little habitat for wildlife and are of low environmental quality.

Pasture (NA) (acres)

Open pasture areas occur throughout the dairy lands. These pastures are comprised mostly of opportunistic weedy species. Dominant genera in non-native grassland include brome and chess (*Bromus* sp.), wild oat *(Avena sp.),* fescue (*Vulpia* sp.), and barley (*Hordeum* sp.). Many species of native forbs and bulbs, as well as naturalized annual forbs, are also found in non-native grassland. Floristic richness is affected to a high degree by land use activity, such as intensity and duration of grazing, fires, or other disturbances. Heavily-grazed grasslands, in particular, exhibit reduced species richness. Common forbs include common fiddle neck (*Amsinckia menziesii*), cryptantha (*Cryptantha*

sp.), red-stemmed filaree (*Erodium cicutarium*), mustard (*Brassica* sp.), tocalote (*Centaurea melitensis*), fascicled tarweed (*Hemizonia fasciculata*), cardoon (*Cynara cardunculus*), milk thistle (*Silybum marianum*), peppergrass (*Lepidium* sp.), dove weed (*Eremocarpus setigerus*), and California bur clover (*Medicago polymorpha*).

GENERAL FLORAL RESULTS

The plant communities form the basis of the wildlife habitats of the site. They provide the primary plant productivity upon which wildlife depends, along with nesting and denning sites, escape cover and protection from adverse weather. Many of the wildlife species that occur in the area use several of the plant communities to obtain all their life history needs. In general, more complex plant communities (with more layers of vegetation and more species), have more niches for wildlife and so provide higher value wildlife habitat than less complex vegetation communities. More complex plant communities usually support more animal species than less complex communities. Although simple plant communities may support few wildlife species, they may provide habitat for large numbers of those few species.

SENSITIVE FLORAL RESULTS

Sensitive plants include those listed, or candidates for listing by USFWS, CDFG, and CNPS (particularly list 1A, 1B, and 2). Several sensitive plant species were reported in the CNDDB from the vicinity. A discussion of each sensitive species recognized by the CNDDB and MBA as potentially present on the property is presented below.

Intermediate Mariposa Lily (*Calochortus weedii* var. *intermedius*) FSC, CNPS List 1B. Intermediate mariposa lily is a perennial herb generally associated with coastal sage scrub, chaparral, and grasslands.

many-stemmed dudleya (*Dudleya multicaulis*) FSC, CNPS List 1B. Many-stemmed dudleya is a succulent perennial herb generally associated with clay soils in chaparral, grasslands, and coastal sage scrub. This plant blooms between May and July.

Santa Ana River woollystar (*Eriastrum densifolium ssp. sanctorum*) FE, SE, CNPS List 1B. The Santa Ana River woollystar is an erect, many branched, bright blue flowered, perennial herb. It is found within the Santa Ana River drainage on sandy soils of river floodplains and terraced alluvial deposits.

Coulter's saltbrush (*Atriplex coulteri*) CNPS List 1B. Coulter's saltbrush is a perennial herb, spreading, leafy, and branched 3 feet high. This plant is found on alkaline soil in grassland and coastal sage scrub. The saltbrush blooms between March and October.

GENERAL FAUNAL RESULTS

The natural communities discussed above provide wildlife habitat. While a few wildlife species are entirely dependent on a single natural community, the entire mosaic of all the natural communities within the study area and adjoining areas constitutes a functional ecosystem for a variety of wildlife species, both within the study area and as part of the regional ecosystem. Following are discussions of wildlife populations on the property, segregated by taxonomic group. Representative examples of each taxonomic group either observed or expected on the property are provided. Wildlife species actually observed, as well as those expected to occur, within the study area are indicated in Appendix

A, Floral and Faunal Compendia. Sensitive wildlife species occurring or potentially occurring within the area are discussed in Section 3.3.5, Sensitive Faunal Results.

Invertebrates

General surveys for invertebrate species were performed. Butterfly and other insect activity was lower than anticipated. All invertebrate species observed and identified were recorded and are included in Appendix B, Floral and Faunal Compendia. Sensitive invertebrate species occurring or potentially occurring on the property are discussed in Section 3.3.5, Sensitive Faunal Results.

Amphibians

The potential presence of amphibians varies greatly between habitats within the study area. Terrestrial species may or may not require standing water for reproduction. Terrestrial species avoid desiccation by burrowing underground; within crevices in trees, rocks, and logs; and under stones and surface litter during the day and dry seasons. Due to their secretive nature, terrestrial amphibians are rarely observed, but may be quite abundant if conditions are favorable. Aquatic amphibians are dependent on standing or flowing water for reproduction. Such habitats include fresh water marshes and open water (reservoirs, permanent and temporary pools and ponds, and perennial streams). Many aquatic amphibians will utilize vernal pools as nesting sites. These pools are temporary in duration and form following winter and spring rains common to southern California. The property has the potential to support a variety of amphibians in the moister woodland areas and canyon bottoms. All amphibian species observed and identified were recorded and are included in Appendix B, Floral and Faunal Compendia. Sensitive amphibian species occurring or potentially occurring on the property are discussed in Section 3.3.5, Sensitive Faunal Results.

Reptiles

Reptilian diversity and abundance typically varies with habitat type and character. Some species prefer only one or two natural communities; however, most will forage in a variety of communities. A number of reptile species prefer open habitats that allow free movement and high visibility. Most species occurring in open habitats rely on the presence of small mammal burrows for cover and escape from predators and extreme weather.

The property has many essential reptilian habitat characteristics and possesses the potential to support a wide variety of species. All reptile species observed, as well as those expected to occur on the property, are included in Appendix B, Floral and Faunal Compendia. Sensitive reptile species occurring or potentially occurring on the property are discussed in Section 3.3.5, Sensitive Faunal Results.

Avian

The scrub land, woodland, and riparian habitats on the property provide foraging and cover habitat for year-round residents, seasonal residents, and migrating song birds. The overall condition of these communities on the property is good and mostly undisturbed. In addition, there are several canyons and washes within and adjacent to the property that can provide a steady water supply for birds. The combination of these resources as well as the confluence of many community types provides for a high diversity of bird species. All avian species observed, as well as those expected to occur on the property, are included in Appendix B, Floral and Faunal Compendia. Sensitive bird species occurring or potentially occurring on the property are discussed in Section 3.3.5, Sensitive Faunal Results.

Much of the habitat within the property provides optimal foraging opportunities and breeding areas for raptors. Trees found throughout the property provide perches for foraging over the woodland, chaparral, and coastal sage scrub natural communities. The various natural communities on the property provide excellent habitat for many small mammals resulting in a potentially large rodent population. Collectively, the abundance of prey and the availability of both perches and nesting sites would suggest that the property is being used by a variety of raptor species. All raptor species observed, as well as those expected to occur on the property, are included in Appendix B, Floral and Faunal Compendia. Sensitive raptor species occurring or potentially occurring within the area are discussed in Section 3.3.5, Sensitive Faunal Results.

Mammals

The diversity of habitats on the property is anticipated to support a variety of mammals. Mammal presences was deduced by diagnostic signs (track, scat, burrows, etc.). All mammals observed on the property, as well as those expected to occur, are listed in Appendix B, Floral and Faunal Compendia. Sensitive mammal species occurring or potentially occurring within the area are discussed in Section 3.3.5, Sensitive Faunal Results.

SENSITIVE FAUNAL RESULTS

Sensitive wildlife includes those listed, or candidates for listing by USFWS and CDFG. Several sensitive wildlife species were reported in the CNDDB from the vicinity. A discussion of each sensitive species recognized by the CNDDB and MBA as potentially present on the property is presented below.

Endangered and Threatened Species

Delhi sands flower-loving fly (*Rhaphiomidas terminatus abdominalis*) FE. The Delhi Sands flower-loving fly is endemic to the Colton Dunes (Delhi series soils) in areas that contain suitable conditions for the subterranean early stages, adult nectar sources, and adult feeding, breeding, and perching areas. Soil and climatic conditions, and other ecological and physical factors contribute to the maintenance of open sand areas within the species' range. Urban development, agricultural conversion, sand mining, invasion by exotic species, dumping of cow manure and trash have caused significant loss and modification of the species' habitat. Other threats include off-road vehicles and collecting.

Several correlations have been noted between the fly and vegetation within its habitat, as follows: 1) three indicator plant species are usually present in occupied Delhi Sands flower-loving fly habitat: California buckwheat (*Eriogonum fasiculatum*), telegraphweed (*Heterotheca grandiflora*), and California croton (*Croton californicus*). The plants may be present in low density, as exemplified by only three buckwheat plants on two occupied habitat patches. 2) Adults do not appear to use areas of dense vegetation, either of buckwheat or where annual grasses provide more than 50 percent cover. 3) Sightings of adults are more likely in relatively undisturbed habitats, as indicated by the presence of native annuals and perennials, including *Eriastrum sapphmrinum*, *Opuntia parryi*, two annual buckwheats, and a suite of other native plant species and/or its habitat.

Quino checkerspot butterfly (*Euphydryas editha quino*) FE. The Quino checkerspot's current known distribution is in the coastal plains and inland valleys in portions of Riverside and San Diego counties and northwestern Baja California. The species' historic range includes areas of southern California and Baja California, and portions of San Diego, Orange, Los Angeles, and western Riverside counties. This species is threatened by one or more of the following factors: habitat loss and fragmentation due

to urban development, overcollection and other human disturbances, drought, fire, or other weather extremes, and by the displacement of the primary larval food plant by non-native grasses and other weedy annuals.

The Quino checkerspot butterfly exists in low elevation (sea level to 3,000 ft.) open grasslands and sunny openings within shrubland habitats, and is usually associated with clay soils or deposits of cryptogamic plants. The cryptogamic plants develop a hard crust which is occupied by low growing herbaceous annuals including the Quino larvae's primary food plant, dwarf plantain and the larvae's additional food plant, owl's clover. The Quino checkerspot is found only in areas where are there are fairly dense stands of one or both of the larvae's food plants.

Adult Quino checkerspot butterflies live from 4 to 8 weeks and are in flight from approximately late January to mid-May. Courtship behavior consists of male butterflies hill topping on open or sparsely vegetated rounded hilltops, ridgelines, and rocky outcrops. Adults sun themselves at the base of hills and have been observed flying through areas of unsuitable habitat, most likely dispersing to sites with the food plants. After mating, adults lay eggs, which hatch in about 10 days. The larvae feed on the food plants for about two weeks, at which time the food plants senesce and dry up. Larvae then locate cracks in the soil or other concealed areas where they diapause and remain dormant during the dry season until the next winter. After the food plants germinate following fall or winter rains, the larvae pupate into adults. The larvae may remain dormant for one or more seasons, which is dependent how quickly rain facilitates the sprouting of food plant seeds. In approximately a two-week period, the adults emerge, feed, disperse, reproduce, and then die.

Santa Ana sucker (*Catostomus santaanae*) FPT, CSC. The Santa Ana sucker inhabits small to medium-sized streams, usually less than 7.6m (25ft.) in width, with depths ranging form a few centimeters to over a meter. Found only in the Los Angeles Basin. the original range included only the Los Angeles, Santa Ana and San Gabriel rive systems. Now confined to the Santa Ana River, Tujunga Wash in the Los Angeles River system (possibly extirpated), and in the upper San Gabriel River system.

arroyo southwestern toad (*Bufo microscaphus californica*) FE, CSC. This amphibian historically occurred from San Luis Obispo County south into Baja California. There are records of the arroyo toad throughout coastal and desert regions of San Diego County. Arroyo toads are known to occur in the San Gabriel Mountains (Jennings and Hayes 1994). Arroyo toads have very specific habitat requirements. Arroyo toads occur in and breed in pools with a depth of 12 inches or less, with extensive gravel beds (Sweet 1991).

California red-legged frog (*Rana aurora draytonii*) FT, CSC. According to Jennings and Hayes (1994), this species is extirpated from the San Gabriel Mountains. California red-legged frogs require areas of deep, slow-moving water and dense vegetation such as ponds or deep pools in streams (Jennings and Hayes 1994).

southwestern willow flycatcher (*Empidonax traillii extimus*) FE and all subspecies of willow flycatchers in California are state endangered. The southwestern willow flycatcher breeds in dense riparian thickets and trees. This subspecies is known to breed in only eight locations in Southern California, including the Santa Margarita and San Luis Rey rivers in San Diego County and the Santa Inez River in Santa Barbara County (San Diego Natural History Museum 1995). Willow flycatchers are fairly common migrants and most of the migrants are believed to be of the common subspecies, *E.t. brewsteri*, which breeds throughout southern Canada and the northern United States.

Although the project area is within the breeding range of the endangered southwestern willow flycatcher, the flycatcher is not expected to breed on site. In southern California, this species is extremely rare and is restricted to large drainages with high quality riparian habitats, such as the Santa Inez and San Luis Rey Rivers.

coastal California gnatcatcher (*Polioptila californica californica*) FT, CSC. The California gnatcatcher is a species with restricted habitat requirements, being an obligate resident of coastal sage scrub habitats that are dominated by coastal sagebrush and generally occur below 750 feet elevation in coastal regions and below 1,500 feet inland (Atwood and Boisinger, 1992). It ranges from the Ventura County south to San Diego County and northern Baja California. It is less common in coastal sage scrub with a high percentage of tall shrubs such as laurel sumac, preferring habitat more low-growing vegetation. Coastal California gnatcatchers breed between mid-February and the end of August, with the peak of activity from mid-March to mid-May. Population estimates indicate that there are approximately 1,600 to 2,290 pairs of gnatcatchers remaining (MBA 1991; Atwood 1992). Declines are attributed to loss of coastal sage scrub habitat through development, and there is some evidence of cowbird nest parasitism.

least Bell's vireo (*Vireo bellii pusillus*) FE, SE. This migratory songbird requires riparian woodlands with a dense understory. Least Bell's vireo was once common in California, ranging from southern California north throughout the Central Valley to Tehama County. This species has declined as a result of habitat loss and nest parasitism by brown-headed cowbirds (*Molothrus ater*) (Franzreb 1989). The second largest population in the U.S. occurs at the Prado Dam flood control basin and along Chino Creek (CNDDB 1997).

Stephen's kangaroo rat (*Dipodomys stephensi*) FE, ST. The Stephen's kangaroo rat is a small burrowing rodent adapted for arid environments with long, strong hind legs, and short, relatively small front legs. Like other kangaroo rats it hops much like a true kangaroo. They live in underground burrows either which they excavate. The kangaroo rat will occupy burrows of other animals such as pocket gophers and Beechey ground squirrels. They primarily consume seeds, which they gather in cheek pouches and store underground. The Stephen's kangaroo rat occupies open areas of sparse perennial cover, with soils at least 18 inches deep.

Species of Special Concern

arroyo chub (*Gila orcutti*) CSC. The arroyo chub inhabits warm streams with highly variable seasonal stream flows where it seeks slow water areas with medium to high gradient streams. It is adapted to survive both hypoxic and large temperature fluctuations. Originally native to the Los Angeles, San Gabriel, and Santa Ana River systems, Malibu and San Juan creeks, and the Santa Margarita River drainage. Introduced into several river systems to the north of its native range.

western spadefoot toad (*Scaphiopus hammondii*) CSC. The western spadefoot occurs primarily in grassland situations, but occasionally populations also occur in valley and foothill woodlands. These toads prefer areas of sandy or gravelly soil in alluvial fans, washes, and floodplains. Some populations persist for a few years in orchard and vineyard habitats. The optimal habitat for the western spadefoot is grasslands with shallow temporary pools. Most of the year is spent in underground burrows. Recently-metamorphosed juveniles seek refuge in the immediate vicinity of breeding ponds for up to several days after transformation. They hide in drying mud cracks, under boards and other surface objects, including decomposing cow dung.

southwestern pond turtle (*Clemmys marmorata pallida*) CSC. The southwestern pond turtle inhabits marshes, sloughs, moderately deep ponds, and slow-moving portions of creeks and rivers. They require basking sites, such as partially submerged logs, vegetation mats, rocks, and mud banks. Females leave the water in late May to July to find nest sites. They are believed to use sandy banks near water, or sunny fields or banks up to several hundred meters from water.

San Diego horned lizard (*Phrynosoma coronatum blainvillei*) CSC. It is a small, spiny, somewhat rounded lizard that occurs primarily in open or sparse coastal sage scrub and chaparral communities. This species prefers loose friable soil for burrowing. Three factors have contributed to its decline: loss of habitat, over collecting, and the introduction of exotic ants. In some places, especially adjacent to urban areas, the introduced ants have displaced the native species upon which the lizard feeds (Hix 1990).

Beldings orange-throated whiptail (*Cnemidophorus hyperythrus beldingi*) CSC. The orange-throated whiptail inhabits gently sloping hillsides, ridges, and valleys supporting open coastal sage scrub, chamise-redshank chaparral, mixed chaparral, and sparse grassland communities. The lizard is most common in open scrub habitats where its primary food species (subterranean termites of the genus Reticulitermes) are found.

silvery legless lizard (*Anniella pulchra pulchra*) CSC. It is a small, secretive, snake-like lizard that lives and forages in leaf litter, under debris, or within sandy soil (Stebbins 1985). It occurs in a variety of habitats, including sandy washes, coastal scrub habitats, and woodlands. The silvery legless lizard preys on insect larvae, small adult insects, and spiders (CDFG 1991).

coast patch-nosed snake (*Salvadora hexalepis virgultea*) CSC. The coast patch-nosed snake inhabits a variety of habitats, including chaparral and sage scrub. This snake is distributed throughout coastal southern California from Santa Barbara County south into Baja California.

two-striped garter snake (*Thamnophis hammondii*) CSC. The two-striped garter snake commonly inhabits perennial and intermittent streams having rocky beds bordered by willow thickets or other dense vegetation (Jennings and Hayes, 1994). This particular snake was common in southern California but has declined substantially in recent years. This species is intimately tied to aquatic habitats, preferring riparian and freshwater marsh habitats with perennial water. The snake feeds on small fishes, frogs, and tadpoles.

northern red-diamond rattlesnake (*Crotalus ruber ruber*) CSC. This subspecies is most commonly encountered in open scrub habitats such as coastal sage scrub, but it also inhabits grasslands, dry washes, chaparral, and woodlands. The northern red diamond rattlesnake ranges from southern San Bernardino County, south into Baja California, and from sea level to around 5,000 feet (Stebbins 1985).

double-crested cormorant (*Phalacrocorax auritus*) (rookery site) CSC. A yearlong resident along the entire coast of California and on inland lakes, in fresh, salt and estuarine waters. August to May, fairly common to locally very common along the coast and in estuaries and salt ponds; uncommon in marine sub tidal habitats from San Luis Obispo Co. south, and very rare to the north. In the same season, fairly common at the Salton Sea and Colorado River reservoirs, and rare to fairly common in lacustrine and riverine habitats of the Central Valley and coastal slope lowlands. Less common in summer, except locally common near nesting colonies. Feeds mainly on fish (Robertson 1974, Cogswell 1977); also on crustaceans and amphibians. Dives from water surface and pursues prey underwater, usually remaining submerged for about 30 sec. Prefers water less than 9 m (30 ft) deep

with rocky or gravel bottom, but may catch fish as deep as 22 m (72 ft). Sometimes feeds cooperatively in flocks of up to 600, often with pelicans. Rests in daytime and roosts overnight beside water on offshore rocks, islands, steep cliffs, dead branches of trees, wharfs, jetties, or even transmission lines. Perching sites must be barren of vegetation (Bartholomew 1943). Must visit perches periodically in day to dry plumage. Sometimes rests, or even sleeps, on water in daytime (Palmer 1962). Requires considerable length of water, or elevated perch, for labored take-off. Requires undisturbed nest-sites beside water, on islands or mainland. Uses wide rock ledges on cliffs; rugged slopes; and live or dead trees, especially tall ones. Suitable nest-site must be within 8-16 km (5-10 mi) of dependable food supply (Palmer 1962). Yearlong, diurnal activity, except migrates both day and night. Summer residents of mountains and northeastern plateau are absent from about November to March; presumably migrate west and south to lowlands, especially along the coast, where the population increases in winter. Usually forages within 8-16 km (5-10 mi) of roost or nest colony (Palmer 1962).

western least bittern (*Ixobrychus exil is hesperis*) (nesting) CSC. In southern California, common summer resident (especially April to September), at Salton Sea and Colorado River, in dense emergent wetlands near sources of freshwater, and in desert riparian (saltcedar scrub). Probably nests only in emergent wetlands. Uncommon through winter in some locations; quite rare in deserts and coastal lowlands, but may breed locally (Garrett and Dunn 1981). Rare to uncommon April to September in large, fresh emergent wetlands of cattails and tules in Central Valley, where it nests; and on northeast plateau, where it probably nests (Cogswell 1977, McCaskie et al. 1979). Distributional data are scant because of extremely secretive behavior. More studies are needed. Eats mainly small fishes, aquatic and terrestrial insects, and crayfish; also amphibians, small mammals, and miscellaneous invertebrates. Stalks or stands motionless in shallow water, then quickly strikes at prey, in water or on emergent vegetation; hunts in small openings in dense, emergent vegetation; moves on to new pool after each capture Palmer 1962); at Salton Sea and Colorado River, also may feed in adjacent thickets if saltcedar. Often feeds on the open-water side of emergent vegetation, using vegetation stalks as stepping-stones (Weller 1961). Found throughout most of California population migrates south to Mexico for winter (mainly October to March). Part of population in southern California apparently is nonmigratory.

white-faced ibis (*Plegadis chihi*) (rookery site) CSC. In southern California, common summer resident (especially April to September), at Salton Sea and Colorado River, in dense emergent wetlands near sources of freshwater, and in desert riparian (saltcedar scrub). Probably nests only in emergent wetlands. Uncommon through winter in some locations; quite rare in deserts and coastal lowlands, but may breed locally (Garrett and Dunn 1981). Rare to uncommon April to September in large, fresh emergent wetlands of cattails and tules in Central Valley, where it nests; and on northeast plateau, where it probably nests (Cogswell 1977, McCaskie et al. 1979). Eats mainly small fishes, aquatic and terrestrial insects, and crayfish; also amphibians, small mammals, and miscellaneous invertebrates. Stalks or stands motionless in shallow water, then quickly strikes at prey, in water or on emergent vegetation; hunts in small openings in dense, emergent vegetation; moves on to new pool after each capture (Palmer 1962); at Salton Sea and Colorado River, also may feed in adjacent thickets of saltcedar. Often feeds on the open-water side of emergent vegetation, using vegetation stalks as stepping-stones.

Cooper's hawk (*Accipiter cooperi*) (nesting) CSC. Both resident and migratory populations exist in Southern California. Wintering Cooper's hawks are often seen in wooded urban areas and native woodland habitats. Preferred nesting habitats are oak and riparian woodlands dominated by sycamores and willows. Cooper's hawks in the region prey on small birds and rodents that live in woodland and occasionally scrub and chaparral habitats.

sharp-shinned hawk (*Accipiter striatus*) CSC. The sharp-shinned hawk is a fairly common migrant and winter resident throughout California. Breeding takes place in ponderosa pine, black oak, riparian deciduous, mixed conifer, and Jeffrey pine habitats. The sharp-shinned hawk prefers, but is not restricted to, riparian habitats and north-facing slopes, with abundant perch sites.

golden eagle (*Aquila chrysaetos*) (nesting and wintering) CSC. Golden eagles are large, long winged birds of prey. They use many habitats, but prefer open grass and brush habitats (Verner and Boss 1980). They prey upon rabbits, ground squirrels, other rodents, snakes and birds. Golden eagles usually nest on cliff faces with good views of the surrounding land. The peak of the nesting season is between late April and August (Verner and Boss 1980). This bird is an uncommon to rare permanent resident in open habitats throughout California.

The golden eagle is a California Fully Protected Species, a California Species of Special Concern, and is also protected by a 1963 amendment to the Bald Eagle Act of 1943. This species breeds in the mountains and foraging habitat is present onsite.

ferruginous hawk (*Buteo regalis*) (wintering) CSC. The ferruginous hawk hunts in shrub-steppe habitats, although it nests in nearby rocky outcrops and cliff sites in coulees. They avoid areas of extensive cultivation. The ferruginous hawk is a rarer nester in the area than the Swainson's hawk, with known nesting occurring in Grant, Adams, Lincoln, and Franklin Counties (USFWS 1988). Franklin County is the species' stronghold and is the most important ferruginous hawk nesting area in southeast Washington (Foster et. al. 1982). Ferruginous hawks have been observed nesting in Black Rock Coulee (Sullivan 1986). WDW lists ferruginous hawk breeding sites as priority areas (WDW 1993).

Loss of habitat due to conversion of grasslands and shrub-steppe to cropland, disturbance from human activities, and declines in prey populations have reduced ferruginous hawk numbers (ODFW 1992).

Swainson's hawk (*Buteo swainsoni*) ST. The Swainson's hawk hunts in shrub-steppe habitats (Sullivan 1986) and nests in nearby trees. Swainson's hawks nest from late March to mid-August (Verner and Boss 1980). Swainson's hawks will forage in agricultural lands, but prey are inaccessible during part of the nesting season. Nests with large areas of native shrub-steppe habitat nearby produce more young than nests with little such habitat nearby (Bechard 1980, 1983). There is a negative correlation between percent cultivated land and nesting success. More than 40 nesting sites have been reported in the region since the mid-1970s (Sullivan 1986, WNHP 1985). This figure represents a minimum known number, since no systematic, thorough searches of the basin for nesting hawks have been conducted. WDW lists Swainson's hawk breeding sites as priority areas (WDW 1993).

Swainson's hawk habitat can be found in juniper-sage, riparian, and oak savanna communities. Nests are usually constructed in a solitary tree, bush, or small grove, and on utility poles from 1.2 to 30 m (4 to 100 feet) above the ground. Breeding occurs from early March to mid-August with peak activity in late May to late July.

Swainson's hawk populations have declined markedly since the 1920's with steep declines in the 1950's. In some areas there have been losses of 90 to 95 percent of past populations (ODFW 1992).

northern harrier (Circus cyaneus) CSC. The northern harrier is a common winter visitor in southern California but probably does not breed in the area or on the site. Favored nesting and foraging areas include grassland, cultivated, ruderal, salt, and freshwater, although populations increase during fall migration. The bird prefers open woodlands, especially riparian woodlands in canyons or along

floodplains for breeding, but forage in almost any woodland or shrubland/brush land community and marsh habitats.

white-tailed kite (*Elanus leucurus*) (nesting) SFP. The white-tailed kite is a state Fully Protected species, a designation established prior to the adoption of the state and federal Endangered Species acts that protect the species from harassment or harm. The kite ranges over open grasslands, where it hovers until it locates small mammals or large insects. It nests in a variety of woodland habitats. Its status as fully protected in California was designated after populations had dropped to very low levels in the early part of this century. The population numbers of this species have increased in the last 20 years, but leveled off in recent years (Garrett and Dunn 1981) and have begun to decline again in some areas in the past 10 years. There have been several population fluctuations since the 1970s, and numbers remain below historic levels.

osprey (*Pandion haliaetus*) (nesting) CSC. The osprey is a large bird of prey which eats large fish (Roderick and Milner 1991). Osprey catch fish near the waters surface by aerial dives from flight (Verner and Boss 1980). WDW lists osprey breeding sites as priority areas (WDW 1993). The osprey is listed by the state as a monitor species.

There are osprey, (*Pandion haliaetus)*, nests approximately five miles southeast of the point where the proposed eastern loop transmission lines cross the Snoqualmie River. Osprey are expected to forage along the Snoqualmie River, including the area where the proposed eastern transmission loop crosses the river.

merlin (*Falco columbarius*) (CSC). In southern California, common summer resident (especially April to September), at Salton Sea and Colorado River, in dense emergent wetlands near sources of freshwater, and in desert riparian (saltcedar scrub). Probably nests only in emergent wetlands. Uncommon through winter in some locations; quite rare in deserts and coastal lowlands, but may breed locally (Garrett and Dunn 1981). Rare to uncommon April to September in large, fresh emergent wetlands of cattails and tules in Central Valley, where it nests; and on northeast plateau, where it probably nests (Cogswell 1977, McCaskie et al. 1979). Distributional data are scant because of extremely secretive behavior. More studies are needed. Eats mainly small fishes, aquatic and terrestrial insects, and crayfish; also amphibians, small mammals, and miscellaneous invertebrates. Stalks or stands motionless in shallow water, then quickly strikes at prey, in water or on emergent vegetation; hunts in small openings in dense, emergent vegetation; moves on to new pool after each capture (Palmer 1962); at Salton Sea and Colorado River, also may feed in adjacent thickets of saltcedar. Often feeds on the open-water side of emergent vegetation, using vegetation stalks as stepping-stones (Weller 1961).

prairie falcon (*Falco mexicanus*) (nesting) CSC. Prairie falcons are fast flying birds of prey which generally eat small mammals and small to medium size birds. They capture mammals on the ground and birds in flight. They are birds of open country habitats which allow for fast pursuit of prey. They nest on high cliff faces that are 20 to 400 feet in height (Verner and Boss 1980). The peak of prairie falcon nesting is from early May to late August (Verner and Boss 1980). WDW lists breeding locations as priority areas (WDW 1993). Prairie falcons have been reported nesting at 8 locations within two miles of the Oak Flats site (WDW 1992b). Prairie falcons are expected to use the open habitats in the project area for feeding, and may perch in trees on site. WDW lists prairie falcon breeding locations as priority areas (WDW 1993).

Prairie falcons are a California Species of Special Concern. Because of winter foraging and nesting habitat loss, few areas remain in Southern California where prairie falcons can be consistently

observed, and no nest sites have been documented in the region in over 50 years. Preferred winter foraging habitat in Southern California includes grasslands, coastal sage scrub, and estuaries.

long-billed curlew (*Numenius americanus*) (nestng) CSC. The long-billed curlew uses shrub-steppe plant communities in the project area for foraging and nesting. These birds consume insects and other invertebrates. Curlew densities are two to four times greater in rangeland habitats than in farmed lands in the Columbia Basin (COE 1980). Two important breeding areas have been identified in the project area: (1) shrub-steppe habitats between Ephrata and Moses Lake and (2) shrub-steppe habitats on the Wahluke slope of the Saddle Mountains (Foster et. al. 1982). WDW lists breeding areas and area of spring or summer concentrations as priority habitats (WDW 1992).

Long-billed curlews nest in short grass prairie and overgrazed pastures. They are typically found in areas of low topographic slope, low vegetation height, and low vertical vegetative cover. Nests are usually located in areas of grass about 10 to 21 cm high. The nest is a sparsely-lined depression usually placed close to a conspicuous object such as a grass clump, rock, or dirt mound. Curlews usually arrive at the breeding grounds in late March. The birds typically arrive unpaired and the males quickly disperse over suitable nesting habitat where the males perform noisy undulating flight courtship displays to attract females (Jenni et al. 1982). The courtship displays are generally conducted for a period of 2 to 3 weeks and end when the male has attracted a mate. The nesting period extends from April to mid-August.

western yellow-billed cuckoo (*Coccyzus americanus occidentalis*) SE. The western yellow-billed cuckoo requires dense riparian woods or thickets with dense understory (Garrett and Dunn 1981). The cuckoo is known from fewer than five locations in California. The cuckoo has been recorded in the Prado Dam basin and along the Santa Ana River (CNDDB 1997).

long-eared owl (*Asio otus*) (nesting) CSC. In southern California, common summer resident (especially April to September), at Salton Sea and Colorado River, in dense emergent wetlands near sources of freshwater, and in desert riparian (saltcedar scrub). Probably nests only in emergent wetlands. Uncommon through winter in some locations; quite rare in deserts and coastal lowlands, but may breed locally (Garrett and Dunn 1981). Rare to uncommon April to September in large, fresh emergent wetlands of cattails and tules in Central Valley, where it nests; and on northeast plateau, where it probably nests (Cogswell 1977, McCaskie et al. 1979). Distributional data are scant because of extremely secretive behavior. More studies are needed. Eats mainly small fishes, aquatic and terrestrial insects, and crayfish; also amphibians, small mammals, and miscellaneous invertebrates. Stalks or stands motionless in shallow water, then quickly strikes at prey, in water or on emergent vegetation; hunts in small openings in dense, emergent vegetation; moves on to new pool after each capture (Palmer 1962); at Salton Sea and Colorado River, also may feed in adjacent thickets of saltcedar. Often feeds on the open-water side of emergent vegetation, using vegetation stalks as stepping-stones (Weller 1961). Rests, roosts, and hides in dense, emergent vegetation and, at Salton Sea and Colorado River, in adjacent thickets of saltcedar in desert riparian habitat. Yearlong, diurnal or circadian activity. Feeds in daytime, but not known if it feeds at night as does American bittern. Migrates nocturnally (Terres 1980).

burrowing owl (*Athene cunicularia hypugea*) (burrow sites) CSC. Formerly common throughout California, its decline was noticeable as early as the 1940s. The burrowing owl lives in the abandoned burrows of ground squirrels and other burrowing animals, modifying the burrows to suit their needs by digging. It is one of the few owl species often seen during the day, perched on fence posts or at the entrance to burrows.

California horned lark (*Eremophila alpestris actia*) CSC. The California horned lark is found along the coast of Northern California, in the San Joaquin Valley, in the Coast Ranges south of San Francisco Bay, and in Southern California west of the deserts. In Southern California, this subspecies is a fairly common breeding resident in grasslands and other dry, open habitats.

coastal cactus wren (*Campylorhynchus brunneicapaillus sandiegensis*) CSC. The coastal cactus wren inhabits arid parts of westward draining slopes and frequents succulent shrub, Joshua tree, desert wash, and coastal sage habitats. Pairs usually nest in cholla or other large, branching cactus, in yucca, or in stiff-twigged, thorny shrubs or small trees.

loggerhead shrike (*Lanius ludovicianus*) CSC. The loggerhead shrike is a robin-sized bird that inhabits open grassland. Shrike prey upon small rodents and large insects which they capture on the ground from flights from low perches. Their habit of hunting from perches usually makes them conspicuous in their open habitat. Shrikes build stick nests in low trees or shrubs, where they raise two to four young.

tricolored blackbird (*Agelaius tricolor*) (nesting colony) CSC. In southern California, common summer resident (especially April to September), at Salton Sea and Colorado River, in dense emergent wetlands near sources of freshwater, and in desert riparian (saltcedar scrub). Probably nests only in emergent wetlands. Uncommon through winter in some locations; quite rare in deserts and coastal lowlands, but may breed locally (Garrett and Dunn 1981). Rare to uncommon April to September in large, fresh emergent wetlands of cattails and tules in Central Valley, where it nests; and on northeast plateau, where it probably nests (Cogswell 1977, McCaskie et al. 1979). distributional data are scant because of extremely secretive behavior. More studies are needed. Eats mainly small fishes, aquatic and terrestrial insects, and crayfish; also amphibians, small mammals, and miscellaneous invertebrates. Stalks or stands motionless in shallow water, then quickly strikes at prey, in water or on emergent vegetation; hunts in small openings in dense, emergent vegetation; moves on to new pool after each capture Palmer 1962); at Salton Sea and Colorado River, also may feed in adjacent thickets of saltcedar. Often feeds on the open-water side of emergent vegetation, using vegetation stalks as stepping-stones (Weller 1961).

southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*) CSC. The southern California rufous-crowned sparrow is a common resident of sparse, mixed chaparral and sage scrub habitats (especially coastal sage scrub), and often utilizes relatively steep, rocky hillsides with stands of grasses, herbs, and forbs.

yellow warbler (*Dendroica petechia brewsteri*) CSC. The yellow warbler breeds in riparian areas in Southern California but mainly occurs as migrants (Unitt 1984). This species is a CDFG California Species of Special Concern. Yellow warblers breed from southern British Columbia and western Washington south to northwestern Baja California and northwestern Texas (Curson 1994). In Southern California, yellow warblers breed locally in riparian woodlands. Yellow warblers were observed in wooded habitats during migration within the site during previous surveys, but were not observed during breeding bird surveys.

yellow-breasted chat (*Icteria virens*) CSC. The yellow breasted chat is an uncommon summer resident in riparian habitat in southern California. These birds typically breed in dense, established, or mature riparian vegetation.

bald eagle (*Haliaeetus leucocephalus*) FE, SE. Bald eagles are large birds of prey, that eat fish, waterfowl, and carrion (Verner and Boss 1980). Bald eagles occur within the project area during the

winter (November through March) (BPA 1990). The main food of wintering bald eagles in the Yakima basin is carrion from elk, deer, and other animals (BPA 1990). There are no known nests in the region surrounding the Cle Elum site. Individual bald eagles have been regularly observed during field work. Ten to fifteen wintering bald eagles have been reported to use the river and riparian area around the site (WDW 1992b). WDW lists bald eagle breeding territories, communal roosts, regular winter concentration areas, and regularly used perch trees as priority areas (WDW 1993).

Bald eagles are found along the Columbia River during winter. There are no known nesting areas in the vicinity of the five sites. Nesting is not expected as bald eagles prefer to nest in large trees near bodies of water where fish and waterfowl are abundant. These habitat conditions re not found on any of the five sites. Thus no conflicts between conservation of bald eagles, and development of any of the sites is expected.

The bald eagle is a fish- and waterfowl-eating predator that occupies habitats adjacent to large lakes, streams, or rivers (Verner and Boss 1980), nesting in large trees. In the Columbia Basin, they occur in many habitats near large bodies of water. There is currently an active eagle nest at Banks Lake (USFWS 1989). Important winter concentrations occur along the Columbia River, on Banks Lake, Osborn Bay Lake, and in the Moses Lake-Potholes Reservoir area (USFWS 1988, 1989, Foster et. al. 1982).

Bald eagles typically require large bodies of water or free flowing rivers containing fish, with adjacent snags or other perches. They generally nest in large, old-growth or dominant live trees with open branching, especially ponderosa pines. Eagles nest most frequently in stands with less than 40 percent canopy coverage. Birds often choose the largest tree in a stand to build their nest. Nests are located 18 to 61 m (60 to 200 feet) above the ground, usually below the crown of the tree. Nests are usually located near a permanent water source. Bald eagles nest from February to August, with peak breeding from March to June.

Bald eagle populations have been reduced due to habitat loss, loss of food supply, human disturbance, and pesticide use.

peregrine falcon (*Falco peregrinus*) SE. The peregrine falcon is a fast-flying predator that captures its prey in flight. Its primary prey are medium- to large-sized birds, especially waterfowl and shorebirds (Verner and Boss 1980). Peregrines nest on high cliffs, skyscrapers, and bridges. Nesting occurs from March through September. WDW lists peregrine breeding locations, and areas of shrub-steppe where individuals are seen year round, as priority areas (WDW 1992). Peregrines have been noted in the Columbia Basin and are considered an occasional migrant during spring and fall (USFWS 1989, Foster et. al. 1982). There are no known peregrine nest sites in the project area, nor are they residents in the area.

Peregrine falcon populations declined during the 1950's and after due to widespread pesticide use which caused reproductive failure. This resulted in local extinctions. Populations in many areas are now stable and slowly increasing. A major recovery effort has been in operation since the early 1970's.

pallid bat (*Antrozous pallidus*) CSC. The pallid bat generally inhabits open, lowland areas below 2,000 feet. This medium-sized bat commonly roosts in rock crevices and caves and beneath rock slabs. Pallid bats emerge late in the evening, and hunt large prey, including ground-dwelling insects.

pale big-eared bat (*Corynorhinus townsendii pallescens*) CSC. The pale big-eared bat is found in a wide variety of habitats from grasslands to conifer woodlands. Roosting sites include limestone caves, mine tunnels, buildings, and other man-made structures. This species is found throughout California west of the deserts.

western mastiff bat (*Eumops perotis*) CSC. The western mastiff bat inhabits lower elevations, where it roosts in rocky areas, often near a stream. Natural roosts include large, exfoliating slabs of granite or sandstone on cliff faces, and cracks in boulders sufficiently high above the ground to allow an unobstructed vertical drop of 10 feet for taking flight. This species is most common in southwestern California, and is associated with grassland, open shrub, chaparral, oak woodland, and riparian vegetation.

San Diego black-tailed jackrabbit (*Lepus californicus bennettii*) CSC. The San Diego black-tailed jackrabbit's range includes grasslands, coastal sage scrub, and chaparral in coastal regions of California from Ventura County to northern Baja California. The black-tailed jackrabbit is most active at dawn and dusk and feeds on green vegetation.

northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*) CSC. The northwestern San Diego pocket mouse inhabits arid coastal and desert areas of southern California from Orange, San Bernardino, and Riverside Counties south into Baja California. Plant communities preferred by this species include annual grassland, sage scrub, chaparral, and desert scrub. The mouse confines its activities to the night, when it forages for seeds; during the day it retreats to underground burrows. The species is declining in abundance, primarily due to loss of habitat throughout its range.

San Diego desert woodrat (*Neotoma lepida intermedia*) CSC. The San Diego desert woodrat is found in a variety of habitats from sea level to 8,500 feet in elevation. This species occurs along the coast form northwest Baja California to San Luis Obispo County. The desert woodrat prefers upland habitats where sparse shrub lands predominate, especially where prickly pear cactus occurs.

REGIONAL CONNECTIVITY/WILDLIFE MOVEMENT COORIDOR ASSESSEMENT

Overview

Wildlife corridors link together areas of suitable habitat that are otherwise separated by rugged terrain, changes in vegetation, or human disturbance. The fragmentation of open space areas by urbanization creates isolated "islands" of wildlife habitat. In the absence of habitat linkages that allow movement to adjoining open space areas, various studies have concluded that some wildlife species, especially the larger and more mobile mammals, will not likely persist over time in fragmented or isolated habitat areas because they prohibit the infusion of new individuals and genetic information (MacArthur and Wilson 1967, Soule 1987, Harris and Gallager 1989, Bennett 1990). Corridors effectively act as links between different populations of a species. A group of smaller populations (termed "demes") linked together via a system of corridors is termed a "metapopulation". The long-term health of each deme within the metapopulation is dependent upon its size and the frequency of interchange of individuals (immigration vs. emigration). The smaller the deme, the more important immigration becomes, because prolonged inbreeding with the same individuals can reduce genetic variability. Immigrant individuals that move into the deme from adjoining demes mate with individuals and supply that deme with new genes and gene combinations that increases overall genetic diversity. An increase in a population's genetic variability is generally associated with an increase in a population's health.

Corridors mitigate the effects of habitat fragmentation by (1) allowing animals to move between remaining habitats, which allows depleted populations to be replenished and promotes genetic diversity; (2) providing escape routes from fire, predators, and human disturbances, thus reducing the risk that catastrophic events (such as fires or disease) will result in population or local species extinction; and (3) serving as travel routes for individual animals as they move within their home ranges in search of food, water, mates, and other needs (Noss 1983, Fahrig and Merriam 1985, Simberloff and Cox 1987, Harris and Gallagher 1989).

Wildlife movement activities usually fall into one of three movement categories: (1) dispersal (e.g., juvenile animals from natal areas, individuals extending range distributions); (2) seasonal migration; and (3) movements related to home range activities (foraging for food or water, defending territories, searching for mates, breeding areas, or cover). A number of terms have been used in various wildlife movement studies, such as "wildlife corridor", "travel route", "habitat linkage", and "wildlife crossing" to refer to areas in which wildlife move from one area to another. To clarify the meaning of these terms and facilitate the discussion on wildlife movement in this study, these terms are defined as follows:

Travel route: A landscape feature (such as a ridge line, drainage, canyon, or riparian strip) within a larger natural habitat area that is used frequently by animals to facilitate movement and provide access to necessary resources (e.g., water, food, cover, den sites). The travel route is generally preferred because it provides the least amount of topographic resistance in moving from one area to another; it contains adequate food, water, and/or cover while moving between habitat areas; and provides a relative direct link between target habitat areas.

Wildlife corridor: A piece of habitat, usually linear in nature, that connects two or more habitat patches that would otherwise be fragmented or isolated from one another. Wildlife corridors are usually bounded by urban land areas or other areas unsuitable for wildlife. The corridor generally contains suitable cover, food, and/or water to support species and facilitate movement while in the corridor. Larger, landscape-level corridors (often referred to as "habitat or landscape linkages") can provide both transitory and resident habitat for a variety of species.

Wildlife crossing: A small, narrow area, relatively short in length and generally constricted in nature, that allows wildlife to pass under or through an obstacle or barrier that otherwise hinders or prevents movement. Crossings typically are manmade and include culverts, underpasses, drainage pipes, and tunnels to provide access across or under roads, highways, pipelines, or other physical obstacles. These are often "choke points" along a movement corridor.

Wildlife Movement within the Study Area

The focus of this study is to determine if the alteration of current land use on the subject property will have significant impacts on the regional movement of wildlife. With the increasing development in the immediate vicinity, this becomes even more important to examine. This study did not include the use of track plates, camera stations, scent stations, or snares. MBA decided that these methods would produce undo stress on wildlife. Instead, notation was made during all site visits of road kill, general locations of animal sign, and inspection of resource maps for the vicinity. These conclusions are based on the knowledge of desired topography and resource requirements for wildlife potentially utilizing the Chino Sub Area 2 and vicinity.

Currently on the Chino Sub Area 2 site, wildlife have nearly uninhibited movement across the site within the Prado Regional Park. Outside of the park and within the dairy lands, wildlife movement

would be limited to opportunistic species. Opportunistic wildlife species such as coyote (*Canis latrans*), raccoon (*Procyon lotor*), skunk (*Mephitis mephitis*), opossum (*Didelphis virginiana*), and bobcat (*Lynx rufus*) may try to take advantage of the few resources within the dairy area. Wildlife utilizations within the dairy areas is expected to be fairly low based on the high number of domestic dogs, which tend to be of more aggressive breeds and training. Additionally, the intolerance of dairy owners towards risk of cattle loss to wildlife would increase threats on wildlife utilization of such areas.

Desire by wildlife to travel into the northern portions of the Chino Sub Area 2 site unlikely. However, the southern portion of the site may host a network of wildlife movement, connecting the Chino Hills with the Santa Ana River Watershed. Additionally, the southern portion of the site provides year around water supplies and foraging areas. Many wildlife species travel to Prado Basin and the surrounding area to breed and forage.

JURISDICTIONAL AREAS

Although formal jurisdictional determinations of the Chino Sub Areas 2 site was not conducted, general notations were made of areas potentially regulated by the USACE and CDFG. Seven waterbodies were recognized as most likely falling under the jurisdiction of the USACE and CDFG, in addition to hosting a variety of water fowl (Kara Palm Page 43 06/27/01 Exhibit 5). Chino Creek and Mill Creek are two major regional waterways. These two creeks are a part of the larger Santa Ana Watershed and may have many small tributaries of their own. The three small ponds utilized by the Prado Recreation Dog Training Facility are likely jurisdictional and do host waterfowl species. Prado Lake also is within the jurisdiction of the regulating agencies and is heavily utilized by waterfowl and foraging raptors. Continuing northeast of Prado Lake is a small feeder drainage. This drainage is extremely disturbed upstream, especially within the dairy lands. The drainage has been forced into dirt ditches, re-routed, and soiled by cattle. This drainage is also the spillway outlet for Prado Lake and converges with Chino Creek.

Detention basins are currently utilized throughout the dairy lands. These detention basins appear to be of low value to water fowl due to the high concentration of cattle waste. The detention basins are likely excluded under USACE and CDFG but warrant close examination as development activities encroach on these areas.

3.0 OPPORTUNITIES AND CONSTRAINTS

Potential Limitations/Constraints

- Compatible uses should be identified and planned for areas adjacent to Mill Creek, Chino Creek, and the upland limits of Prado Flood Control Basin. These areas likely host special status species and should be avoid when possible in the development stage. Further biological studies would be necessary to determine the presence/absence of special status species potentially residing in these areas.

- Impacts within riparian corridors within the project boundaries would likely be subjected to public scrutiny. These areas are extremely controversial due to the high potential for special status species to occur within these areas.
- Development impacting areas considered jurisdictional by the United States Army Corps of Engineers or California Department of Fish and Game will likely require stringent mitigation programs to off-set impacts to sensitive aquatic resources. A formal wetland delineation is suggested to ensure the accurate mapping of any resources potentially regulated by these public agencies.
- Increase flow due to urban run-off would be monitored by the USACE, CDFG and the Regional Water Quality Control Board. Permits will likely be required by all three of these agencies prior to impacting resources falling under their perspective jurisdictions.
- Though a lower significance issue, special attention should be made to the removal of Eucalyptus windrows. These areas may host raptors and other species listed under the Migratory Bird Treaty Act.
- The northeastern corner of the property is designated as Delhi series soils. Because of this, USFWS will likely require surveys to determine presence/absence of these areas prior to development activities.
- Areas falling within the 100-year floodplain where thickets of riparian trees and shrubs occur or may become established as a result of natural floodplain processes or rehabilitation are considered "designated critical habitat" for the southwestern willow flycatcher (*Empidonax traillii extimus*).

Potential Opportunities

- A majority of the site is potentially developable land. The portions designated in Exhibit 4 are considered to have a low sensitivity. These areas did not exhibit the potential to host special status species. Additionally these areas are heavily disturbed.

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Memorandum

PCR

TO: Bob Prasse, City of Chino

DATE: July 26, 2002

CC:

FROM: Steve Nelson,
PCR Services Corporation

RE: **THE PRESERVE RAPTOR FORAGING HABITAT ASSESSMENT**

At the request of the City of Chino, **PCR Services Corporation (PCR)** submits the following independent assessment of impacts to raptor foraging habitat associated with The Preserve project. As we understand the City's request, this analysis will be used by city planning staff as input to the Recirculated Draft EIR now being prepared by Michael Brandman Associates.

The focus of this assessment is on the project-related loss of raptor habitat and the expected effect this loss will have on raptorial birds, as a taxonomic group, in the region. In addition, this assessment addresses both the incremental and cumulative impacts of the proposed project.

For the purpose of this assessment, the "region" is defined as the area encompassed by the Prado Flood Control Basin, the bottomlands making up the Chino Valley, and the adjacent Chino Hills to the west. Specifically, the region is defined by State Route 60 in the north, State Route 91 in the south, Interstate 15 in the east and State Route 57 in the west. In our opinion, the area included in this definition of region represents a biologically meaningful unit, or system, as it relates to the life histories of raptorial birds in general. As a group, raptors generally require foraging territory and prey availability over a relatively large home ranges, particularly during breeding. Outside of the breeding season, they continue to require large areas to forage and equally important, to disperse from natal territories. Not surprisingly, the home ranges of many raptors are measured in terms of square miles, rather than in terms of acres. From a biological standpoint, it is reasonable to assume that raptorial birds using the Chino Valley bottomland where the project is located interact and are not distinct populationally from raptorial birds of the same species using the Chino Hills. Further, it is assumed that the individuals of some species use both the bottomlands and the adjacent hills as part of their home ranges. Conversely, the extensive urbanization to the north and east, the Santa Ana Mountains to the south, and the Puente Hills as a distinct biological unit to the west, represent physical barriers, which logically confine the region to the boundaries delineated above.

After defining the region, PCR classified land uses/vegetation cover in terms of their suitability for use as foraging habitat.

Non-suitable habitat was defined as including:

- Urban and suburban development;
- Heavily vegetated areas where dense chaparral typically hinders foraging;

One Venture, Suite 150, Irvine, California 92618 INTERNET www.pcrnet.com TEL 949.753.7001 FAX 949.753.7002

- Small areas of open habitat that otherwise would be deemed suitable, but are rendered unsuitable due to their isolation;
- Dairy stockyards devoid of all vegetation and where cow manure is stockpiled; and
- Golf courses and turf play fields.

Suitable habitat was defined as including:

- Large and contiguous undeveloped areas with open native and/or naturalized vegetation, such as open woodlands, sage scrub, river bottoms and grasslands;
- Agricultural lands used as cropland (e.g., alfalfa) or in a fallow condition; and
- Windrows and woodlands used by foraging raptors to roost, nest and/or forage (e.g., accipiters) nearby open foraging habitat.

Although somewhat generalized for all species of birds of prey, we believe these definitions of suitable and non-suitable foraging habitat present an accurate basis for understanding the effects of the project on raptors, particularly in the context of the project's effects on regional populations.

As defined above, suitable and non-suitable habitat areas were mapped on to mylar overlayed on recent color aerial photographs of the region at a scale of 1"=500'. These were then digitized using ArcView GIS software for the analysis. The results of PCR's mapping of the existing conditions are summarized in Table 1, *The Preserve Regional Raptor Foraging Habitat Assessment Existing Conditions.* As shown, the region encompasses a total of approximately 124,500 acres, of which approximately 56,055 acres is considered to be suitable for raptor foraging. Approximately 3,364.1 acres of this suitable foraging habitat occurs within The Preserve Sub-Area 2 study area.

Project-related impacts (losses) to suitable raptor foraging habitat are summarized in Table 2, *The Preserve Regional Raptor Foraging Habitat Assessment Impact Analysis.* On an incremental basis, the project is expected to result in the loss of 1,256.1 acres of suitable habitat; that is, the loss of all suitable habitat within The Preserve Sub-Area 2 study area above the 566-foot elevation line.[1] This represents a loss of approximately 2.2 percent of all suitable habitat existing in the region. In our opinion this incremental loss would not have a significant adverse effect on regional raptor populations. We recognize this conclusion may not apply to all species, such as the burrowing owl; however, this loss would not be expected to reduce and result in serious declines for species of buteos, accipiters, falcons, vultures, harriers, kites, other owls and eagles.

[1] Michael Brandman Associates. April 2002. *City of Chino's AG Preserve Resources Management Plan.*

Table 1

The Preserve Regional Raptor Foraging Habitat Assessment Existing Conditions

Habitat Classification	Acreage Within Sub-Area 2*	Acreage Within Region, Outside Sub-Area 2	Total
Non-Suitable	2,080.5	65,800	68,445
Suitable			
Agriculture	2,832.8	13,500	15,255
Native Vegetation, including Willows/Woodlands	531.3	39,790	40,800
Suitable Subtotal	3,364.1	53,290	56,055
Total	**5,435**	**119,090**	**124,500**

*(acreages listed below are for the whole Sub-Area 2)

Source: PCR Services Corporation and MBA 2002.

Table 2

The Preserve Regional Raptor Foraging Habitat Assessment Impact Analysis

Habitat Classification	Impacts Within Sub-Area 2Above 566 ft Line*	Cumulative Impacts Within Region, Outside Sub-Area 2	Total
Non-Suitable	N/A	N/A	0
Suitable			
Agriculture	1,256.1	7150	8366
Willows/Woodlands	0	880	880
Suitable Subtotal	1,256.1	8,030	9,286.1
Total	**1,256.1**	**8,030**	**9,286.1**

*(acreages listed below are within the 566 ft line defined by MBA only)

Source: PCR Services Corporation and MBA 2002.

On a cumulative basis, impacts to raptor habitat are expected from thirteen projects listed in The Preserve Chino Sphere of Influence Sub-Area 2 Draft Environmental Impact Report. PCR does not know of any major projects throughout the rest of the study area region. Using exhibit 4.2-1 Cumulative Projects from the report, PCR found the general location and mapped the approximate boundaries of each project on United States Geological Survey topographical quadrangle maps of Prado Dam and Corona North. Acreages for seven of the projects were listed in the EIR. If a project was defined by unit size, then each unit was assigned a ¼ acre lot to calculate total acreage.

Cumulatively, The Preserve project and others planned and/or approved in the region will result in the loss of approximately 9,286 acres of suitable raptor foraging habitat. This total represents approximately 16.5 percent of the existing habitat available to raptors in the region. In PCR's opinion, this cumulative loss is a significant adverse impact to regional populations of raptors according to the threshold criteria used in the EIR.

APPENDIX C
TRAFFIC IMPACT STUDY

URBAN CROSSROADS

41 Corporate Park
Suite 210
Irvine, CA 92606
p: 949.660.1994
f: 949.660.1911

TRANSPORTATION PLANNING

TRAVEL DEMAND MODELING

DATABASE DEVELOPMENT

GIS

TRAFFIC ENGINEERING

ACOUSTICAL STUDIES

PARKING STUDIES

TRAFFIC IMPACT STUDIES

John Kain, AICP
Carleton Waters, P.E.
Bill Lawson, AICP
Scott Sato, P.E.

July 29, 2002

Mr. Tom Danna
CITY OF CHINO
P.O. Box 667
Chino, CA 91708-0667

Subject: Chino Agricultural Preserve Subarea 2 Supplemental Analysis (Revised)

Dear Mr. Danna:

A comprehensive Traffic Impact Analysis (TIA) for the "Chino Agricultural Preserve Subarea 2" project was previously prepared by Urban Crossroads, Inc. on May 7, 2002. This letter report serves as a supplemental analysis to the "Chino Agricultural Preserve Subarea 2" TIA. The San Bernardino Association of Governments (SANBAG) is reviewing the TIA and has requested analysis at the following two additional intersections:

Lincoln Avenue (NS) at:

- Pomona Road (SR-91 Westbound Ramps) (EW)
- SR-91 Eastbound Ramps (EW)

Overall Methodology

The following analysis years are considered in this report:

- Existing Conditions – 2001
- Project Interim Year – 2010
- CMP Horizon Year – 2020
- General Plan Buildout – Post 2020

As described previously, traffic conditions are evaluated in this report for both existing conditions and three future horizon years. Traffic count data was provided by the City of Corona. Data was also provided for the intersection of the SR-91 Westbound Ramps (NS) at Pomona Road (EW). The intersection of Lincoln Avenue (NS) at Pomona Road (EW) was selected for analysis because the traffic volumes are substantially higher. The traffic count data used in this analysis is included in Appendix "A" of this letter report.

The CMP Horizon Year (2020) with project traffic volumes have been derived from the subregional travel demand model currently being used for long range planning in San Bernardino County. This model is commonly referred to as the Comprehensive Transportation Plan (CTP) traffic model. The CTP traffic model is currently the only approved travel demand forecasting tool within the study area, as none of the locally developed travel demand models in the study area have received the necessary "finding of consistency" (with the CTP traffic model) from SANBAG/SCAG. The Chino Traffic Model (CTM) was consistent with previous versions of the regional analysis tool, but was not updated to the newer 1994 base year and 2020 horizon year. The CTM cannot be used for this reason. The socio-economic data inputs to the CTP model are representative of the planned project development intensity.

Based upon discussions with SANBAG staff, the average daily traffic (ADT) volume forecasts have been determined using the growth increment approach utilizing the CTP traffic model 1994 and 2020 ADT volume forecasts (see Appendix "B"). This difference defines the growth in traffic over the 26 year period. The incremental growth in ADT volume has been factored to reflect the forecast growth between 2001 and 2020. For this purpose, linear growth between the Year 1994 base condition and the forecast 2020 condition was assumed. Since the increment between 2001 and 2020 is 19 years of the 26 year time frame, a factor of 0.73 (i.e., 19/26) was used. Daily traffic volumes have been adjusted to eliminate negative growth.

The 2020 with project daily and peak hour directional roadway segment volume forecasts have been determined using the growth increment approach on the CTP traffic model

1994 and 2020 peak hour volumes. The incremental growth calculations are shown in Appendix "B". Current peak hour intersection approach/departure data is a necessary input to this approach. The existing traffic count data serves as both the starting point for the refinement process, and also provides important insight into current travel patterns and the relationship between peak hour and daily traffic conditions. The initial turning movement proportions are estimated based upon the relationship of each approach leg's forecast traffic volume to the other legs forecast volumes at the intersection. The initial estimate of turning movement proportions is then entered into a spreadsheet program consistent with the National Cooperative Highway Research Program (NCHRP Report 255). A linear programming algorithm is used to calculate individual turning movements which match the known directional roadway segment volumes computed in the previous step. This program computes a likely set of intersection turning movements from intersection approach counts and the initial turning proportions from each approach leg.

The Interim 2010 With Project traffic volumes have been interpolated from the 2020 With Project traffic volumes based upon a portion of the future growth increment.

Project traffic volumes for all future conditions projections were estimated for informational purposes using the manual approach described in the CMP guidelines. Trip generation has been estimated based on the regression equations contained in the Institute of Transportation Engineers (ITE) Trip Generation and the San Diego Association of Governments (SANDAG) Traffic Generators reports. The project trip distributions were developed based on a review of existing traffic volumes and projected future traffic patterns as predicted by the CTP traffic model.

Consistent with the previously circulated traffic analysis, project traffic volumes were then subtracted from the future year CTP traffic model volumes to determine 2010 and 2020 without project traffic volumes. Quality control checks and forecast adjustments were performed as necessary to ensure that all future traffic volume forecasts reflect non-negative growth over existing traffic volumes. The result of this traffic forecasting procedure is a series of traffic volumes suitable for traffic operations analysis.

The current technical guide to the evaluation of traffic operations is the 2000 Highway Capacity Manual (HCM) (Transportation Research Board Special Report 209). The HCM defines level of service as a qualitative measure which describes operational conditions within a traffic stream, generally in terms of such factors as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience, and safety. The criteria used to evaluate LOS (Level of Service) conditions vary based on the type of roadway and whether the traffic flow is considered interrupted or uninterrupted.

The definitions of level of service for uninterrupted flow (flow unrestrained by the existence of traffic control devices) are:

- LOS "A" represents free flow. Individual users are virtually unaffected by the presence of others in the traffic stream.

- LOS "B" is in the range of stable flow, but the presence of other users in the traffic stream begins to be noticeable. Freedom to select desired speeds is relatively unaffected, but there is a slight decline in the freedom to maneuver.

- LOS "C" is in the range of stable flow, but marks the beginning of the range of flow in which the operation of individual users becomes significantly affected by interactions with others in the traffic stream.

- LOS "D" represents high-density but stable flow. Speed and freedom to maneuver are severely restricted, and the driver experiences a generally poor level of comfort and convenience.

- LOS "E" represents operating conditions at or near the capacity level. All speeds are reduced to a low, but relatively uniform value. Small increases in flow will cause breakdowns in traffic movement.

- LOS "F" is used to define forced or breakdown flow. This condition exists wherever the amount of traffic approaching a point exceeds the amount, which can traverse the point. Queues form behind such locations.

The definitions of level of service for interrupted traffic flow (flow restrained by the existence of traffic signals and other traffic control devices) differ slightly depending on the type of traffic control.

The level of service is typically dependent on the quality of traffic flow at the intersections along a roadway. The HCM methodology expresses the level of service at an intersection in terms of delay time for the various intersection approaches. The HCM uses different procedures depending on the type of intersection control. The levels of service determined in this study are determined using the HCM methodology.

For signalized intersections, average total delay per vehicle for the overall intersection is used to determine level of service. Levels of service at the signalized study area intersections have been evaluated using an HCM intersection analysis program.

The study area intersections that are stop sign controlled with stop control on the minor street only have been analyzed using the unsignalized intersection methodology of the HCM. For these intersections, the calculation of level of service is dependent on the occurrence of gaps occurring in the traffic flow of the main street. Using data collected describing the intersection configuration and traffic volumes at each study area location, the level of service has been calculated. The level of service criteria for this type of intersection analysis is based on average total delay per vehicle for the worst minor street movement.

For all way stop (AWS) controlled intersections, the ability of vehicles to enter the intersection is not controlled by the occurrence of gaps in the flow of the main street. The AWS controlled intersection has been evaluated using the HCM methodology for this type

of multi-way stop controlled intersection configuration. The level of service criteria for this type of intersection analysis is based on average total delay per vehicle for the overall intersection.

The levels of service are defined for the various analysis methodologies as follows:

LEVEL OF SERVICE	AVERAGE TOTAL DELAY PER VEHICLE (SECONDS)	
	SIGNALIZED	UNSIGNALIZED
A	0 to 10.00	0 to 10.00
B	10.01 to 20.00	10.01 to 15.00
C	20.01 to 35.00	15.01 to 25.00
D	35.01 to 55.00	25.01 to 35.00
E	55.01 to 80.00	35.01 to 50.00
F	80.01 and up	50.01 and up

The LOS analysis for signalized intersections has been performed using optimized signal timing. This analysis has included an assumed lost time of three seconds per phase in accordance with HCM recommended default values. Signal timing optimization has considered pedestrian safety and signal coordination requirements. Appropriate timings for pedestrian crossings have also been considered in the signalized intersection analysis. Saturation flow rates of 1,900 vehicles per hour of green (vphg) have been assumed for all capacity analysis. The limit of acceptable traffic operations used by the City of Corona is LOS "D".

Intersection Analysis

Table 1 summarizes the intersection analysis results for existing conditions and three future horizon years. The HCM intersection analysis worksheets are included in

Appendix "C" of this letter report. As shown on Table 1, both intersections are currently operating at Level of Service "D" or better with the existing lane configurations.

For all three horizon years (2010, 2020 and Buildout) with and without the project traffic conditions, the intersection of Lincoln Avenue at SR-91 Eastbound Ramps are projected to operate at Level of Service "D" or better with the existing lane configurations. However, the intersection of Lincoln Avenue at Pomona Road is projected to operate at unacceptable levels of service for all future scenarios with the existing lane configuration.

Recommended Improvements

Table 1 summarizes the intersection improvement analysis for the three future horizon years. As shown on Table 1, both intersections are projected operate at Level of Service "D" or better with the recommended intersection improvements.

For 2010 with project traffic conditions, the following improvements are needed at the intersection of Lincoln Avenue at Pomona Road:

- Modify the eastbound and westbound traffic signal phasing from split-phasing to permitted phasing

For 2020 with project traffic conditions, the following additional improvements are needed at the intersection of Lincoln Avenue at Pomona Road:

- Restripe the two existing southbound through lanes to an exclusive right turn lane and a shared through-right lane

For Buildout with project traffic conditions, the following improvements are needed at the intersection of Lincoln Avenue at Pomona Road:

TABLE 1

INTERSECTION ANALYSIS SUMMARY

TRAFIC CONDITIONS / INTERSECTION	TC[4]	INTERSECTION APPROACH LANES[1]												PEAK HOUR			
		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			Delay[2]		LOS[3]	
		L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
EXISTING																	
Lincoln Avenue (NS) at:																	
• Pomona Rd. (EW)	TS	2	2	0	1	2	0	0	1	1>	1	1	0	29.4	44.1	C	D
• SR-91 EB Ramps (EW)	TS	1	2	1	1	2	0	0	1	0	0	1	1	18.6	20.4	B	C
2010 WITHOUT PROJECT																	
Lincoln Avenue (NS) at:																	
• Pomona Rd. (EW)	TS	2	2	0	1	2	0	0	1	1>	1	1	0	56.1	56.8	E	E
• SR-91 EB Ramps (EW)	TS	1	2	1	1	2	0	0	1	0	0	1	1	19.3	27.1	B	C
2010 WITH PROJECT																	
Lincoln Avenue (NS) at:																	
• Pomona Rd. (EW)	TS	2	2	0	1	2	0	0	1	1>	1	1	0	56.2	59.5	E	E
- With Improvements	TS[6]	2	2	0	1	2	0	0	1	1>	1	1	0	31.5	28.4	C	C
• SR-91 EB Ramps (EW)	TS	1	2	1	1	2	0	0	1	0	0	1	1	20.2	27.8	C	C
2020 WITHOUT PROJECT																	
Lincoln Avenue (NS) at:																	
• Pomona Rd. (EW)	TS	2	2	0	1	2	0	0	1	1>	1	1	0	--[5]	--[5]	F	F
• SR-91 EB Ramps (EW)	TS	1	2	1	1	2	0	0	1	0	0	1	1	21.7	41.2	C	D
2020 WITH PROJECT																	
Lincoln Avenue (NS) at:																	
• Pomona Rd. (EW)	TS	2	2	0	1	2	0	0	1	1>	1	1	0	--[5]	64.8	F	E
- With Improvements	TS[6]	2	2	0	1	0.5	1.5	0	1	1>	1	1	0	48.9	43.8	D	D
• SR-91 EB Ramps (EW)	TS	1	2	1	1	2	0	0	1	0	0	1	1	21.8	28.7	C	C
BUILDOUT WITH PROJECT																	
Lincoln Avenue (NS) at:																	
• Pomona Rd. (EW)	TS	2	2	0	1	2	0	0	1	1>	1	1	0	--[5]	--[5]	F	F
- With Improvements	TS[6]	2	2	0	1	2	1>>	0	1	1>	1	1	0	48.3	24.5	D	C
• SR-91 EB Ramps (EW)	TS	1	2	1	1	2	0	0	1	0	0	1	1	26.1	48.0	C	D

[1] When a right turn is designed, the lane can either be striped or unstriped. A curb side through lane 19 feet or greater in width is assumed to provide an unstriped right turn lane. L = Left; T = Through; R = Right; > = Right Turn Overlap Phasing; >> = Free Right Turn Lane
2 = Mitigated Lane

[2] Highway Capacity Manual (HCM) 2000 Operations Method (Delay in seconds)

[3] Level of Service (LOS)

[4] TS = Traffic Signal

[5] -- = Delay high. Intersection unstable, Level of Serice = "F"

[6] Modify Eastbound-Westbound traffic signal phasing from split-phasing to permitted-phasing.

U:\UcJobs\00731\Excel [00731-02.xls]TABLE 1

- Restripe southbound approach to provide two through lanes (e.g., return to existing configuration)
- Construct a southbound free-right turn lane

Improvement Costs

Improvements which will eliminate all anticipated roadway operational deficiencies throughout the study area have been identified for CMP Interim 2010, CMP Horizon 2020 and Buildout traffic conditions.

The approximate costs for the CMP 2020 improvements have generally been estimated using cost guidelines in the 1997 CMP Handbook (see the main report for further information). The total needed improvements and resulting costs are summarized in Table 2 for 2020 and Buildout conditions, respectively. The total cost of needed and unfunded arterial roadway improvements are $75,000 and $375,000 for 2020 and Buildout conditions, respectively.

Project Fair Share Contributions

In conformance with CMP requirements, project fair share contributions have also been calculated for intersection of Lincoln Avenue at Pomona Road. The project share of cost has been based on the proportion of project peak hour traffic contributed to the improvement location relative to the total new peak hour 2020 and Buildout traffic volumes.

Table 3 presents the summary of improvement cost and project cost shares at the intersection of Lincoln Avenue at Pomona Road for 2020 and Buildout conditions. The intersection fair share cost calculations are based on the PM peak hour traffic volumes, consistent with the main report. As shown in Table 3, the project's fair share of identified intersection improvement costs are $13,500 and $81,200 for 2020 and Buildout conditions, respectively.

TABLE 2

IMPROVEMENT COSTS

LOCATION	YEAR	RECOMMENDED IMPROVEMENT	COST
Lincoln Avenue (NS) at:			
• Pomona Road (EW)	2010	• Traffic Signal Phasing Modification	$ 50,000
	2020	• Restripe two existing southbound through lanes to an exclusive right turn lane and a shared through-right lane	$ 25,000
		SUBTOTAL (YEAR 2020)	$ 75,000
	Buildout	• Restripe southbound approach to include two through lanes	$ 25,000
		• Construct southbound free-right turn lane	$ 350,000
		SUBTOTAL (BUILDOUT)	$ 375,000
TOTAL COST			$ 450,000

U:\UcJobs\00731\Excel\[00731-02.xls]TABLE 2

TABLE 3

PROJECT FAIR SHARE INTERSECTION TRAFFIC CONTRIBUTION

INTERSECTION	YEAR	TOTAL COST	EXISTING TRAFFIC	PROJECT TRAFFIC	FUTURE WITH PROJECT TRAFFIC	NEW TRAFFIC	PROJECT PERCENT OF NEW TRAFFIC	PROJECT FAIR SHARE COST
Lincoln Ave. (NS) at:								
• Pomona Rd. (EW)	2020	$ 75,000	2,478	247	3,850	1,372	18.0%	$ 13,500
	Buildout	$ 375,000	2,478	311	3,914	1,436	21.7%	$ 81,200
TOTAL								$ 94,700

U:\UcJobs\00731\Excel\[00731-02.xls]TABLE 3

Conclusions

Based on this supplemental analysis, the project's fair share for improving the intersection of Lincoln Avenue at Pomona Road is a total of $94,700.

If you have any questions or require additional information, please don't hesitate to contact me at (949) 660-1994.

Sincerely,
URBAN CROSSROADS, INC.

REGISTERED PROFESSIONAL ENGINEER
CARLETON WATERS
NO. 52916
EXP. 12/09
STATE OF CALIFORNIA

Carleton Waters, P.E.
Associate Principal

00731-03
TH:CW:rd

Attachments

CHINO AGRICULTURE PRESERVE SUBAREA 2
TRAFFIC IMPACT ANALYSIS (REVISED)
CHINO, CALIFORNIA

Prepared for:

Mr. Tom Holm
MICHAEL BRANDMAN ASSOCIATES
15901 Red Hill Avenue, Suite 200
Tustin, CA 92780-7318

Prepared by:

URBAN CROSSROADS, INC.
41 Corporate Park, Suite 210
Irvine, CA 92606

Tom Huang
John Kain, AICP
Carleton Waters, P.E.

May 17, 2001
May 7, 2002 (Revised)
July 16, 2002 (Revised)

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TABLE OF CONTENTS

SECTION		PAGE
1.	INTRODUCTION	1-1
	1.1 Project Overview	
	1.2 Study Area	
	1.3 Analysis Methodologies	
	1.4 Definition of Deficiency and Significant Impact	
2.	PROJECT DESCRIPTION AND CMP TRAFFIC CONTRIBUTION TEST	2-1
	2.1 Project Description	
	2.2 Project Traffic	
3.	EXISTING CONDITIONS	3-1
	3.1 Existing Roadway System and Daily Traffic Volumes	
	3.2 Existing Peak Hour Traffic Volumes	
	3.3 Existing Traffic Operations	
	3.4 Planned Transportation Improvements and Relationships to General Plan	
4.	FUTURE TRAFFIC CONDITIONS	4-1
	4.1 Future Without Project Traffic Conditions	
	4.2 Future With Project Traffic Conditions	
5.	FUTURE TRAFFIC OPERATIONS ANALYSIS	5-1
	5.1 2010 Traffic Operations	
	5.2 Future CMP Horizon 2020 Traffic Operations	
	5.3 Future Buildout Traffic Operations	
	5.4 CMP Freeway Evaluation	
6.	IMPROVEMENT COSTS AND PROJECT CONTRIBUTION	6-1
	6.1 CMP Required Improvements and Costs	
	6.2 Project Contribution and Fair Share Costs	
7.	SUMMARY AND RECOMMENDATIONS	7-1
	7.1 Summary	
	7.2 Recommendations	

APPENDICES

ADT GROWTH INCREMENT CALCULATIONS, PEAK HOUR DIRECTIONAL GROWTH INCREMENT CALCULATIONS AND FUTURE PEAK HOUR INTERSECTION TURNING MOVEMENT CALCULATIONS ..... A

TRAFFIC COUNT DATA ..... B

EXISTING CONDITIONS INTERSECTION ANALYSIS C

TRAFFIC SIGNAL WARRANTS ..... D

INTERIM 2010 CONDITIONS INTERSECTION ANALYSIS WITHOUT PROJECT (WITHOUT IMPROVEMENTS) ..... E

INTERIM 2010 CONDITIONS INTERSECTION ANALYSIS WITH PROJECT (WITHOUT IMPROVEMENTS) ..... F

INTERIM 2010 CONDITIONS INTERSECTION ANALYSIS WITH PROJECT (WITH IMPROVEMENTS) ..... G

2020 CONDITIONS INTERSECTION ANALYSIS WITHOUT PROJECT (WITHOUT IMPROVEMENTS) ..... H

2020 CONDITIONS INTERSECTION ANALYSIS WITH PROJECT (WITHOUT IMPROVEMENTS) I

2020 CONDITIONS INTERSECTION ANALYSIS WITH PROJECT (WITH IMPROVEMENTS) ..... J

BUILDOUT CONDITIONS INTERSECTION ANALYSIS WITH PROJECT (WITHOUT IMPROVEMENTS) ..... K

BUILDOUT CONDITIONS INTERSECTION ANALYSIS WITH PROJECT (WITH IMPROVEMENTS) L

PRELIMINARY CONSTRUCTION COST ESTIMATES FOR CMP ..... M

LIST OF EXHIBITS

EXHIBIT		PAGE
1-A	PROJECT LOCATION MAP	1-2
1-B	CONGESTION MANAGEMENT PROGRAM NETWORK AND STUDY AREA LIMITS	1-3
1-C	PROJECT LAND USE PLAN	1-5
2-A	PROJECT TRAFFIC ANALYSIS ZONE (TAZ) MAP	2-2
2-B	PROJECT TRIP DISTRIBUTION	2-14
2-C	HEAVY TRUCK TRIP DISTRIBUTION	2-15
2-D	INTERIM (2010) PROJECT AVERAGE DAILY TRAFFIC (ADT)	2-17
2-E	INTERIM (2010) PROJECT AM PEAK HOUR INTERSECTION VOLUMES (PART 1/2)	2-19
2-E	INTERIM (2010) PROJECT AM PEAK HOUR INTERSECTION VOLUMES (PART 2/2)	2-20
2-F	INTERIM (2010) PROJECT PM PEAK HOUR INTERSECTION VOLUMES (PART 1/2)	2-21
2-F	INTERIM (2010) PROJECT PM PEAK HOUR INTERSECTION VOLUMES (PART 2/2)	2-22
2-G	2020 PROJECT AVERAGE DAILY TRAFFIC (ADT)	2-23
2-H	2020 PROJECT AM PEAK HOUR INTERSECTION VOLUMES (PART 1/2)	2-25
2-H	2020 PROJECT AM PEAK HOUR INTERSECTION VOLUMES (PART 2/2)	2-26
2-I	2020 PROJECT PM PEAK HOUR INTERSECTION VOLUMES (PART 1/2)	2-27
2-I	2020 PROJECT PM PEAK HOUR INTERSECTION VOLUMES (PART 2/2)	2-28

2-J BUILDOUT PROJECT AVERAGE DAILY TRAFFIC (ADT) 2-29

2-K BUILDOUT PROJECT
AM PEAK HOUR INTERSECTION VOLUMES (PART 1/2) 2-31

2-K BUILDOUT PROJECT
AM PEAK HOUR INTERSECTION VOLUMES (PART 2/2) 2-32

2-L BUILDOUT PROJECT
PM PEAK HOUR INTERSECTION VOLUMES (PART 1/2) 2-33

2-L BUILDOUT PROJECT
PM PEAK HOUR INTERSECTION VOLUMES (PART 2/2) 2-34

2-M CMP AM PEAK HOUR PROJECT
TRAFFIC CONTRIBUTION TEST VOLUMES 2-37

2-N CMP PM PEAK HOUR PROJECT
TRAFFIC CONTRIBUTION TEST VOLUMES 2-39

2-O CMP HORIZON (2020) ANALYSIS LOCATIONS 2-42

3-A EXISTING ANALYSIS LOCATIONS 3-2

3-B EXISTING NUMBER OF THROUGH LANES (PART 1/2) 3-3

3-B EXISTING NUMBER OF THROUGH LANES (PART 2/2) 3-4

3-C EXISTING INTERSECTION CONTROLS 3-5

3-D EXISTING AVERAGE DAILY TRAFFIC (ADT) 3-6

3-E EXISTING AM PEAK HOUR
INTERSECTION VOLUMES (PART 1/2) 3-8

3-E EXISTING AM PEAK HOUR
INTERSECTION VOLUMES (PART 2/2) 3-9

3-F EXISTING PM PEAK HOUR
INTERSECTION VOLUMES (PART 1/2) 3-10

3-F EXISTING PM PEAK HOUR
INTERSECTION VOLUMES (PART 2/2) 3-11

3-G CITY OF CHINO
GENERAL PLAN CIRCULATION ELEMENT 3-16

3-H CITY OF CHINO
TYPICAL ROADWAY CROSS-SECTIONS 3-17

3-I CITY OF CHINO HILLS
GENERAL PLAN CIRCULATION ELEMENT..... 3-18

3-J CITY OF CHINO HILLS
TYPICAL ROADWAY CROSS-SECTIONS (PART 1/5) 3-19

3-J CITY OF CHINO HILLS
TYPICAL ROADWAY CROSS-SECTIONS (PART 2/5) 3-20

3-J CITY OF CHINO HILLS
TYPICAL ROADWAY CROSS-SECTIONS (PART 3/5) 3-21

3-J CITY OF CHINO HILLS
TYPICAL ROADWAY CROSS-SECTIONS (PART 4/5) 3-22

3-J CITY OF CHINO HILLS
TYPICAL ROADWAY CROSS-SECTIONS (PART 5/5) 3-23

3-K CITY OF ONTARIO
GENERAL PLAN CIRCULATION ELEMENT..... 3-24

3-L CITY OF ONTARIO
TYPICAL ROADWAY CROSS-SECTIONS 3-25

3-M COUNTY OF SAN BERNARDINO
GENERAL PLAN CIRCULATION ELEMENT..... 3-26

3-N CITY OF NORCO
GENERAL PLAN CIRCULATION ELEMENT..... 3-27

3-O CITY OF NORCO
TYPICAL ROADWAY CROSS-SECTIONS 3-28

3-P CITY OF CORONA
GENERAL PLAN CIRCULATION ELEMENT..... 3-29

3-Q CITY OF CORONA
TYPICAL ROADWAY CROSS-SECTIONS (PART 1/2) 3-30

3-Q CITY OF CORONA
TYPICAL ROADWAY CROSS-SECTIONS (PART 2/2) 3-31

3-R RIVERSIDE COUNTY
GENERAL PLAN CIRCULATION ELEMENT 3-32

3-S RIVERSIDE COUNTY
TYPICAL ROADWAY CROSS-SECTIONS 3-33

4-A INTERIM 2010 WITHOUT PROJECT
AVERAGE DAILY TRAFFIC (ADT) 4-3

4-B 2020 WITHOUT PROJECT
AVERAGE DAILY TRAFFIC (ADT) 4-5

4-C INTERIM 2010 WITH PROJECT
AVERAGE DAILY TRAFFIC (ADT) 4-9

4-D 2020 WITH PROJECT
AVERAGE DAILY TRAFFIC (ADT) 4-13

5-A INTERIM (2010) WITHOUT PROJECT
AM PEAK HOUR INTERSECTION VOLUMES (PART 1/2) 5-4

5-A INTERIM (2010) WITHOUT PROJECT
AM PEAK HOUR INTERSECTION VOLUMES (PART 2/2) 5-5

5-B INTERIM (2010) WITHOUT PROJECT
PM PEAK HOUR INTERSECTION VOLUMES (PART 1/2) 5-6

5-B INTERIM (2010) WITHOUT PROJECT
PM PEAK HOUR INTERSECTION VOLUMES (PART 2/2) 5-7

5-C INTERIM 2010 WITH PROJECT
AM PEAK HOUR INTERSECTION VOLUMES (PART 1/2) 5-12

5-C INTERIM 2010 WITH PROJECT
AM PEAK HOUR INTERSECTION VOLUMES (PART 2/2) 5-13

5-D INTERIM (2010) WITH PROJECT
PM PEAK HOUR INTERSECTION VOLUMES (PART 1/2) 5-14

5-D INTERIM (2010) WITH PROJECT
PM PEAK HOUR INTERSECTION VOLUMES (PART 2/2) 5-15

5-E YEAR 2020 WITHOUT PROJECT
AM PEAK HOUR INTERSECTION VOLUMES (PART 1/2) 5-26

5-E YEAR 2020 WITHOUT PROJECT
AM PEAK HOUR INTERSECTION VOLUMES (PART 2/2) 5-27

5-F 2020 WITHOUT PROJECT
PM PEAK HOUR INTERSECTION VOLUMES (PART 1/2) 5-28

5-F 2020 WITHOUT PROJECT
PM PEAK HOUR INTERSECTION VOLUMES (PART 2/2) 5-29

5-G 2020 WITH PROJECT
AM PEAK HOUR INTERSECTION VOLUMES (PART 1/2) 5-35

5-G 2020 WITH PROJECT
AM PEAK HOUR INTERSECTION VOLUMES (PART 2/2) 5-36

5-H 2020 WITH PROJECT
PM PEAK HOUR INTERSECTION VOLUMES (PART 1/2) 5-37

5-H 2020 WITH PROJECT
PM PEAK HOUR INTERSECTION VOLUMES (PART 2/2) 5-38

5-I BUILDOUT WITH PROJECT
AM PEAK HOUR INTERSECTION VOLUMES (PART 1/2) 5-53

5-I BUILDOUT WITH PROJECT
AM PEAK HOUR INTERSECTION VOLUMES (PART 2/2) 5-54

5-J BUILDOUT WITH PROJECT
PM PEAK HOUR INTERSECTION VOLUMES (PART 1/2) 5-55

5-J BUILDOUT WITH PROJECT
PM PEAK HOUR INTERSECTION VOLUMES (PART 2/2) 5-56

LIST OF TABLES

TABLE		PAGE
2-1	PROJECT LAND USE SUMMARY	2-3
2-2	TRIP GENERATION RATES	2-6
2-3	PROJECT (2010) TRIP GENERATION	2-7
2-4	PROJECT (2020) TRIP GENERATION	2-9
2-5	PROJECT (BUILDOUT) TRIP GENERATION	2-11
2-6	CMP FREEWAY PROJECT TRIP CONTRIBUTION SUMMARY	2-41
3-1	EXISTING CONDITIONS INTERSECTION ANALYSIS	3-12
5-1	2010 WITHOUT PROJECT CONDITIONS INTERSECTION ANALYSIS	5-2
5-2	2010 WITH PROJECT CONDITIONS INTERSECTION ANALYSIS	5-10
5-3	2010 WITH PROJECT CONDITIONS INTERSECTION ANALYSIS WITH IMPROVEMENTS	5-18
5-4	2020 WITHOUT PROJECT CONDITIONS INTERSECTION ANALYSIS	5-24
5-5	2020 WITH PROJECT CONDITIONS INTERSECTION ANALYSIS	5-33
5-6	2020 WITH PROJECT CONDITIONS INTERSECTION ANALYSIS WITH IMPROVEMENTS	5-41
5-7	BUILDOUT WITH PROJECT CONDITIONS INTERSECTION ANALYSIS	5-51
5-8	BUILDOUT WITH PROJECT CONDITIONS INTERSECTION ANALYSIS WITH IMPROVEMENTS	5-60
5-9	CMP FREEWAY MAINLINE AM PEAK HOUR OPERATIONS ANALYSIS (YEAR 2020)	5-65

5-10 CMP FREEWAY MAINLINE PM PEAK HOUR OPERATIONS ANALYSIS (YEAR 2020) 5-67

5-11 CMP FREEWAY MAINLINE AM OPERATIONS ANALYSIS WITH IMPROVEMENTS (YEAR 2020) 5-69

5-12 CMP FREEWAY MAINLINE PM OPERATIONS ANALYSIS WITH IMPROVEMENTS (YEAR 2020) 5-71

6-1 2020 WITH PROJECT CONDITIONS SUMMARY OF INTERSECTION IMPROVEMENTS AND COSTS 6-2

6-2 BUILDOUT WITH PROJECT CONDITIONS SUMMARY OF INTERSECTION IMPROVEMENTS AND COSTS 6-8

6-3 SUMMARY OF CMP FREEWAY MAINLINE AM IMPROVEMENTS AND COSTS 6-15

6-4 SUMMARY OF CMP FREEWAY MAINLINE PM IMPROVEMENTS AND COSTS 6-17

6-5 2020 PROJECT FAIR SHARE INTERSECTION TRAFFIC CONTRIBUTION 6-20

6-6 BUILDOUT PROJECT FAIR SHARE INTERSECTION TRAFFIC CONTRIBUTION 6-22

6-7 PROJECT FREEWAY MAINLINE AM FAIR SHARE TRAFFIC CONTRIBUTION 6-24

6-8 PROJECT FREEWAY MAINLINE PM FAIR SHARE TRAFFIC CONTRIBUTION 6-26

6-9 PROJECT FREEWAY MAINLINE MAXIMUM FAIR SHARE TRAFFIC CONTRIBUTION 6-29

CHINO AGRICULTURE PRESERVE SUBAREA 2
TRAFFIC IMPACT ANALYSIS (REVISED)
CHINO, CALIFORNIA

1. INTRODUCTION

This report summarizes the traffic impact analysis conducted to assess the impacts of the potential land uses within the Chino Agriculture Preserve Subarea 2 (Chino Subarea 2) development on the roadway system in the study area. The project is located in the City of Chino. The general location of the project site is presented on Exhibit 1-A. The analysis has been updated to address San Bernardino Associated Governments (SANBAG) staff comments related to absorption and traffic modeling assumptions related to the project. The revised report is based on specific direction provided by SANBAG staff in order to satisfy the County's Congestion Management Program (CMP). Key changes include a modified project trip distribution and specific recognition at project generated heavy truck traffic.

The traffic issues related to the proposed land use and development have been evaluated in the context of the California Environmental Quality Act (CEQA) and the San Bernardino County Congestion Management Program (CMP). The City of Chino is the lead agency responsible for preparation of the traffic impact analysis, in accordance with both CEQA and CMP authorizing legislation. Exhibit 1-B depicts the CMP roadway network and study area limits. The CMP requires no analysis further than 5 miles from the project site. In accordance with CMP requirements, an Interim Year analysis, a CMP Horizon Year analysis and a Buildout analysis are included in this report.

The introduction to this report presents an overview of the project and provides a brief description of the study area. The analysis methodologies used to evaluate

EXHIBIT 1-A

PROJECT LOCATION MAP

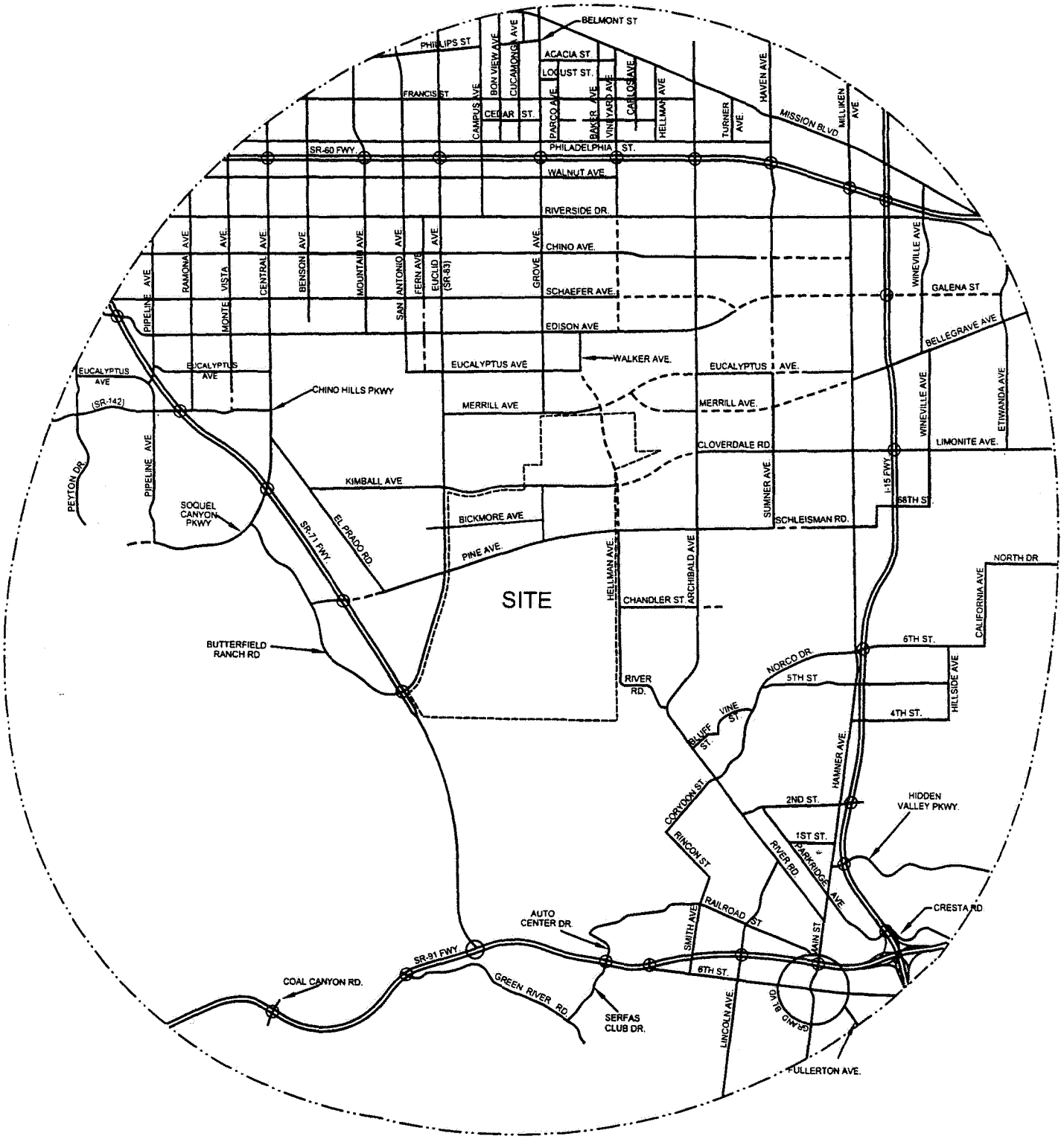

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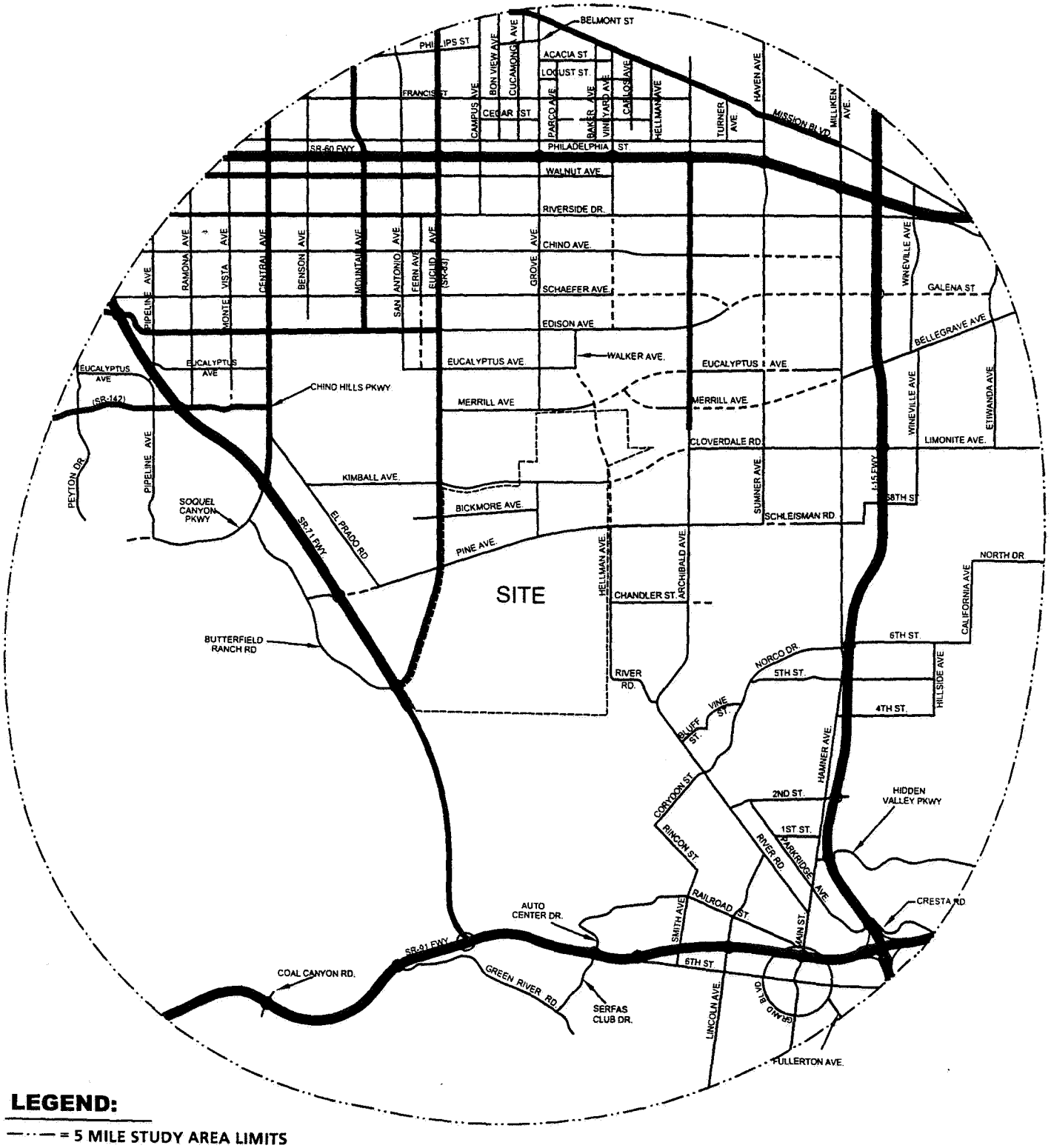
EXHIBIT 1-B

CONGESTION MANAGEMENT PROGRAM NETWORK AND STUDY AREA LIMITS



LEGEND:

—·—·— = 5 MILE STUDY AREA LIMITS

▬▬ = CMP ROADWAY

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URBAN CROSSROADS

the impacts of the project are described, and the definitions of roadway system deficiencies and significant project impacts are presented in the context of the CMP and CEQA requirements.

Subsequent sections of the report will describe the project in detail and provide a complete description of existing and projected traffic conditions within the study area.

1.1 Project Overview

The project site is located in the City of Chino. The project is located east of Euclid Avenue (SR-83) and south of Merrill Avenue (see Exhibit 1-A).

The approximately 5,435 acre project site is proposed to be developed with airport, light industrial, single-family detached residential, multi-family attached residential, hotel, open space-recreation, elementary school, junior high school, prison, agriculture, office, business park and commercial retail land uses. Exhibit 1-C illustrates the project land use plan.

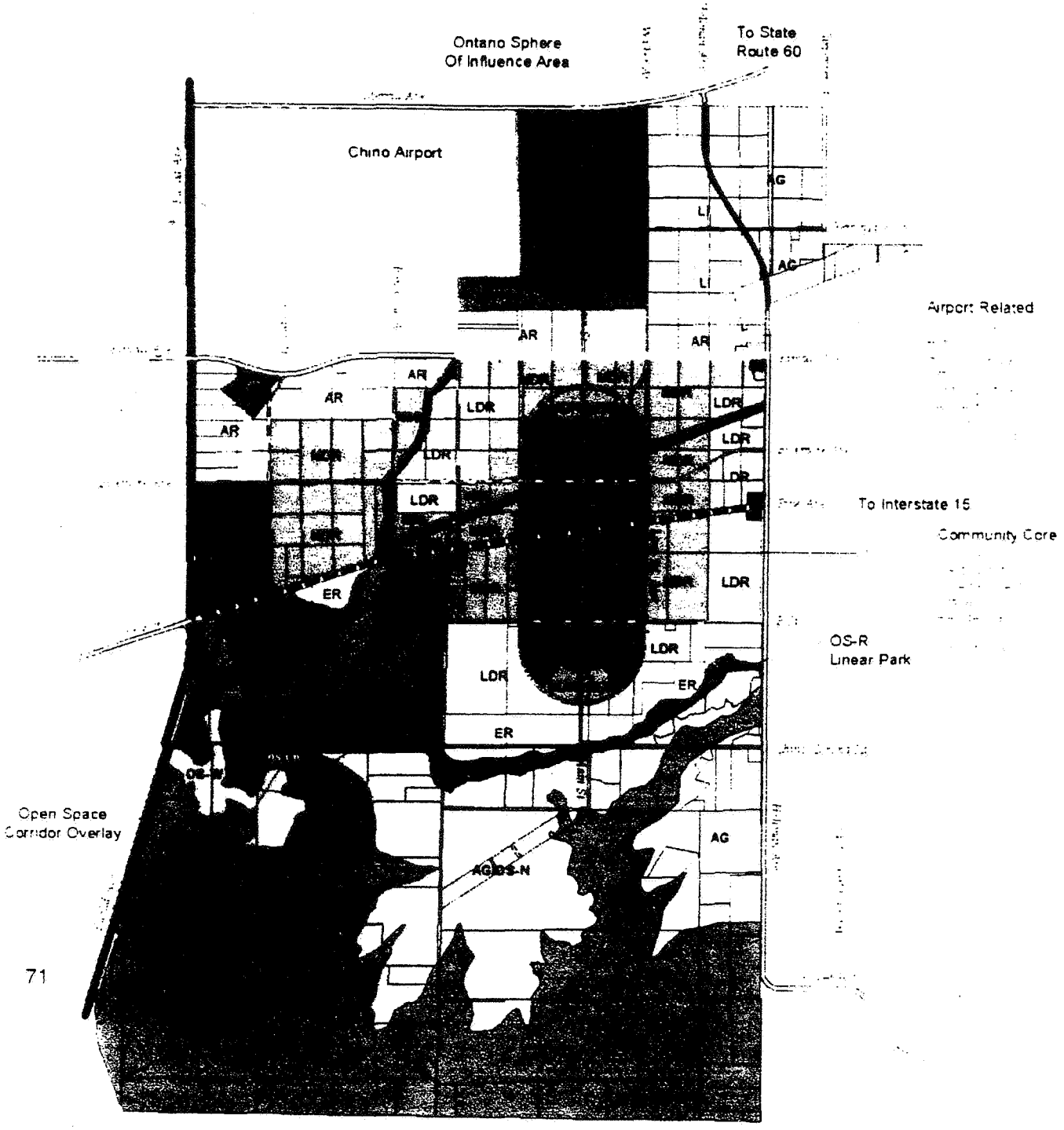
Additional detailed discussion of the roadway network features of the project and its traffic generation characteristics will be provided in subsequent sections of this report.

1.2 Study Area

The overall study area evaluated in this study was previously presented on Exhibit 1-B, which also identified all CMP roadways within the study area. The roadway elements which must be analyzed in accordance with

EXHIBIT 1-C

PROJECT LAND USE PLAN



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URBAN CROSSROADS

CMP requirements are dependent on both the analysis year (project Interim Year or CMP Horizon Year) and project generated traffic volumes.

Regional access to the site is provided by the I-15 Freeway, SR-60 Freeway, SR-71 Freeway and SR-91 Freeway. Local access is provided by various arterial roadways in the vicinity of the site. The east-west arterials which will be most affected by the project include Walnut Avenue, Riverside Drive, Edison Avenue, Galena Street, Chino Hills Parkway (SR-142), Merrill Avenue, Kimball Avenue, Cloverdale Road, Limonite Avenue, Bickmore Avenue, Pine Avenue, Schleisman Road, Chandler Street, River Road, Corydon Street and 2nd Street. North-south arterials expected to provide local access include Pipeline Avenue, Central Avenue, El Prado Road, Mountain Avenue, Euclid Avenue (SR-83), Grove Avenue, Walker Avenue, Hellman Avenue, Vineyard Avenue, Archibald Avenue, Haven Avenue and Hamner Avenue.

A series of scoping discussions were conducted with the following agencies to define the desired analysis locations for each future analysis year:

- City of Chino
- San Bernardino Associated Governments (SANBAG)

In addition, staff from the Southern California Association of Governments (SCAG) have also been contacted to discuss the project and its associated travel patterns. The previous traffic analysis report dated May 17, 2001 was widely distributed a part of the environmental analysis of project impacts.

The 2020 horizon year analysis locations are determined on the basis of projected 2020 project related traffic volumes. This information will be presented in subsequent sections of this report.

1.3 Analysis Methodologies

This section of the report presents the methodologies used to perform the traffic analyses summarized in this report. The methodologies described are consistent with the San Bernardino County Congestion Management Program. The following analysis years are considered in this report:

- Existing Conditions – 2001
- Project Interim Year – 2010
- CMP Horizon Year – 2020
- General Plan Buildout – Post 2020

The overall methodologies used to develop future traffic volume forecasts, and the explicit traffic operations analysis methodologies are summarized herein. The primary section of interest to the non-technically oriented reviewer is Section 1.4.2 (Definition of Significant Impact).

1.3.1 Overall Analysis Methodology

As described previously, traffic conditions are evaluated in this report for both existing conditions and three future horizon years. Actual traffic count data were obtained from a variety of sources to quantify existing traffic conditions. Traffic count data was also collected by Urban Crossroads, Inc. specifically for this study. This traffic data was supplemented by information obtained from the City of Chino, City of Ontario, and Caltrans.

The CMP Horizon Year (2020) with project traffic volumes have been derived from the subregional travel demand model currently being used for long range planning in San Bernardino County. This model is commonly referred to as the Comprehensive Transportation Plan (CTP) traffic model. The CTP traffic model is currently the only approved travel demand forecasting tool within the study area, as none of the locally developed travel demand models in the study area have received the necessary "finding of consistency" (with the CTP traffic model) from SANBAG/SCAG. The Chino Traffic Model (CTM) was consistent with previous versions of the regional analysis tool, but was not updated to the newer 1994 base year and 2020 horizon year. The CTM cannot be used for this reason. The socio-economic data inputs to the CTP model are representative of the planned project development intensity.

Based upon discussions with SANBAG staff, the average daily traffic (ADT) volume forecasts have been determined using the growth increment approach on the CTP traffic model 1994 and 2020 ADT volume forecasts (see Appendix "A"). This difference defines the growth in traffic over the 26 year period. The incremental growth in ADT volume has been factored to reflect the forecast growth between 2001 and 2020. For this purpose, linear growth between the Year 1994 base condition and the forecast 2020 condition was assumed. Since the increment between 2001 and 2020 is 19 years of the 26 year time frame, a factor of 0.73 (i.e., 19/26) was used. Daily traffic volumes have been adjusted to eliminate negative growth.

The 2020 with project daily and peak hour directional roadway segment volume forecasts have been determined using the growth increment approach on the CTP traffic model 1994 and 2020 peak

hour volumes. The incremental growth calculations are shown in Appendix "A". Current peak hour intersection approach/departure data is a necessary input to this approach. The existing traffic count data serves as both the starting point for the refinement process, and also provides important insight into current travel patterns and the relationship between peak hour and daily traffic conditions. The initial turning movement proportions are estimated based upon the relationship of each approach leg's forecast traffic volume to the other legs forecast volumes at the intersection. The initial estimate of turning movement proportions is then entered into a spreadsheet program consistent with the National Cooperative Highway Research Program (NCHRP Report 255). A linear programming algorithm is used to calculate individual turning movements which match the known directional roadway segment volumes computed in the previous step. This program computes a likely set of intersection turning movements from intersection approach counts and the initial turning proportions from each approach leg.

The Interim 2010 With Project traffic volumes have been interpolated from the 2020 With Project traffic volumes based upon a portion of the future growth increment.

Project traffic volumes for all future conditions projections were estimated for informational purposes using the manual approach described in the CMP guidelines. Trip generation has been estimated based on the regression equations contained in the Institute of Transportation Engineers (ITE) Trip Generation and the San Diego Association of Governments (SANDAG) Traffic Generators reports. The project trip distributions were developed based on a review of existing traffic volumes and projected future traffic patterns as predicted by the CTP traffic model.

Consistent with the previously circulated traffic analysis, project traffic volumes were then subtracted from the future year CTP traffic model volumes to determine 2010 and 2020 without project traffic volumes. Quality control checks and forecast adjustments were performed as necessary to ensure that all future traffic volume forecasts reflect non-negative growth over existing traffic volumes. The result of this traffic forecasting procedure is a series of traffic volumes suitable for traffic operations analysis.

1.3.2 Traffic Operations Analysis

The technical guide to the evaluation of traffic operations used in this traffic analysis, consistent with the previously circulated analysis; is the 1997 Highway Capacity Manual (HCM) (Transportation Research Board Special Report 209). The HCM defines level of service as a qualitative measure which describes operational conditions within a traffic stream, generally in terms of such factors as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience, and safety. The criteria used to evaluate LOS (Level of Service) conditions vary based on the type of roadway and whether the traffic flow is considered interrupted or uninterrupted.

The definitions of level of service for uninterrupted flow (flow unrestrained by the existence of traffic control devices) are:

- LOS "A" represents free flow. Individual users are virtually unaffected by the presence of others in the traffic stream.

- LOS "B" is in the range of stable flow, but the presence of other users in the traffic stream begins to be noticeable. Freedom to select desired speeds is relatively unaffected, but there is a slight decline in the freedom to maneuver.

- LOS "C" is in the range of stable flow, but marks the beginning of the range of flow in which the operation of individual users becomes significantly affected by interactions with others in the traffic stream.

- LOS "D" represents high-density but stable flow. Speed and freedom to maneuver are severely restricted, and the driver experiences a generally poor level of comfort and convenience.

- LOS "E" represents operating conditions at or near the capacity level. All speeds are reduced to a low, but relatively uniform value. Small increases in flow will cause breakdowns in traffic movement.

- LOS "F" is used to define forced or breakdown flow. This condition exists wherever the amount of traffic approaching a point exceeds the amount which can traverse the point. Queues form behind such locations.

Uninterrupted flow is generally found only on limited access (freeway) facilities in urban areas. The level of service is based on the HCM, Table 3-1.

The definitions of level of service for interrupted traffic flow (flow restrained by the existence of traffic signals and other traffic control devices) differ slightly depending on the type of traffic control.

The level of service is typically dependent on the quality of traffic flow at the intersections along a roadway. The HCM methodology expresses the level of service at an intersection in terms of

delay time for the various intersection approaches. The HCM uses different procedures depending on the type of intersection control. The levels of service determined in this study are calculated using the HCM methodology.

For signalized intersections, average total delay per vehicle for the overall intersection is used to determine level of service. Levels of service at signalized study intersections have been evaluated using an HCM intersection analysis program.

The study area intersections which are stop sign controlled with stop-control on the minor street only have been analyzed using the two-way stop-controlled unsignalized intersection analysis methodology of the HCM. For these intersections, the calculation of level of service is dependent on the occurrence of gaps occurring in the traffic flow of the main street. Using data collected describing the intersection configuration and traffic volumes at these locations to calculate average intersection delay, the level of service has been calculated. The level of service criteria for this type of intersection analysis is based on total delay per vehicle for the worst minor street movement(s).

For all way stop (AWS) controlled intersections, the ability of vehicles to enter the intersection is not controlled by the occurrence of gaps in the flow of the main street. The AWS controlled intersections have been evaluated using the HCM methodology for this type of multi-way stop controlled intersection configuration. The level of service criteria for this type of intersection analysis is based on average total delay per vehicle for the overall intersection.

The level of services are defined in terms of average delay for the intersection analysis methodology as follows:

LEVEL OF SERVICE	AVERAGE TOTAL DELAY PER VEHICLE (SECONDS)	
	SIGNALIZED	UNSIGNALIZED
A	0 to 10.00	0 to 10.00
B	10.01 to 20.00	10.01 to 15.00
C	20.01 to 35.00	15.01 to 25.00
D	35.01 to 55.00	25.01 to 35.00
E	55.01 to 80.00	35.01 to 50.00
F	80.01 and up	50.01 and up

Per CMP, signalized intersections are considered deficient (LOS "F") if the overall intersection critical volume to capacity (V/C) ratio equals or exceeds 1.0, even if the level of service defined by the delay value is below the defined LOS standard. The V/C ratio is defined as the critical volumes divided by the intersection capacity. A V/C ratio greater than 1.0 implies an infinite queue.

A level of service analysis must be conducted on all existing segments and intersections on the CMP network potentially impacted by the project or plan (as defined by the thresholds in Section 1B of the 2001 San Bernardino CMP). Urban segments (i.e., segments on roadways that are generally signalized) do not require segment analysis. Segment requirements can normally be determined by the analysis of lane requirements at intersections. Freeway mainline segments must be analyzed, and ramp-weaving analysis may be required at local discretion, if a ramp or weaving problem is anticipated.

The LOS analysis for signalized intersections has been performed using optimized signal timing. This analysis has included an assumed lost time of three seconds per phase in accordance with San Bernardino CMP recommended default values. Signal timing optimization has considered pedestrian safety and signal coordination requirements. Appropriate time for pedestrian crossings have also been considered in the signalized intersection analysis. The following formula has been used to calculate the pedestrian minimum times for all HCM runs:

[(Curb to Curb distance – 6 feet) / (4 feet/second)] + 7 seconds Clearance Interval (4 seconds).

Saturation flow rates of 1,800 vehicles per hour of green (vphg) for through and right turn lanes and 1,700 vehicles for single left turn lanes, 1,600 vehicles per lane for dual left turn lanes and 1,500 vehicles per lane for triple left turn lanes have been assumed for all capacity analysis. These are the default values recommended by the CMP guidelines.

As required by the San Bernardino CMP, the peak hour traffic volumes have been adjusted to peak 15 minute volumes for analysis purposes using the existing observed peak 15 minute to peak hour factors for all scenarios analyzed. Where feasible improvements in accordance with the local jurisdiction's General Plan and which result in acceptable operations cannot be identified, the Year 2020 peak hour factor has been adjusted upwards to 0.95. This is specifically allowed by the San Bernardino CMP guidelines to account for the effects of congestion on peak spreading. Peak spreading refers to the tendency of traffic to spread more evenly across time as congestion increases.

1.4 Definition of Deficiency and Significant Impact

The following definitions of deficiencies and significant impacts have been developed in accordance with the City of Chino CMP requirements.

1.4.1 Definition of Deficiency

The definition of an intersection deficiency has been obtained from the City of Chino General Plan. The General Plan states that peak hour intersection operations of LOS "D" or better are generally acceptable. Therefore, any intersection operating at LOS "E" or "F" will be considered deficient.

For freeway facilities, the CMP controls the definition of deficiency for purposes of this study. The CMP definition of deficiency is based on maintaining a level of service standard of LOS "E" or better, except where an existing LOS "F" condition is identified in the CMP document (San Bernardino CMP Table 2-1). A CMP deficiency is, therefore, defined as any freeway segment operating or projected to operate at LOS "F", unless the segment is identified explicitly in the CMP document.

The identification of a CMP deficiency requires further analysis in satisfaction of CMP requirements, including:

- Evaluation of the mitigation measures required to restore traffic operations to an acceptable level with respect to CMP LOS standards.

- Calculation of the project share of new traffic on the impacted CMP facility during peak hours of traffic.

- Estimation of the cost required to implement the improvements required to restore traffic operations to an acceptable level of service as described above.

This study incorporates each of these aspects for all locations where a CMP deficiency is identified.

1.4.2 Definition of Significant Impact

The identification of significant impacts is a requirement of CEQA, and is not directly addressed in the CMP document. The City of Chino General Plan and Circulation Element have been adopted in accordance with CEQA requirements, and any roadway improvements within the City of Chino which are consistent with these documents are not considered a significant impact, so long as the project contributes its "fair share" funding for improvements.

A traffic impact is considered significant if the project both: i) contributes measurable traffic to and ii) substantially and adversely changes the level of service at any off-site location projected to experience deficient operations under foreseeable cumulative conditions, where feasible improvements consistent with the City of Chino General Plan cannot be constructed.

2. PROJECT DESCRIPTION AND CMP TRAFFIC CONTRIBUTION TEST

This section describes the project land uses and traffic characteristics for each of the future horizon years analyzed. The CMP traffic contribution test used to determine the CMP Horizon 2020 analysis locations is also presented in this section.

2.1 Project Description

The project land use plan was previously presented on Exhibit 1-C. The approximately 5,435 acre project site is proposed to be developed with airport, light industrial, single-family detached residential, multi-family attached residential, hotel, open space-recreation, elementary school, junior high school, prison, agriculture, office, business park and commercial retail land uses. Exhibit 1-C illustrates the project land use plan. In order to quantify the project site land uses, the Chino Agricultural Preserve Subarea 2 development has been subdivided into ten (10) traffic analysis zones (TAZ's), as shown on Exhibit 2-A.

The project land use is summarized on Table 2-1. Partial absorption of all uses is anticipated for all land uses by 2010. Full absorption, except for commercial and some office uses; is generally expected by 2020.

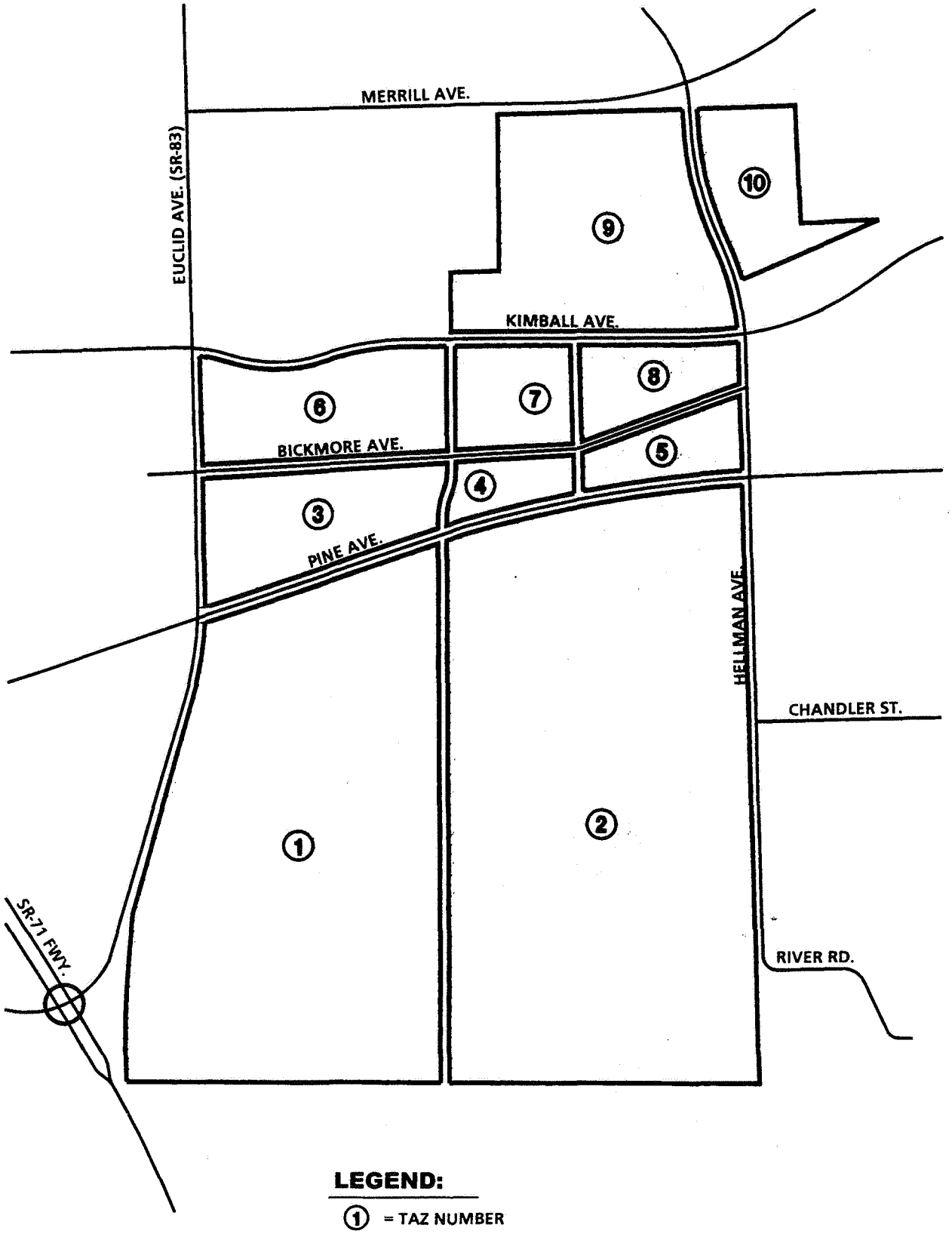
2.2 Project Traffic

The traffic related to the project has been calculated in accordance with the following accepted procedural steps:

- Trip Generation
- Trip Distribution
- Traffic Assignment

EXHIBIT 2-A

PROJECT TRAFFIC ANALYSIS ZONE (TAZ) MAP



LEGEND:

1 = TAZ NUMBER

= TAZ BOUNDARY

N

TABLE 2-1

PROJECT LAND USE SUMMARY

TRAFFIC ANALYSIS ZONE	LAND USE DESCRIPTION	2010		2020		SPECIFIC PLAN BUILDOUT	
1	Single-Family Detached Residential			26.00	DU	26.00	DU
	Open Space Recreation			285.50	AC	299.13	AC
	Prison	122.00	AC	122.00	AC	122.00	AC
2	Agriculture			185.00	AC	185.00	AC
	Single-Family Detached Residential			2,304.00	DU	2,304.00	DU
	Multi-Family Attached Residential			1,607.00	DU	1,607.00	DU
	Open Space Recreation			55.20	AC	55.20	AC
	Elementary School			1,200.00	ST	1,200.00	ST
	Commercial Retail (Neighborhood)	52.59	TSF	52.59	TSF	52.59	TSF
	Commercial Retail (Community Core)	30.38	TSF	179.36	TSF	185.60	TSF
	Office (Community Core)			184.70	TSF	184.70	TSF
3	Single-Family Detached Residential	741.00	DU	1,163.00	DU	1,163.00	DU
	Open Space Recreation			15.00	AC	15.00	AC
	Commercial Retail (Regional Comm)					656.11	TSF
	Office (Regional Comm)					140.60	TSF
4	Single-Family Detached Residential			248.00	DU	248.00	DU
	Multi-Family Attached Residential			291.00	DU	291.00	DU
	Commercial Retail (Community Core)	10.00	TSF	33.45	TSF	34.00	TSF
	Office (Community Core)	18.50	TSF	34.79	TSF	34.79	TSF
	Open Space Recreation			9.10	AC	9.10	AC
5	Single-Family Detached Residential	314.00	DU	587.00	DU	587.00	DU
	Multi-Family Attached Residential			356.00	DU	356.00	DU
	Open Space Recreation			15.80	AC	15.80	AC
	Commercial Retail (Neighborhood)	21.80	TSF	21.80	TSF	21.80	TSF
	Commercial Retail (Community Core)	16.12	TSF	38.45	TSF	39.20	TSF
	Office (Community Core)	18.50	TSF	37.79	TSF	38.30	TSF
6	Single-Family Detached Residential	744.00	DU	1,000.00	DU	1,000.00	DU
	Open Space Recreation			28.10	AC	28.10	AC
	Hotel (Airport Related)			200.00	RM	200.00	RM
	Business Park (Airport Related)	30.00	TSF	449.80	TSF	449.80	TSF
	Light Industrial (Airport Related)	598.75	TSF	1,589.70	TSF	1,589.70	TSF
	Office (Airport Related)	11.60	TSF	75.00	TSF	224.10	TSF
	Commercial Retail (Airport Related)	6.70	TSF	25.05	TSF	159.63	TSF
7	Junior High School			1,000.00	ST	1,000.00	ST
	Single-Family Detached Residential	602.00	DU	785.00	DU	785.00	DU
	Multi-Family Attached Residential	149.00	DU	285.00	DU	285.00	DU
	Open Space Recreation			0.30	AC	0.30	AC
	Commercial Retail (Community Core)					38.35	TSF
	Office (Community Core)					39.36	TSF
8	Single-Family Detached Residential	683.00	DU	858.00	DU	858.00	DU
	Multi-Family Attached Residential	101.00	DU	269.00	DU	269.00	DU
	Commercial Retail (Neighborhood)	18.50	TSF	18.50	TSF	18.50	TSF
	Commercial Retail (Community Core)	10.80	TSF	31.40	TSF	31.40	TSF
	Office (Community Core)	31.40	TSF	31.40	TSF	31.40	TSF

TABLE 2-1 (CONTINUED)

PROJECT LAND USE SUMMARY

TRAFFIC ANALYSIS ZONE	LAND USE DESCRIPTION	2010		2020		SPECIFIC PLAN BUILDOUT	
9	Business Park (Airport Related)			353.88	TSF	353.88	TSF
	Light Industrial (Airport Related)			221.07	TSF	1,251.87	TSF
	Office (Airport Related)			64.86	TSF	177.74	TSF
	Commercial Retail (Airport Related)			24.49	TSF	127.40	TSF
	Hotel (Airport Related)					200.00	RM
	Light Industrial	1,531.51	TSF	3,602.26	TSF	3,602.26	TSF
	Airport - General Aviation			69.09	AC	69.09	AC
	Agriculture			207.27	AC	207.27	AC
10	Agriculture			160.08	AC	160.08	AC
	Light Industrial	284.74	TSF	554.74	TSF	554.74	TSF
TOTAL	Single-Family Detached Residential	3,084.00	DU	6,971.00	DU	6,971.00	DU
	Multi-Family Attached Residential	250.00	DU	2,808.00	DU	2,808.00	DU
	Business Park (Airport Related)	30.00	TSF	803.68	TSF	803.68	TSF
	Light Industrial (Airport Related)	598.75	TSF	1,810.77	TSF	2,841.57	TSF
	Office (Airport Related)	11.60	TSF	139.87	TSF	401.84	TSF
	Commercial Retail (Airport Related)	6.70	TSF	49.53	TSF	287.03	TSF
	Light Industrial	1,816.25	TSF	4,157.00	TSF	4,157.00	TSF
	Office (Community Core)	68.40	TSF	288.69	TSF	328.56	TSF
	Commercial Retail (Community Core)	67.30	TSF	282.67	TSF	328.56	TSF
	Commercial Retail (Neighborhood)	92.89	TSF	92.89	TSF	92.89	TSF
	Commercial Retail (Regional Comm)	-	TSF	-	TSF	656.11	TSF
	Office (Regional Comm.)	-	TSF	-	TSF	140.60	TSF
	Hotel (Airport Related)	-	RM	200.00	RM	400.00	RM
	Airport - General Aviation	-	AC	69.09	AC	69.09	AC
	Prison	122.00	AC	122.00	AC	122.00	AC
	Agriculture	-	AC	552.35	AC	552.35	AC
	Open Space Recreation	-	AC	409.00	AC	422.63	AC
	Jr High School	-	ST	1,000.00	ST	1,000.00	ST
	Commercial Retail	166.89	TSF	425.10	TSF	1,364.59	TSF

[1] TSF = Thousand Square Feet; DU = Dwelling Unit; RM = Rooms; ST = Students; ; AC = Acres

U:\UcJobs\00020\Excel\[00020-05.xls]TABLE 2-1

These steps are described in detail below.

2.2.1 Project Trip Generation

The Institute of Transportation Engineers (ITE) Trip Generation and the San Diego Association of Governments (SANDAG) Traffic Generators reports have been used to calculate the overall quantity of traffic which the project site is estimated to generate. Table 2-2 presents the rates and equations which have been obtained from ITE and SANDAG. The prison rate has been derived from traffic count data collected at the access points to the Chino Institute for Men. The heavy truck trip rates are provided by SANBAG staff.

Tables 2-3 to 2-5 summarize the projected trip generation by TAZ for the Chino Agricultural Preserve Subarea 2 development for 2010, 2020 and Buildout conditions, respectively.

For 2010 conditions, the interim development is projected to generate a total of approximately 71,499 trip-ends per day with 5,722 vehicles per hour during the AM peak hour and 7,793 vehicles per hour during the PM peak hour. The heavy truck vehicle volumes (included in the totals) are 1,254 trip-ends per day with 70 vehicles per hour during the AM peak hour.

For 2020 conditions, the development is projected to generate a total of approximately 192,493 trip-ends per day with 16,400 vehicles per hour during the AM peak hour and 20,540 vehicles per hour during the PM peak hour. The heavy truck (4+ axle) vehicle volumes (included in the totals) are 3,098 trip-ends per day with 172 vehicles per hour during the AM peak hour.

TABLE 2-2

TRIP GENERATION RATES[1]

LAND USE	UNITS[2]	PEAK-HOUR AM IN	PEAK-HOUR AM OUT	PEAK-HOUR PM IN	PEAK-HOUR PM OUT	DAILY
Single-Family Detached Residential	DU	0.19	0.56	0.65	0.36	9.57
Multi-Family Attached Residential	DU	0.07	0.37	0.36	0.18	5.86
Hotel	RM	0.34	0.22	0.32	0.29	8.23
Elementary School	ST	0.17	0.12	0.01	0.01	1.02
Junior High School	ST	0.26	0.20	0.08	0.08	1.45
Office (11.6 TSF)	TSF	2.54	0.35	1.35	6.60	21.88
Office (18.5 TSF)	TSF	2.31	0.32	0.92	4.49	19.63
Office (31.4 TSF)	TSF	2.08	0.28	0.62	3.03	17.36
Office (34.79 TSF)	TSF	2.03	0.28	0.58	2.82	16.95
Office (37.79 TSF)	TSF	2.00	0.27	0.55	2.67	16.63
Office (38.3 TSF)	TSF	1.99	0.27	0.54	2.65	16.58
Office (39.36TSF)	TSF	1.98	0.27	0.53	2.60	16.48
Office (64.86 TSF)	TSF	1.79	0.24	0.40	1.95	14.67
Office (75.0 TSF)	TSF	1.74	0.24	0.37	1.81	14.19
Office (140.6 TSF)	TSF	1.53	0.21	0.29	1.40	12.26
Office (177.74 TSF)	TSF	1.46	0.20	0.27	1.30	11.61
Office (184.7 TSF)	TSF	1.45	0.20	0.26	1.29	11.51
Office (224.1 TSF)	TSF	1.39	0.19	0.25	1.22	11.01
Business Park	TSF	1.20	0.23	0.30	0.99	12.76
Commercial Retail (6.7 TSF)	TSF	2.90	1.86	7.56	8.19	178.92
Commercial Retail (10.0 TSF)	TSF	2.47	1.58	6.59	7.14	155.09
Commercial Retail (10.8 TSF)	TSF	2.39	1.53	6.42	6.96	150.88
Commercial Retail (16.12 TSF)	TSF	2.04	1.30	5.61	6.07	130.78
Commercial Retail (18.5 TSF)	TSF	1.93	1.23	5.35	5.80	124.51
Commercial Retail (21.8 TSF)	TSF	1.80	1.15	5.06	5.48	117.42
Commercial Retail (24.49 TSF)	TSF	1.72	1.10	4.86	5.27	112.64
Commercial Retail (25.05 TSF)	TSF	1.70	1.09	4.83	5.23	111.74
Commercial Retail (30.38 TSF)	TSF	1.58	1.01	4.52	4.90	104.30
Commercial Retail (31.4 TSF)	TSF	1.56	0.99	4.47	4.84	103.08
Commercial Retail (33.45 TSF)	TSF	1.52	0.97	4.37	4.74	100.78
Commercial Retail (34.0 TSF)	TSF	1.51	0.96	4.35	4.71	100.19
Commercial Retail (38.35 TSF)	TSF	1.44	0.92	4.18	4.52	95.98
Commercial Retail (38.45 TSF)	TSF	1.43	0.92	4.17	4.52	95.89
Commercial Retail (39.2 TSF)	TSF	1.42	0.91	4.14	4.49	95.23
Commercial Retail (52.59 TSF)	TSF	1.26	0.81	3.75	4.06	85.75
Commercial Retail (127.4 TSF)	TSF	0.88	0.56	2.78	3.01	62.52
Commercial Retail (159.63 TSF)	TSF	0.81	0.52	2.57	2.79	57.68
Commercial Retail (179.36 TSF)	TSF	0.77	0.49	2.47	2.68	55.33
Commercial Retail (185.6 TSF)	TSF	0.76	0.49	2.44	2.65	54.66
Commercial Retail (656.11 TSF)	TSF	0.46	0.29	1.59	1.72	34.83
Airport - General Aviation	AC	0.16	0.38	0.54	0.54	6.00
Open Space Recreation	AC	0.40	0.40	0.80	0.80	20.00
Prison	AC	1.75	1.89	0.76	0.70	25.45
Agriculture	AC	0.10	0.10	0.10	0.10	2.00
Light Industrial (Auto)	TSF	0.68	0.14	0.18	0.70	5.81
Light Industrial (2&3 Axle Trucks)	TSF	0.03	0.01	0.01	0.03	0.63
Light Industrial (4+ Axle Trucks)	TSF	0.02	0.01	-	-	0.52
Light Industrial (Total)	TSF	0.73	0.16	0.19	0.73	6.96

[1] Source: Institute of Transportation Engineers (ITE), Trip Generation Sixth Editions, 1997, Land Use Categories 210, 230, 310, 520, 522, 710, 770 and 820.
Source: San Diego Association of Governments (SANDAG), San Diego Traffic Generators July 1998.
Source: ITE Land Use Category 130 (Apportioned according to City of Fontana trip rates.

[2] TSF = Thousand Square Feet; DU = Dwelling Unit; RM = Rooms; ST = Students; ; AC = Acres

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TABLE 2-3

PROJECT (2010) TRIP GENERATION

TRAFFIC ANALYSIS ZONE	LAND USE	PROPOSED QUANTITY		PEAK-HOUR AM IN	PEAK-HOUR AM OUT	PEAK-HOUR PM IN	PEAK-HOUR PM OUT	DAILY
1	Single-Family Detached Residential	-	-	-	-	-	-	-
	Open Space Recreation	-	-	-	-	-	-	-
	Prison	122.00	AC	214	231	93	85	3,105
	SUBTOTAL			214	231	93	85	3,105
2	Agriculture	-	-	-	-	-	-	-
	Single-Family Detached Residential	-	-	-	-	-	-	-
	Multi-Family Attached Residential	-	-	-	-	-	-	-
	Open Space Recreation	-	-	-	-	-	-	-
	Elementary School	-	-	-	-	-	-	-
	Commercial Retail (52.59 TSF)	52.59	TSF	66	43	197	214	4,510
	Commercial Retail (30.38 TSF)	30.38	TSF	48	31	137	149	3,169
	Office (184.7 TSF)	-	-	-	-	-	-	-
	SUBTOTAL			114	74	334	363	7,679
3	Single-Family Detached Residential	741.00	DU	141	415	482	267	7,091
	Open Space Recreation	-	-	-	-	-	-	-
	Commercial Retail (656.11 TSF)	-	-	-	-	-	-	-
	Office (140.6 TSF)	-	-	-	-	-	-	-
	SUBTOTAL			141	415	482	267	7,091
4	Single-Family Detached Residential	-	-	-	-	-	-	-
	Multi-Family Attached Residential	-	-	-	-	-	-	-
	Commercial Retail (10.0 TSF)	10.00	TSF	25	16	66	71	1,551
	Office (18.5 TSF)	18.50	TSF	43	6	17	83	363
	Open Space Recreation	-	-	-	-	-	-	-
	SUBTOTAL			68	22	83	154	1,914
5	Single-Family Detached Residential	314.00	DU	60	176	204	113	3,005
	Multi-Family Attached Residential	-	-	-	-	-	-	-
	Open Space Recreation	-	-	-	-	-	-	-
	Commercial Retail (21.8 TSF)	21.80	TSF	39	25	110	119	2,560
	Commercial Retail (16.12 TSF)	16.12	TSF	33	21	90	98	2,108
	Office (18.5 TSF)	18.50	TSF	43	6	17	83	363
	SUBTOTAL			175	228	421	413	8,036
6	Single-Family Detached Residential	744.00	DU	141	417	484	268	7,120
	Open Space Recreation	-	-	-	-	-	-	-
	Hotel	-	-	-	-	-	-	-
	Business Park	30.00	TSF	36	7	9	30	383
	Light Industrial (Auto)	598.75	TSF	405	84	110	418	3,476
	Light Industrial (2&3 Axle Trucks)	598.75	TSF	17	8	4	19	380
	Light Industrial (4+ Axle Trucks)	598.75	TSF	14	3	-	-	311
	Office (11.6 TSF)	11.60	TSF	29	4	16	77	254
	Commercial Retail (6.7 TSF)	6.70	TSF	19	12	51	55	1,199
	SUBTOTAL (Autos Only)			630	524	670	848	12,432
	SUBTOTAL (2&3 Axle Trucks Only)			17	8	4	19	380
	SUBTOTAL (4+ Axle Trucks Only)			14	3	-	-	311
	SUBTOTAL (All Vehicles)			661	535	674	867	13,123

TABLE 2-3 (CONTINUED)

PROJECT (2010) TRIP GENERATION

TRAFFIC ANALYSIS ZONE	LAND USE	PROPOSED QUANTITY		PEAK-HOUR AM IN	PEAK-HOUR AM OUT	PEAK-HOUR PM IN	PEAK-HOUR PM OUT	DAILY
7	Junior High School	-	-	-	-	-	-	-
	Single-Family Detached Residential	602.00	DU	114	337	391	217	5,761
	Multi-Family Attached Residential	149.00	DU	10	55	54	27	873
	Open Space Recreation	-	-	-	-	-	-	-
	Commercial Retail (38.35 TSF)	-	-	-	-	-	-	-
	Office (39.36TSF)	-	-	-	-	-	-	-
	SUBTOTAL			124	392	445	244	6,634
8	Single-Family Detached Residential	683.00	DU	130	382	444	246	6,536
	Multi-Family Attached Residential	101.00	DU	7	37	36	18	592
	Commercial Retail (18.5 TSF)	18.50	TSF	36	23	99	107	2,303
	Commercial Retail (10.8 TSF)	10.80	TSF	26	17	69	75	1,630
	Office (31.4 TSF)	31.40	TSF	65	9	19	95	545
	SUBTOTAL			264	468	667	541	11,606
9	Business Park	-	-	-	-	-	-	-
	Light Industrial (Auto)	-	-	-	-	-	-	-
	Light Industrial (2&3 Axle Trucks)	-	-	-	-	-	-	-
	Light Industrial (4+ Axle Trucks)	-	-	-	-	-	-	-
	Office (64.86 TSF)	-	-	-	-	-	-	-
	Commercial Retail (24.49 TSF)	-	-	-	-	-	-	-
	Hotel	-	-	-	-	-	-	-
	Light Industrial (Auto)	1,531.51	TSF	1,037	216	280	1,069	8,892
	Light Industrial (2&3 Axle Trucks)	1,531.51	TSF	44	21	11	49	971
	Light Industrial (4+ Axle Trucks)	1,531.51	TSF	37	8	-	-	795
	Airport - General Aviation	-	-	-	-	-	-	-
	Agriculture	-	-	-	-	-	-	-
	SUBTOTAL (Autos Only)			1,037	216	280	1,069	8,892
	SUBTOTAL (2&3 Axle Trucks Only)			44	21	11	49	971
	SUBTOTAL (4+ Axle Trucks Only)			37	8	-	-	795
	SUBTOTAL (All Vehicles)			1,118	245	291	1,118	10,658
10	Agriculture	-	-	-	-	-	-	-
	Light Industrial (Auto)	284.74	TSF	193	40	52	199	1,653
	Light Industrial (2&3 Axle Trucks)	284.74	TSF	8	4	2	9	181
	Light Industrial (4+ Axle Trucks)	284.74	TSF	7	1	-	-	148
	SUBTOTAL (Autos Only)			193	40	52	199	1,653
	SUBTOTAL (2&3 Axle Trucks Only)			8	4	2	9	181
	SUBTOTAL (4+ Axle Trucks Only)			7	1	-	-	148
	SUBTOTAL (All Vehicles)			208	45	54	208	1,982
TOTAL	Autos Trips			2,945	2,605	3,525	4,174	68,713
	Truck Trips (2&3 Axle Trucks Only)			69	33	17	77	1,532
	Truck Trips (4+ Axle Trucks Only)			58	12	-	-	1,254
	All Vehicle Trips			3,072	2,650	3,542	4,251	71,499

[1] TSF = Thousand Square Feet; DU = Dwelling Unit; RM = Rooms; ST = Students; ; AC = Acres

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TABLE 2-4

PROJECT (2020) TRIP GENERATION

TRAFFIC ANALYSIS ZONE	LAND USE	PROPOSED QUANTITY		PEAK-HOUR AM IN	PEAK-HOUR AM OUT	PEAK-HOUR PM IN	PEAK-HOUR PM OUT	DAILY
1	Single-Family Detached Residential	26.00	DU	5	15	17	9	249
	Open Space Recreation	285.50	AC	114	114	228	228	5,710
	Prison	122.00	AC	214	231	93	85	3,105
	SUBTOTAL			333	360	338	322	9,064
2	Agriculture	185.00	AC	19	19	19	19	370
	Single-Family Detached Residential	2,304.00	DU	438	1,290	1,498	829	22,049
	Multi-Family Attached Residential	1,607.00	DU	112	595	579	289	9,417
	Open Space Recreation	55.20	AC	22	22	44	44	1,104
	Elementary School	1,200.00	ST	204	144	12	12	1,224
	Commercial Retail (52.59 TSF)	52.59	TSF	66	43	197	214	4,510
	Commercial Retail (179.36 TSF)	179.36	TSF	138	88	443	481	9,924
	Office (184.7 TSF)	184.70	TSF	268	37	48	238	2,126
	SUBTOTAL			1,267	2,238	2,840	2,126	50,724
3	Single-Family Detached Residential	1,163.00	DU	221	651	756	419	11,130
	Open Space Recreation	15.00	AC	6	6	12	12	300
	Commercial Retail (656.11 TSF)	-	-	-	-	-	-	-
	Office (140.6 TSF)	-	-	-	-	-	-	-
	SUBTOTAL			227	657	768	431	11,430
4	Single-Family Detached Residential	248.00	DU	47	139	161	89	2,373
	Multi-Family Attached Residential	291.00	DU	20	108	105	52	1,705
	Commercial Retail (33.45 TSF)	33.45	TSF	51	32	146	159	3,371
	Office (34.79 TSF)	34.79	TSF	71	10	20	98	590
	Open Space Recreation	9.10	AC	4	4	7	7	182
	SUBTOTAL			193	293	439	405	8,221
5	Single-Family Detached Residential	587.00	DU	112	329	382	211	5,618
	Multi-Family Attached Residential	356.00	DU	25	132	128	64	2,086
	Open Space Recreation	15.80	AC	6	6	13	13	316
	Commercial Retail (21.8 TSF)	21.80	TSF	39	25	110	119	2,560
	Commercial Retail (38.45 TSF)	38.45	TSF	55	35	160	174	3,687
	Office (37.79 TSF)	37.79	TSF	76	10	21	101	629
	SUBTOTAL			313	537	814	682	14,896
6	Single-Family Detached Residential	1,000.00	DU	190	560	650	360	9,570
	Open Space Recreation	28.10	AC	11	11	22	22	562
	Hotel	200.00	RM	68	44	64	58	1,646
	Business Park	449.80	TSF	540	103	135	445	5,739
	Light Industrial (Auto)	1,589.70	TSF	1,076	224	291	1,110	9,230
	Light Industrial (2&3 Axle Trucks)	1,589.70	TSF	46	22	11	51	1,008
	Light Industrial (4+ Axle Trucks)	1,589.70	TSF	38	8	-	-	825
	Office (75.0 TSF)	75.00	TSF	131	18	28	136	1,064
	Commercial Retail (25.05 TSF)	25.05	TSF	43	27	121	131	2,799
	SUBTOTAL (Autos Only)			2,059	987	1,311	2,262	30,610
	SUBTOTAL (2&3 Axle Trucks Only)			46	22	11	51	1,008
	SUBTOTAL (4+ Axle Trucks Only)			38	8	-	-	825
	SUBTOTAL (All Vehicles)			2,143	1,017	1,322	2,313	32,443

TABLE 2-4 (CONTINUED)

PROJECT (2020) TRIP GENERATION

TRAFFIC ANALYSIS ZONE	LAND USE	PROPOSED QUANTITY		PEAK-HOUR AM IN	PEAK-HOUR AM OUT	PEAK-HOUR PM IN	PEAK-HOUR PM OUT	DAILY
7	Junior High School	1,000.00	ST	260	200	80	80	1,450
	Single-Family Detached Residential	785.00	DU	149	440	510	283	7,512
	Multi-Family Attached Residential	285.00	DU	20	105	103	51	1,670
	Open Space Recreation	0.30	AC	-	-	-	-	6
	Commercial Retail (38.35 TSF)	-	-	-	-	-	-	-
	Office (39.36TSF)	-	-	-	-	-	-	-
	SUBTOTAL			429	745	693	414	10,638
8	Single-Family Detached Residential	858.00	DU	163	480	558	309	8,211
	Multi-Family Attached Residential	269.00	DU	19	100	97	48	1,576
	Commercial Retail (18.5 TSF)	18.50	TSF	36	23	99	107	2,303
	Commercial Retail (31.4 TSF)	31.40	TSF	49	31	140	152	3,237
	Office (31.4 TSF)	31.40	TSF	65	9	19	95	545
	SUBTOTAL			332	643	913	711	15,872
9	Business Park	353.88	TSF	425	81	106	350	4,516
	Light Industrial (Auto)	221.07	TSF	150	31	40	154	1,284
	Light Industrial (2&3 Axle Trucks)	221.07	TSF	6	3	2	7	140
	Light Industrial (4+ Axle Trucks)	221.07	TSF	5	1	-	-	115
	Office (64.86 TSF)	64.86	TSF	116	16	26	126	952
	Commercial Retail (24.49 TSF)	24.49	TSF	42	27	119	129	2,758
	Hotel	-	-	-	-	-	-	-
	Light Industrial (Auto)	3,602.26	TSF	2,439	508	659	2,514	20,915
	Light Industrial (2&3 Axle Trucks)	3,602.26	TSF	104	50	25	115	2,284
	Light Industrial (4+ Axle Trucks)	3,602.26	TSF	86	18	-	-	1,870
	Airport - General Aviation	69.09	AC	11	26	37	37	415
	Agriculture	207.27	AC	21	21	21	21	415
	SUBTOTAL (Autos Only)			3,204	710	1,008	3,331	31,255
	SUBTOTAL (2&3 Axle Trucks Only)			110	53	27	122	2,424
	SUBTOTAL (4+ Axle Trucks Only)			91	19	-	-	1,985
	SUBTOTAL (All Vehicles)			3,405	782	1,035	3,453	35,664
10	Agriculture	160.08	AC	16	16	16	16	320
	Light Industrial (Auto)	554.74	TSF	376	78	102	387	3,221
	Light Industrial (2&3 Axle Trucks)	554.74	TSF	16	8	4	18	352
	Light Industrial (4+ Axle Trucks)	554.74	TSF	13	3	-	-	288
	SUBTOTAL (Autos Only)			392	94	118	403	3,541
	SUBTOTAL (2&3 Axle Trucks Only)			16	8	4	18	352
	SUBTOTAL (4+ Axle Trucks Only)			13	3	-	-	288
	SUBTOTAL (All Vehicles)			421	105	122	421	4,181
TOTAL	Autos Trips			8,720	7,253	9,238	11,069	185,611
	Truck Trips (2&3 Axle Trucks Only)			172	83	42	191	3,784
	Truck Trips (4+ Axle Trucks Only)			142	30	-	-	3,098
	All Vehicle Trips			9,034	7,366	9,280	11,260	192,493

[1] TSF = Thousand Square Feet; DU = Dwelling Unit; RM = Rooms; ST = Students; ; AC = Acres

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TABLE 2-5

PROJECT (BUILDOUT) TRIP GENERATION

TRAFFIC ANALYSIS ZONE	LAND USE	PROPOSED QUANTITY		PEAK-HOUR AM IN	PEAK-HOUR AM OUT	PEAK-HOUR PM IN	PEAK-HOUR PM OUT	DAILY
1	Single-Family Detached Residential	26.00	DU	5	15	17	9	249
	Open Space Recreation	299.13	AC	120	120	239	239	5,983
	Prison	122.00	AC	214	231	93	85	3,105
	SUBTOTAL			339	366	349	333	9,337
2	Agriculture	185.00	AC	19	19	19	19	370
	Single-Family Detached Residential	2,304.00	DU	438	1,290	1,498	829	22,049
	Multi-Family Attached Residential	1,607.00	DU	112	595	579	289	9,417
	Open Space Recreation	55.20	AC	22	22	44	44	1,104
	Elementary School	1,200.00	ST	204	144	12	12	1,224
	Commercial Retail (52.59 TSF)	52.59	TSF	66	43	197	214	4,510
	Commercial Retail (185.6 TSF)	185.60	TSF	141	91	453	492	10,145
	Office (184.7 TSF)	184.70	TSF	268	37	48	238	2,126
	SUBTOTAL			1,270	2,241	2,850	2,137	50,945
3	Single-Family Detached Residential	1,163.00	DU	221	651	756	419	11,130
	Open Space Recreation	15.00	AC	6	6	12	12	300
	Commercial Retail (656.11 TSF)	656.11	TSF	302	190	1,043	1,129	22,852
	Office (140.6 TSF)	140.60	TSF	215	30	41	197	1,724
	SUBTOTAL			744	877	1,852	1,757	36,006
4	Single-Family Detached Residential	248.00	DU	47	139	161	89	2,373
	Multi-Family Attached Residential	291.00	DU	20	108	105	52	1,705
	Commercial Retail (34.0 TSF)	34.00	TSF	51	33	148	160	3,406
	Office (34.79 TSF)	34.79	TSF	71	10	20	98	590
	Open Space Recreation	9.10	AC	4	4	7	7	182
	SUBTOTAL			193	294	441	406	8,256
5	Single-Family Detached Residential	587.00	DU	112	329	382	211	5,618
	Multi-Family Attached Residential	356.00	DU	25	132	128	64	2,086
	Open Space Recreation	15.80	AC	6	6	13	13	316
	Commercial Retail (21.8 TSF)	21.80	TSF	39	25	110	119	2,560
	Commercial Retail (39.2 TSF)	39.20	TSF	56	36	162	176	3,733
	Office (38.3 TSF)	38.30	TSF	76	10	21	101	635
	SUBTOTAL			314	538	816	684	14,948
6	Single-Family Detached Residential	1,000.00	DU	190	560	650	360	9,570
	Open Space Recreation	28.10	AC	11	11	22	22	562
	Hotel	200.00	RM	68	44	64	58	1,646
	Business Park	449.80	TSF	540	103	135	445	5,739
	Light Industrial (Auto)	1,589.70	TSF	1,076	224	291	1,110	9,230
	Light Industrial (2&3 Axle Trucks)	1,589.70	TSF	46	22	11	51	1,008
	Light Industrial (4+ Axle Trucks)	1,589.70	TSF	38	8	-	-	825
	Office (224.1 TSF)	224.10	TSF	311	43	56	273	2,467
	Commercial Retail (159.63 TSF)	159.63	TSF	129	83	410	445	9,207
	SUBTOTAL (Autos Only)			2,325	1,068	1,628	2,713	38,421
	SUBTOTAL (2&3 Axle Trucks Only)			46	22	11	51	1,008
	SUBTOTAL (4+ Axle Trucks Only)			38	8	-	-	825
	SUBTOTAL (All Vehicles)			2,409	1,098	1,639	2,764	40,254

TABLE 2-5 (CONTINUED)

PROJECT (BUILDOUT) TRIP GENERATION

TRAFFIC ANALYSIS ZONE	LAND USE	PROPOSED QUANTITY		PEAK-HOUR AM IN	PEAK-HOUR AM OUT	PEAK-HOUR PM IN	PEAK-HOUR PM OUT	DAILY
7	Junior High School	1,000.00	ST	260	200	80	80	1,450
	Single-Family Detached Residential	785.00	DU	149	440	510	283	7,512
	Multi-Family Attached Residential	285.00	DU	20	105	103	51	1,670
	Open Space Recreation	0.30	AC	-	-	-	-	6
	Commercial Retail (38.35 TSF)	38.35	TSF	55	35	160	173	3,681
	Office (39.36TSF)	39.36	TSF	78	11	21	102	649
	SUBTOTAL			562	791	874	689	14,968
8	Single-Family Detached Residential	858.00	DU	163	480	558	309	8,211
	Multi-Family Attached Residential	269.00	DU	19	100	97	48	1,576
	Commercial Retail (18.5 TSF)	18.50	TSF	36	23	99	107	2,304
	Commercial Retail (31.4 TSF)	31.40	TSF	49	31	140	152	3,237
	Office (31.4 TSF)	31.40	TSF	65	9	19	95	545
	SUBTOTAL			332	643	913	711	15,873
9	Business Park	353.88	TSF	425	81	106	350	4,516
	Light Industrial (Auto)	1,251.87	TSF	848	177	229	874	7,268
	Light Industrial (2&3 Axle Trucks)	1,251.87	TSF	36	18	9	40	794
	Light Industrial (4+ Axle Trucks)	1,251.87	TSF	30	6	-	-	650
	Office (177.74 TSF)	177.74	TSF	260	36	48	231	2,064
	Commercial Retail (127.4 TSF)	127.40	TSF	112	71	354	383	7,965
	Hotel	200.00	RM	68	44	64	58	1,646
	Light Industrial (Auto)	3,602.26	TSF	2,439	508	659	2,514	20,915
	Light Industrial (2&3 Axle Trucks)	3,602.26	TSF	104	50	25	115	2,284
	Light Industrial (4+ Axle Trucks)	3,602.26	TSF	86	18	-	-	1,870
	Airport - General Aviation	69.09	AC	11	26	37	37	415
	Agriculture	207.27	AC	21	21	21	21	415
	SUBTOTAL (Autos Only)			4,184	964	1,518	4,468	45,204
	SUBTOTAL (2&3 Axle Trucks Only)			140	68	34	155	3,078
	SUBTOTAL (4+ Axle Trucks Only)			116	24	-	-	2,520
	SUBTOTAL (All Vehicles)			4,440	1,056	1,552	4,623	50,802
10	Agriculture	160.08	AC	16	16	16	16	320
	Light Industrial (Auto)	554.74	TSF	376	78	102	387	3,221
	Light Industrial (2&3 Axle Trucks)	554.74	TSF	16	8	4	18	352
	Light Industrial (4+ Axle Trucks)	554.74	TSF	13	3	-	-	288
	SUBTOTAL (Autos Only)			392	94	118	403	3,541
	SUBTOTAL (2&3 Axle Trucks Only)			16	8	4	18	352
	SUBTOTAL (4+ Axle Trucks Only)			13	3	-	-	288
	SUBTOTAL (All Vehicles)			421	105	122	421	4,181
TOTAL	Autos Trips			10,626	7,865	11,355	14,283	236,859
	Truck Trips (2&3 Axle Trucks Only)			202	98	49	224	4,438
	Truck Trips (4+ Axle Trucks Only)			167	35	-	-	3,633
	All Vehicle Trips			10,995	7,998	11,404	14,507	244,930

[1] TSF = Thousand Square Feet; DU = Dwelling Unit; RM = Rooms; ST = Students; ; AC = Acres

U:\UcJobs\00020\Excel\[industrial2.xls]BUILDOUT

For Buildout conditions, the development is projected to generate a total of approximately 244,930 trip-ends per day with 18,993 vehicles per hour during the AM peak hour and 25,911 vehicles per hour during the PM peak hour. The heavy truck vehicle volumes (included in the totals) are 3,633 trip-ends per day with 202 vehicles per hour during the AM peak hour.

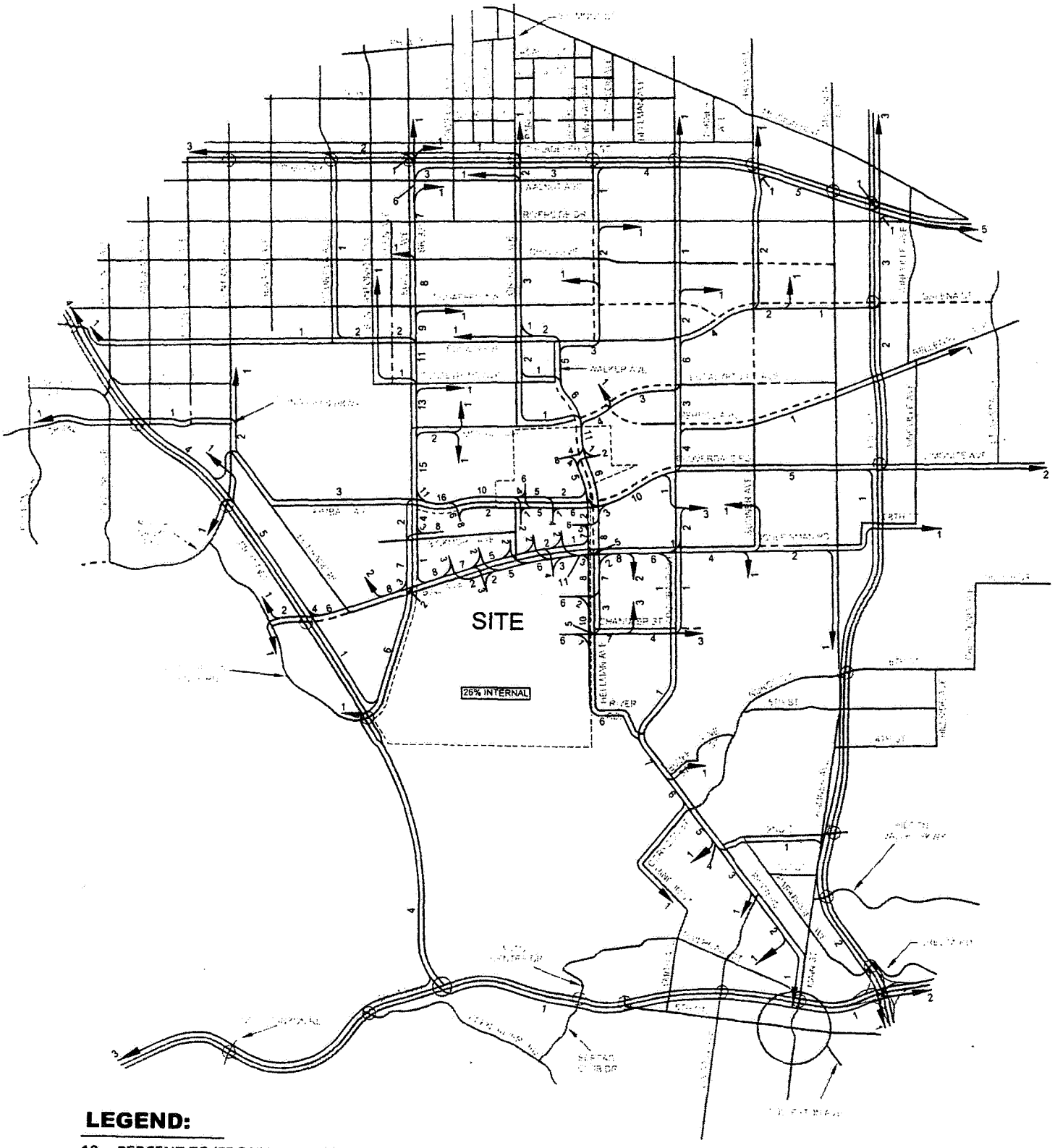
2.2.2 Project Trip Distribution and Assignment

The trip distribution and assignment process represents the directional orientation of traffic to and from the project site. Trip distribution is heavily influenced by the geographical location of the site, the location of residential, commercial, employment and recreational opportunities and the proximity to the regional freeway system. The CTP traffic model has been used to evaluate the regional distribution of project traffic. A select zone (trip distribution) analysis was performed using the CTP traffic model with the assistance of SCAG staff. The select zone obtained from SCAG has included all ten (10) of the TAZ's for the proposed project.

The project traffic distribution is shown on Exhibit 2-B. The project internal capture is estimated at 26%. This figure is typical for a large mixed-use Specific Plan. The internal capture percentage was calculated by subtracting the project only traffic leaving the site from the total traffic loaded onto the system from the 10 project TAZ's. This approach is conservative in that some traffic is internal to each individual TAZ in the model and is never loaded onto the roadway system. The heavy truck trip distribution is shown on Exhibit 2-C. The heavy truck trip distribution was developed in consultation with SANBAG staff. All of the project only traffic volume exhibits

EXHIBIT 2-B

PROJECT TRIP DISTRIBUTION



LEGEND:

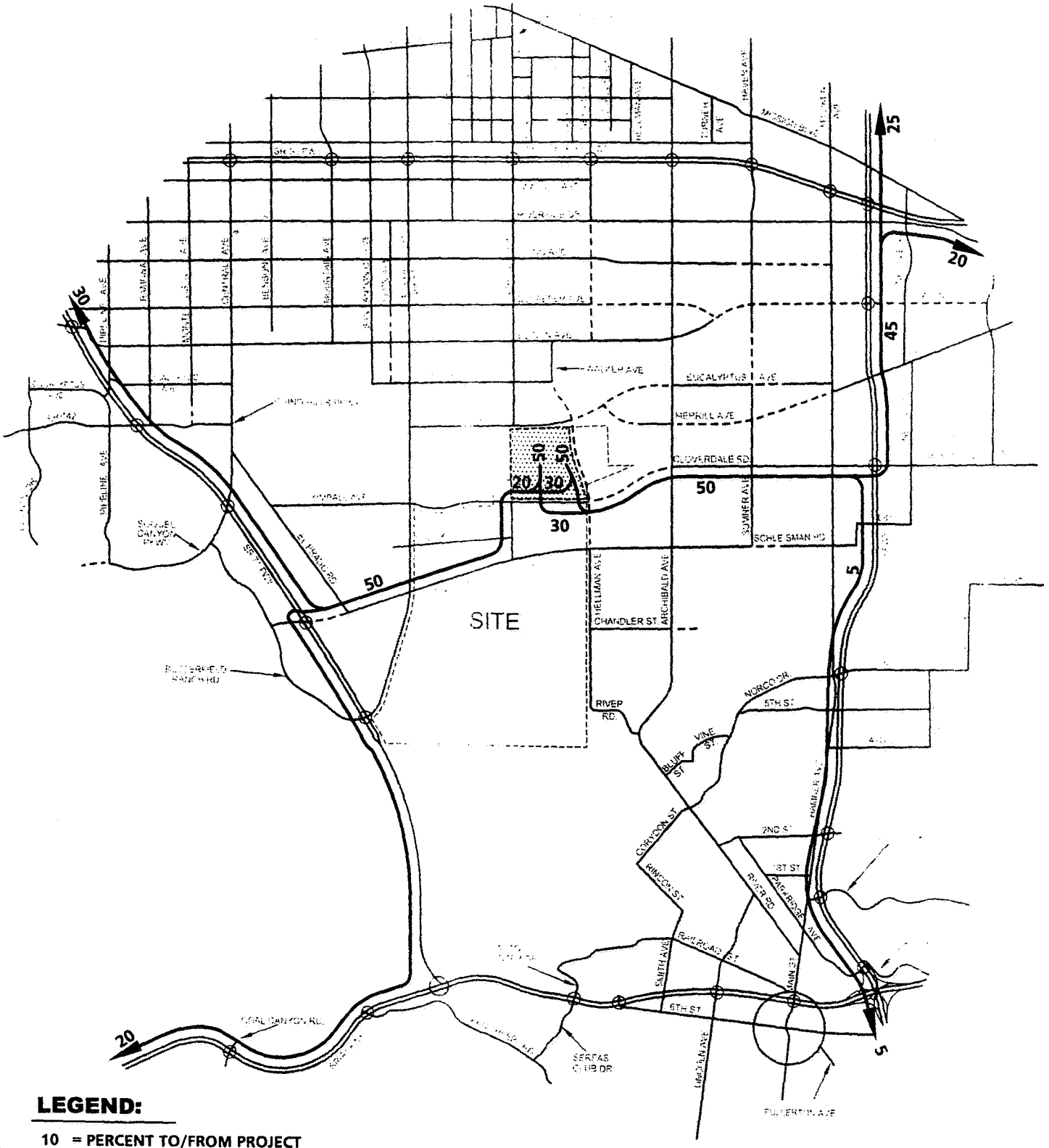
10 = PERCENT TO/FROM PROJECT
NOM = NOMINAL

CHINO SUBAREA 2, Chino, California - 00020:67

URBAN CROSSROADS

EXHIBIT 2-C

HEAVY TRUCK TRIP DISTRIBUTION



LEGEND:

10 = PERCENT TO/FROM PROJECT

= PRIMARY HEAVY TRUCK GENERATOR

CHINO SUBAREA 2, Chino, California - 00020:66

URBAN CROSSROADS

are expressed in terms of Passenger-Car Equivalents (PCEs). Each heavy (4+ axle) truck is given a PCE value of 3.0, based on direction from SANBAG CMP staff.

2.2.3 Project Only Traffic Volume Forecasts

The project only traffic forecasts have been developed by applying the trip generation, distribution, and traffic assignment calculations. The Interim 2010 ADT volumes attributable to the project only are presented on Exhibit 2-D. The Interim 2010 AM peak hour project only traffic forecasts are depicted on Exhibit 2-E, while Exhibit 2-F presents the Interim 2010 PM peak hour project only traffic forecasts.

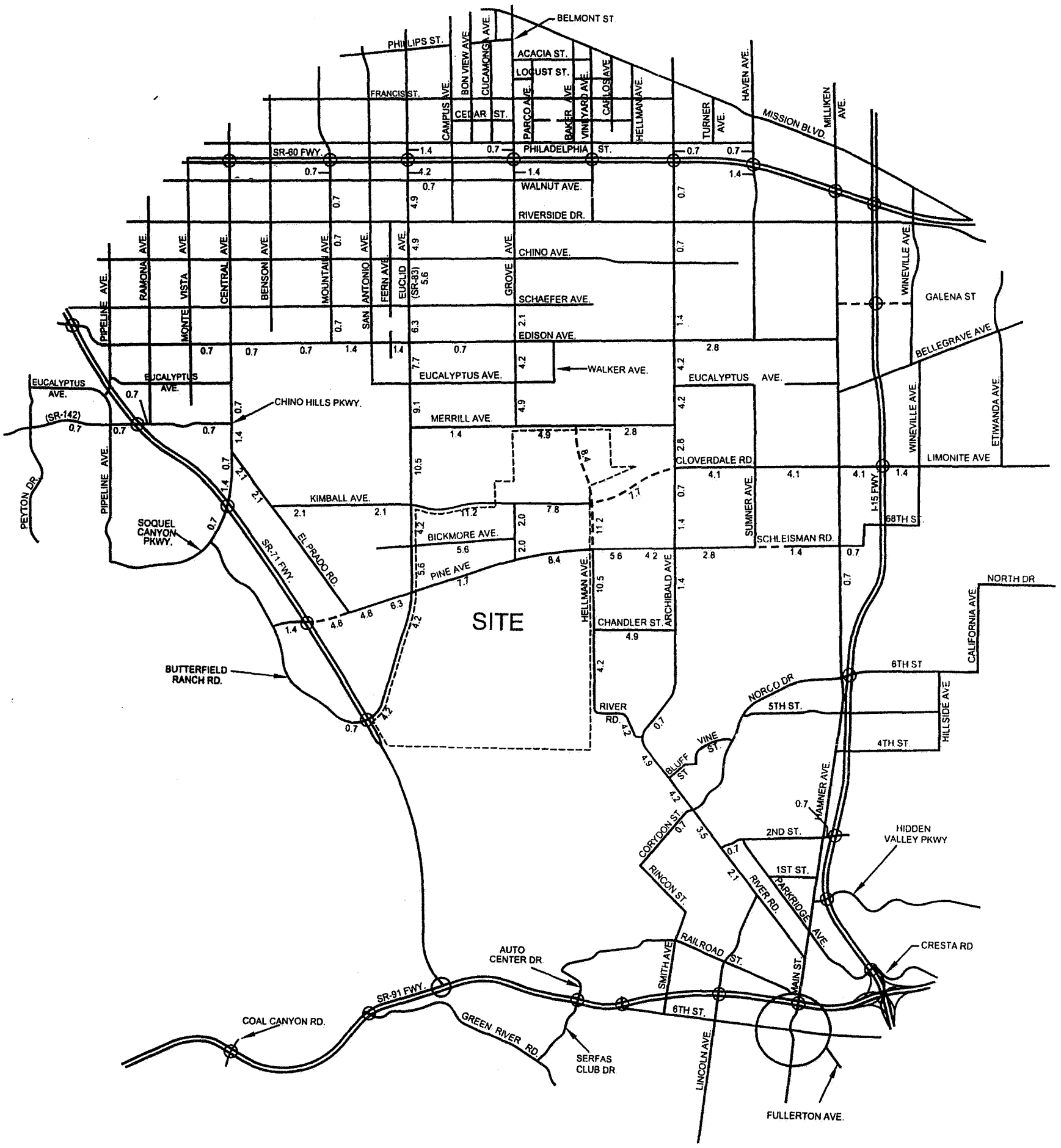
The 2020 ADT volumes attributable to the project only are presented on Exhibit 2-G. The Year 2020 AM peak hour project only traffic forecasts are depicted on Exhibit 2-H, while Exhibit 2-I presents the Year 2020 PM peak hour project only traffic forecasts.

The Buildout ADT volumes attributable to the project only are presented on Exhibit 2-J. The Buildout AM peak hour project only traffic forecasts are depicted on Exhibit 2-K, while Exhibit 2-L presents the Buildout PM peak hour project only traffic forecasts.

Per SANBAG staff direction, project peak hour traffic volumes obtained directly from the CTP model are the criteria determining the limits of the required CMP Horizon Year (2020) analysis. The CMP states that any CMP roadway link carrying 80 or more two-way project trips or any CMP freeway link carrying 100 or more two-way project trips during the AM and/or PM peak hour must be analyzed to ensure that no CMP deficiencies are anticipated

EXHIBIT 2-D

INTERIM 2010 PROJECT AVERAGE DAILY TRAFFIC (ADT)



LEGEND:

0.8 = VEHICLES PER DAY (1000'S)

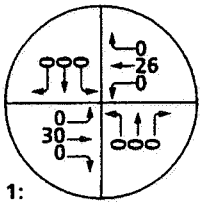
N

CHINO SUBAREA 2, Chino, California - 00020:111

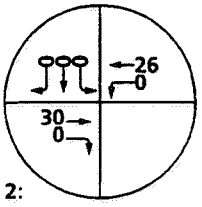
URBAN CROSSROADS

EXHIBIT 2-E

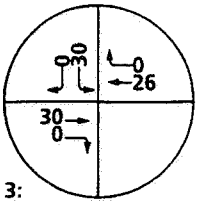
INTERIM (2010) PROJECT AM PEAK HOUR INTERSECTION VOLUMES (PART 1/2)



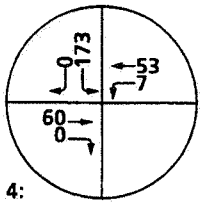
1: PIPELINE AVE. / CHINO HILLS PKWY.



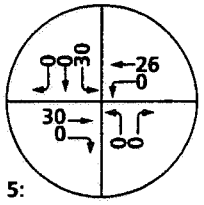
2: SR-71 SB RAMPS / CHINO HILLS PKWY.



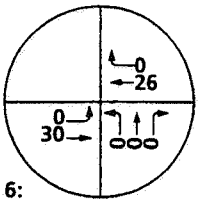
3: SR-71 SB RAMPS / SOQUEL CANYON PKWY.



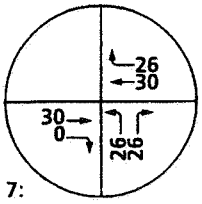
4: SR-71 SB RAMPS / PINE AVE.



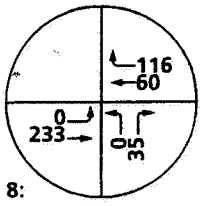
5: SR-71 SB RAMPS / EUCLID AVE.



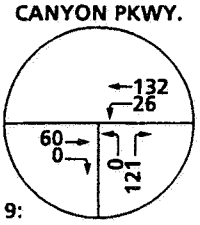
6: SR-71 NB RAMPS / CHINO HILLS PKWY.



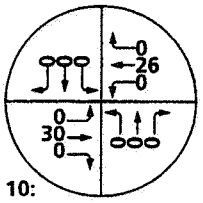
7: SR-71 NB RAMPS / SOQUEL CANYON PKWY.



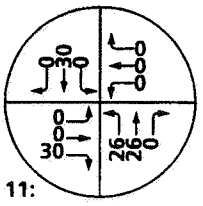
8: SR-71 NB RAMPS / PINE AVE.



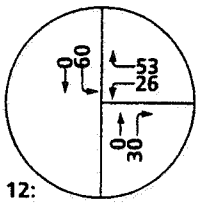
9: SR-71 NB RAMPS / EUCLID AVE.



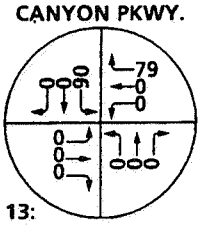
10: CENTRAL AVE. / EDISON AVE.



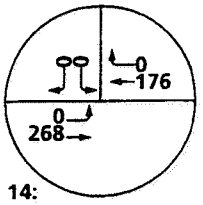
11: CENTRAL AVE. / CHINO HILLS PKWY.



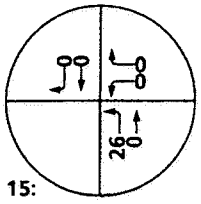
12: CENTRAL AVE. / EL PRADO RD.



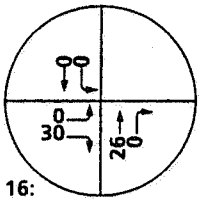
13: EL PRADO RD. / KIMBALL AVE.



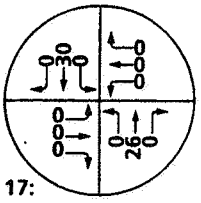
14: EL PRADO RD. / PINE AVE.



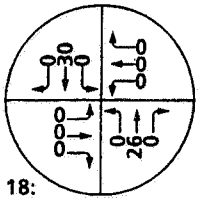
15: MOUNTAIN AVE. / SR-60 WB RAMPS



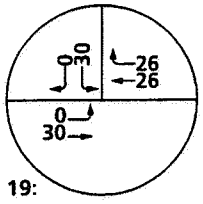
16: MOUNTAIN AVE. / SR-60 EB RAMPS



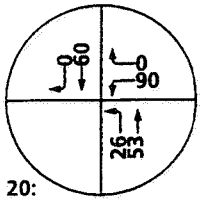
17: MOUNTAIN AVE. / WALNUT AVE.



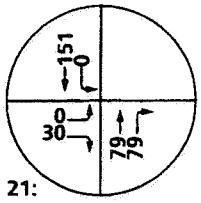
18: MOUNTAIN AVE. / RIVERSIDE DR.



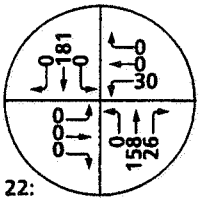
19: MOUNTAIN AVE. / EDISON AVE.



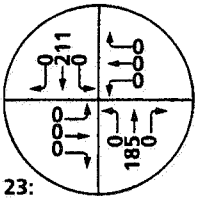
20: EUCLID AVE. / SR-60 WB RAMPS



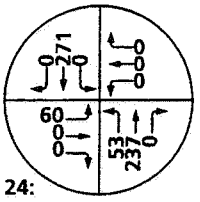
21: EUCLID AVE. / SR-60 EB RAMPS



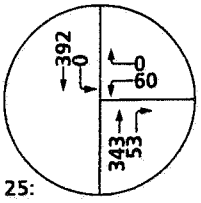
22: EUCLID AVE. / WALNUT AVE.



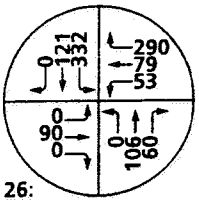
23: EUCLID AVE. / RIVERSIDE DR.



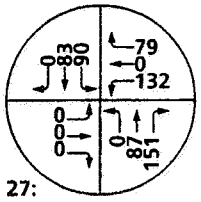
24: EUCLID AVE. / EDISON AVE.



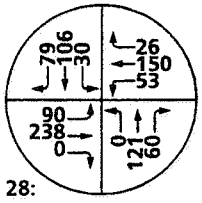
25: EUCLID AVE. / MERRILL AVE.



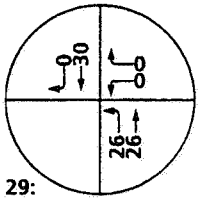
26: EUCLID AVE. / KIMBALL AVE.



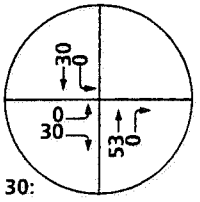
27: EUCLID AVE. / BICKMORE AVE.



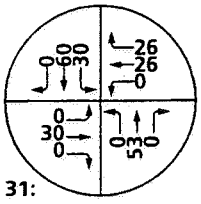
28: EUCLID AVE. / PINE AVE.



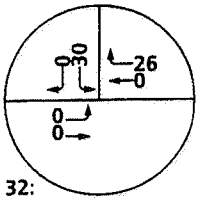
29: GROVE AVE. / SR-60 WB RAMPS



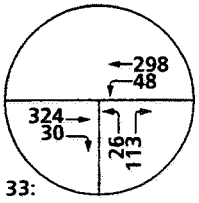
30: GROVE AVE. / SR-60 EB RAMPS



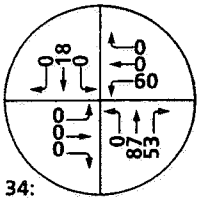
31: GROVE AVE. / EDISON AVE.



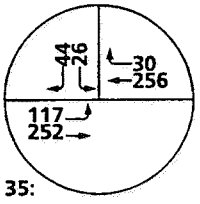
32: GROVE AVE. / MERRILL AVE.



33: GROVE AVE. / KIMBALL AVE.



34: GROVE AVE. / BICKMORE AVE.



35: GROVE AVE. / PINE AVE.

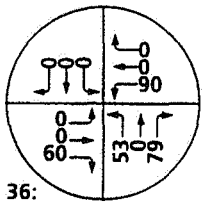
N

URBAN CROSSROADS

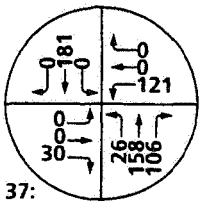
CHINO SUBAREA 2, Chino, California - 00020:208

EXHIBIT 2-E

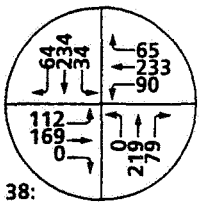
INTERIM (2020) PROJECT
PM PEAK HOUR INTERSECTION VOLUMES (PART 2/2)



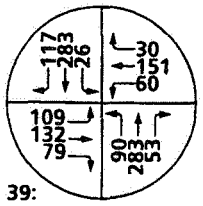
36: WALKER AVE. / EDISON AVE.



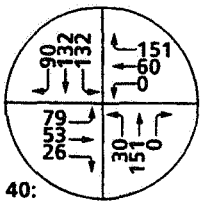
37: HELLMAN AVE. / MERRILL AVE.



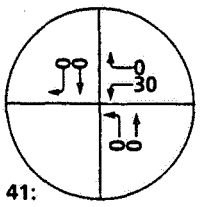
38: HELLMAN AVE. / KIMBALL AVE.



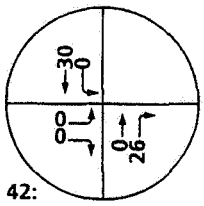
39: HELLMAN AVE. / PINE AVE.



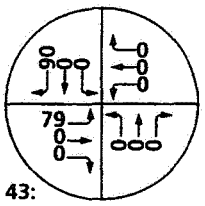
40: HELLMAN AVE. / CHANDLER ST.



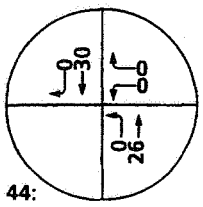
41: VINEYARD AVE. / SR-60 WB RAMPS



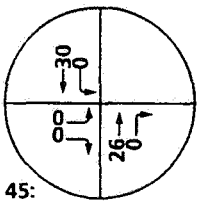
42: VINEYARD AVE. / SR-60 EB RAMPS



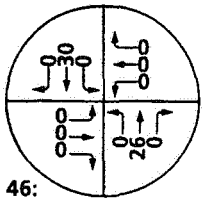
43: VINEYARD AVE. EDISON AVE.



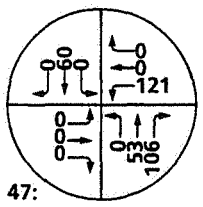
44: ARCHIBALD AVE. / SR-60 WB RAMPS



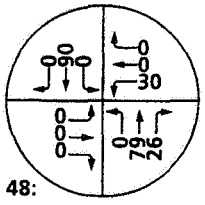
45: ARCHIBALD AVE. / SR-60 EB RAMPS



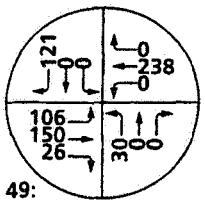
46: ARCHIBALD AVE. / RIVERSIDE DR.



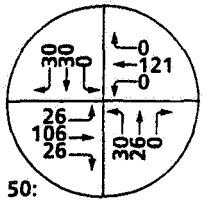
47: ARCHIBALD AVE. / EDISON AVE.



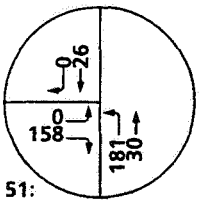
48: ARCHIBALD AVE. / MERRILL AVE.



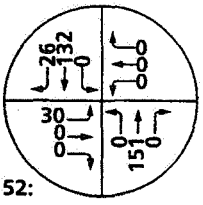
49: ARCHIBALD AVE. / CLOVERDALE RD.



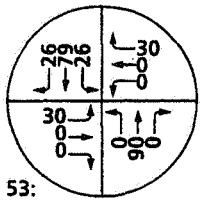
50: ARCHIBALD AVE. / PINE AVE.



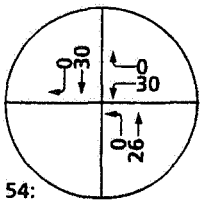
51: ARCHIBALD AVE. / RIVER RD.



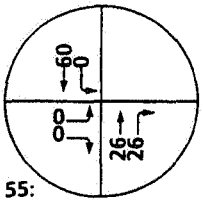
52: RIVER RD. / CORYDON ST.



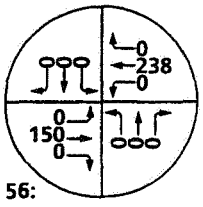
53: RIVER RD. / SECOND ST.



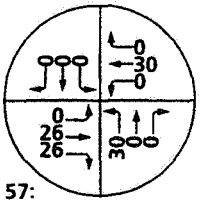
54: HAVEN AVE. / SR-60 WB RAMPS



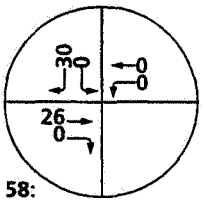
55: HAVEN AVE. / SR-60 EB RAMPS



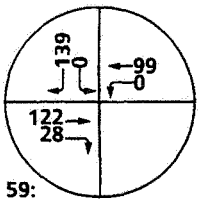
56: HAMNER AVE. / CLOVERDALE RD.



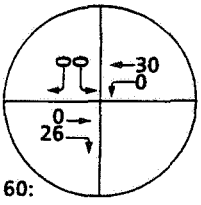
57: HAMNER AVE. / SCHLEISMAN RD.



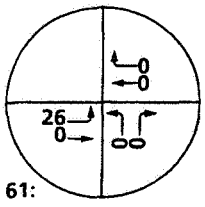
58: I-15 SB RAMPS / GALENA ST.



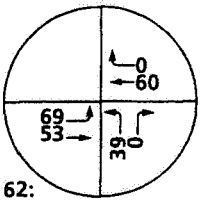
59: I-15 SB RAMPS / LIMONITE AVE.



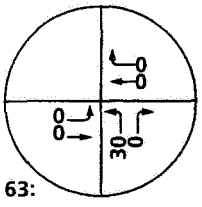
60: I-15 SB RAMPS / SECOND ST.



61: I-15 NB RAMPS / GALENA ST.



62: I-15 NB RAMPS / LIMONITE AVE.

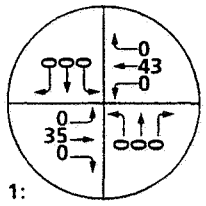


63: I-15 NB RAMPS / SECOND ST.

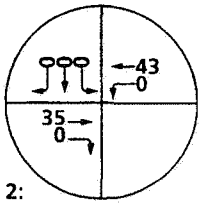
N

EXHIBIT 2-F

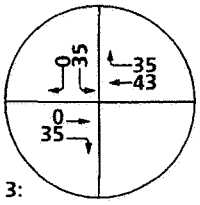
INTERIM (2010) PROJECT
PM PEAK HOUR INTERSECTION VOLUMES (PART 1/2)



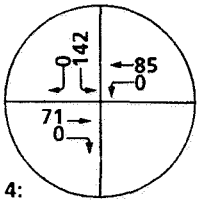
1: PIPELINE AVE. / CHINO HILLS PKWY.



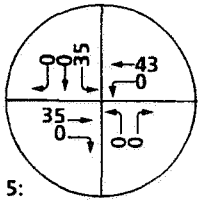
2: SR-71 SB RAMPS / CHINO HILLS PKWY.



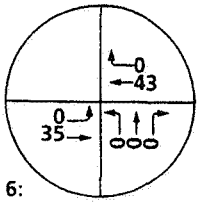
3: SR-71 SB RAMPS / SOQUEL CANYON PKWY.



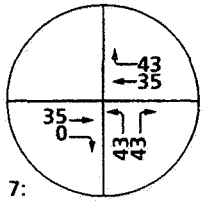
4: SR-71 SB RAMPS / PINE AVE.



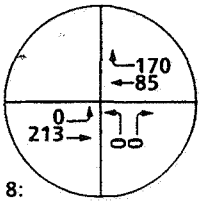
5: SR-71 SB RAMPS / EUCLID AVE.



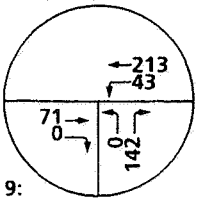
6: SR-71 NB RAMPS / CHINO HILLS PKWY.



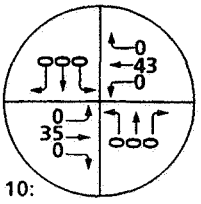
7: SR-71 NB RAMPS / SOQUEL CANYON PKWY.



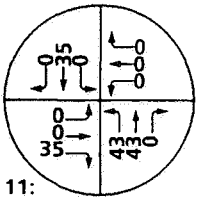
8: SR-71 NB RAMPS / PINE AVE.



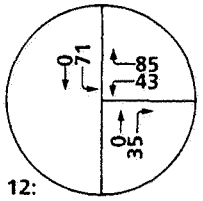
9: SR-71 NB RAMPS / EUCLID AVE.



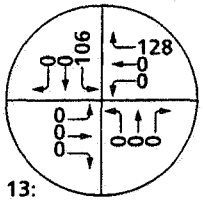
10: CENTRAL AVE. / EDISON AVE.



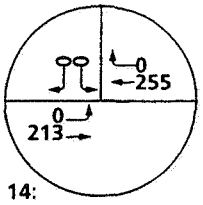
11: CENTRAL AVE. / CHINO HILLS PKWY.



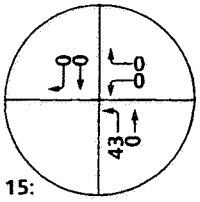
12: CENTRAL AVE. / EL PRADO RD.



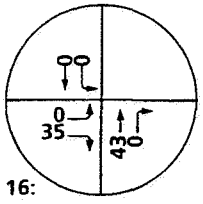
13: EL PRADO RD. / KIMBALL AVE.



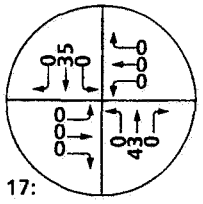
14: EL PRADO RD. / PINE AVE.



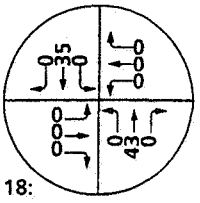
15: MOUNTAIN AVE. / SR-60 WB RAMPS



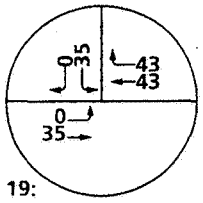
16: MOUNTAIN AVE. / SR-60 EB RAMPS



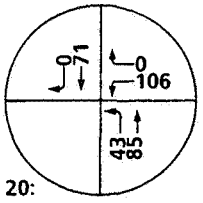
17: MOUNTAIN AVE. / WALNUT AVE.



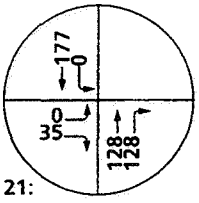
18: MOUNTAIN AVE. / RIVERSIDE DR.



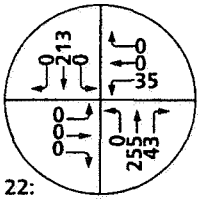
19: MOUNTAIN AVE. / EDISON AVE.



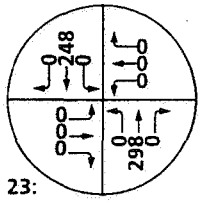
20: EUCLID AVE. / SR-60 WB RAMPS



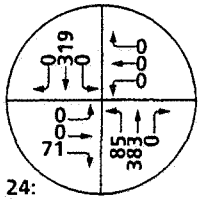
21: EUCLID AVE. / SR-60 EB RAMPS



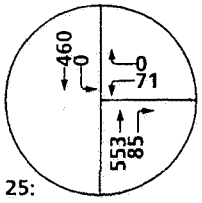
22: EUCLID AVE. / WALNUT AVE.



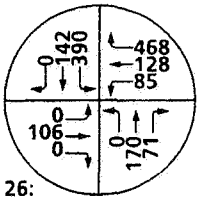
23: EUCLID AVE. / RIVERSIDE DR.



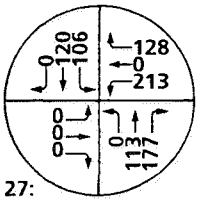
24: EUCLID AVE. / EDISON AVE.



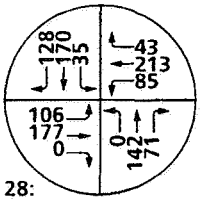
25: EUCLID AVE. / MERRILL AVE.



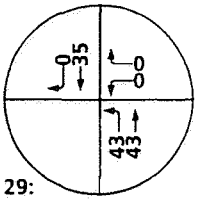
26: EUCLID AVE. / KIMBALL AVE.



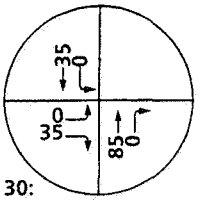
27: EUCLID AVE. / BICKMORE AVE.



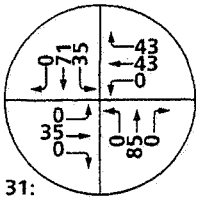
28: EUCLID AVE. / PINE AVE.



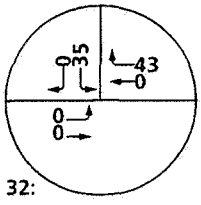
29: GROVE AVE. / SR-60 WB RAMPS



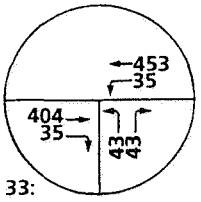
30: GROVE AVE. / SR-60 EB RAMPS



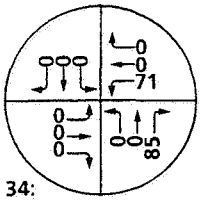
31: GROVE AVE. / EDISON AVE.



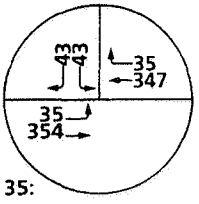
32: GROVE AVE. / MERRILL AVE.



33: GROVE AVE. / KIMBALL AVE.



34: GROVE AVE. / BICKMORE AVE.



35: GROVE AVE. / PINE AVE.

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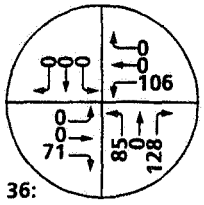
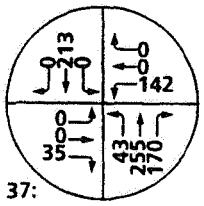
EXHIBIT 2-F

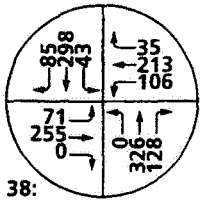
INTERIM (2010) PROJECT
PM PEAK HOUR INTERSECTION VOLUMES (PART 2/2)



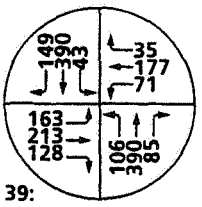
36: WALKER AVE. / EDISON AVE.



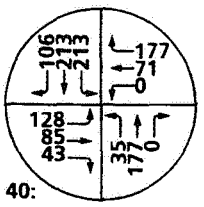
37: HELLMAN AVE. / MERRILL AVE.



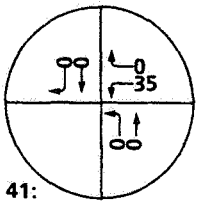
38: HELLMAN AVE. / KIMBALL AVE.



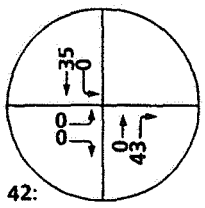
39: HELLMAN AVE. / PINE AVE.



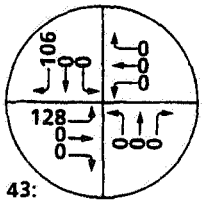
40: HELLMAN AVE. / CHANDLER ST.



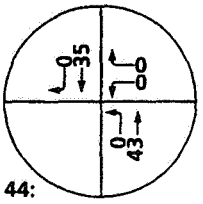
41: VINEYARD AVE. / SR-60 WB RAMPS



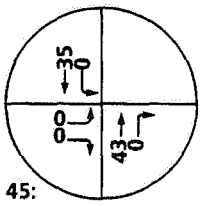
42: VINEYARD AVE. / SR-60 EB RAMPS



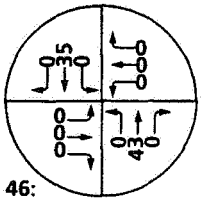
43: VINEYARD AVE. EDISON AVE.



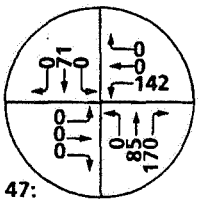
44: ARCHIBALD AVE. / SR-60 WB RAMPS



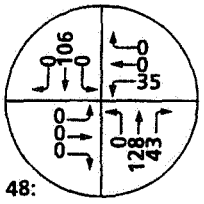
45: ARCHIBALD AVE. / SR-60 EB RAMPS



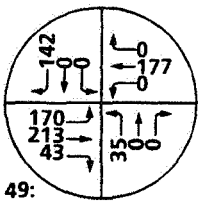
46: ARCHIBALD AVE. / RIVERSIDE DR.



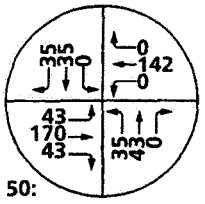
47: ARCHIBALD AVE. / EDISON AVE.



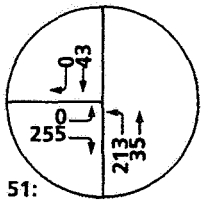
48: ARCHIBALD AVE. / MERRILL AVE.



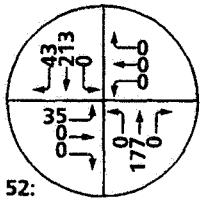
49: ARCHIBALD AVE. / CLOVERDALE RD.



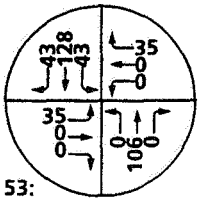
50: ARCHIBALD AVE. / PINE AVE.



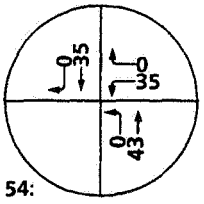
51: ARCHIBALD AVE. / RIVER RD.



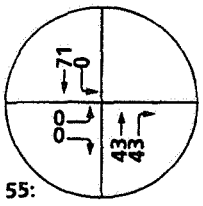
52: RIVER RD. / CORYDON ST.



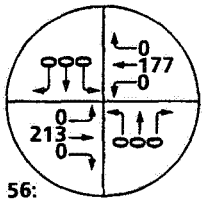
53: RIVER RD. / SECOND ST.



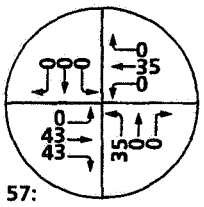
54: HAVEN AVE. / SR-60 WB RAMPS



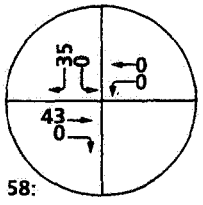
55: HAVEN AVE. / SR-60 EB RAMPS



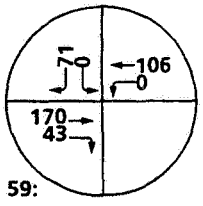
56: HAMNER AVE. / CLOVERDALE RD.



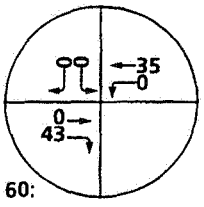
57: HAMNER AVE. / SCHLEISMAN RD.



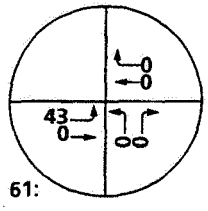
58: I-15 SB RAMPS / GALENA ST.



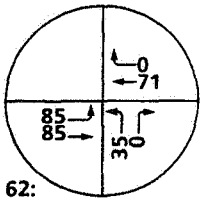
59: I-15 SB RAMPS / LIMONITE AVE.



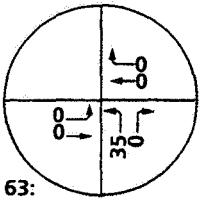
60: I-15 SB RAMPS / SECOND ST.



61: I-15 NB RAMPS / GALENA ST.



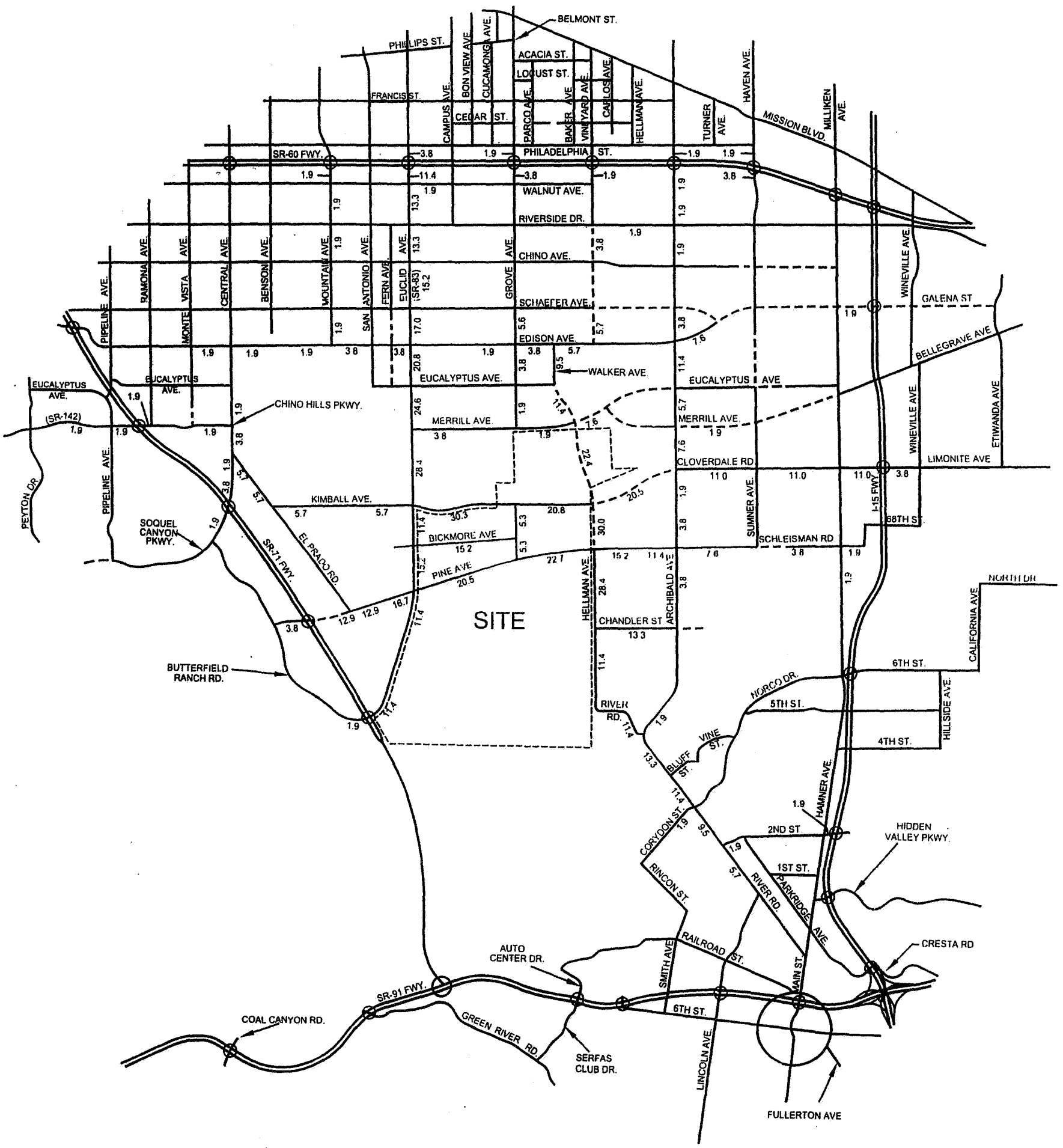
62: I-15 NB RAMPS / LIMONITE AVE.



63: I-15 NB RAMPS / SECOND ST.

EXHIBIT 2-G

2020 PROJECT AVERAGE DAILY TRAFFIC (ADT)



LEGEND:

5.7 = VEHICLES PER DAY (1000'S)

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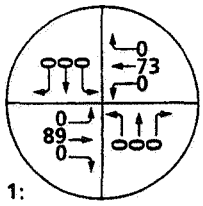
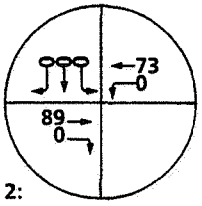
EXHIBIT 2-H

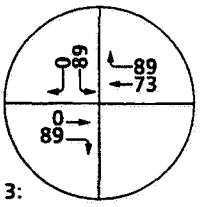
2020 PROJECT
AM PEAK HOUR INTERSECTION VOLUMES (PART 1/2)



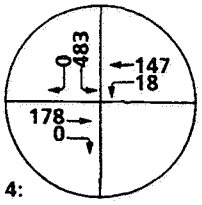
1: PIPELINE AVE. / CHINO HILLS PKWY.



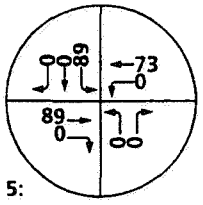
2: SR-71 SB RAMPS / CHINO HILLS PKWY.



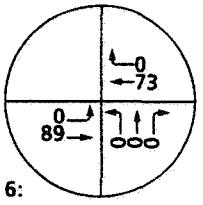
3: SR-71 SB RAMPS / SOQUEL CANYON PKWY.



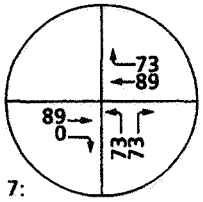
4: SR-71 SB RAMPS / PINE AVE.



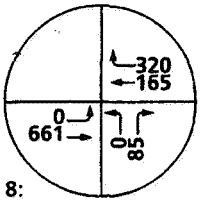
5: SR-71 SB RAMPS / EUCLID AVE.



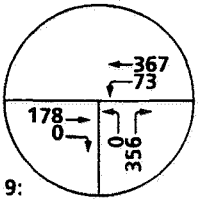
6: SR-71 NB RAMPS / CHINO HILLS PKWY.



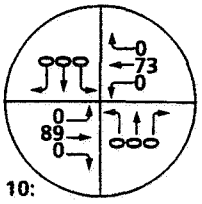
7: SR-71 NB RAMPS / SOQUEL CANYON PKWY.



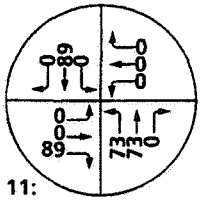
8: SR-71 NB RAMPS / PINE AVE.



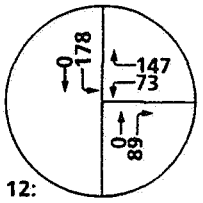
9: SR-71 NB RAMPS / EUCLID AVE.



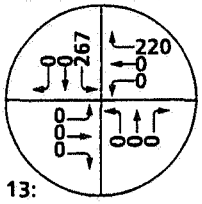
10: CENTRAL AVE. / EDISON AVE.



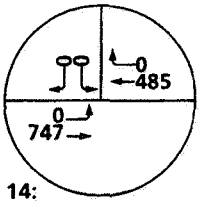
11: CENTRAL AVE. / CHINO HILLS PKWY.



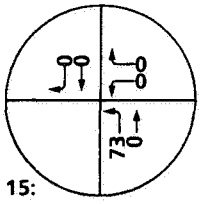
12: CENTRAL AVE. / EL PRADO RD.



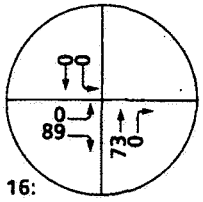
13: EL PRADO RD. / KIMBALL AVE.



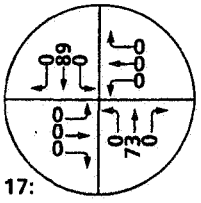
14: EL PRADO RD. / PINE AVE.



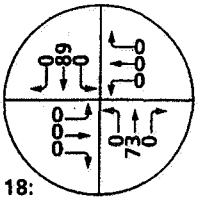
15: MOUNTAIN AVE. / SR-60 WB RAMPS



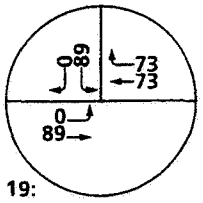
16: MOUNTAIN AVE. / SR-60 EB RAMPS



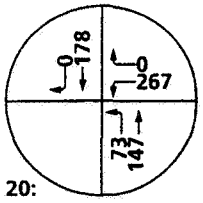
17: MOUNTAIN AVE. / WALNUT AVE.



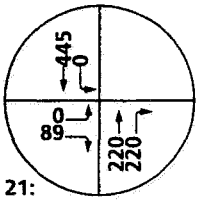
18: MOUNTAIN AVE. / RIVERSIDE DR.



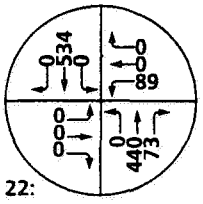
19: MOUNTAIN AVE. / EDISON AVE.



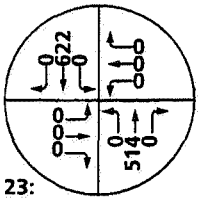
20: EUCLID AVE. / SR-60 WB RAMPS



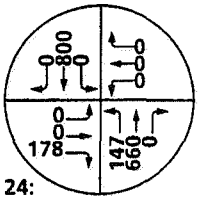
21: EUCLID AVE. / SR-60 EB RAMPS



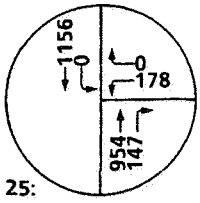
22: EUCLID AVE. / WALNUT AVE.



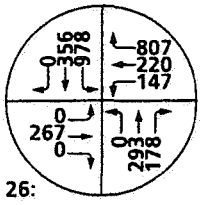
23: EUCLID AVE. / RIVERSIDE DR.



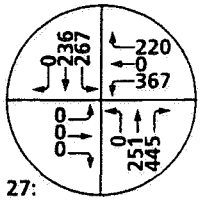
24: EUCLID AVE. / EDISON AVE.



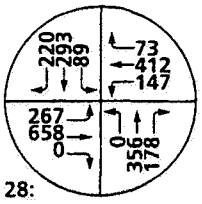
25: EUCLID AVE. / MERRILL AVE.



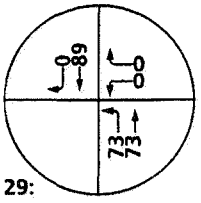
26: EUCLID AVE. / KIMBALL AVE.



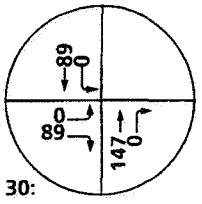
27: EUCLID AVE. / BICKMORE AVE.



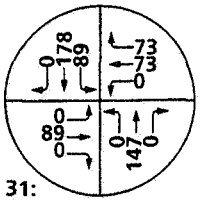
28: EUCLID AVE. / PINE AVE.



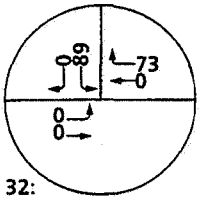
29: GROVE AVE. / SR-60 WB RAMPS



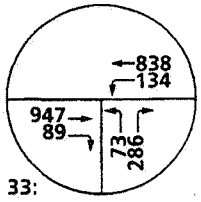
30: GROVE AVE. / SR-60 EB RAMPS



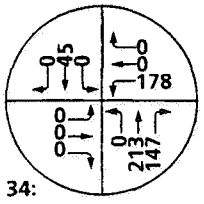
31: GROVE AVE. / EDISON AVE.



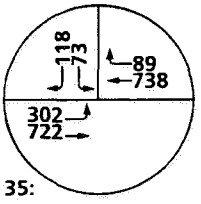
32: GROVE AVE. / MERRILL AVE.



33: GROVE AVE. / KIMBALL AVE.



34: GROVE AVE. / BICKMORE AVE.



35: GROVE AVE. / PINE AVE.

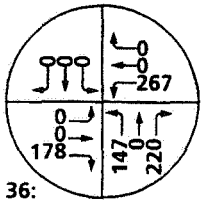
N

URBAN CROSSROADS

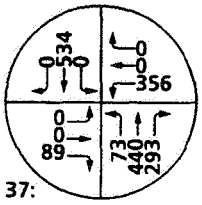
CHINO SUBAREA 2, Chino, California - 00020:92

EXHIBIT 2-H

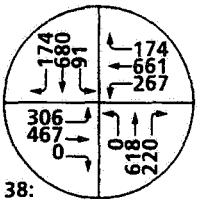
2020 PROJECT
AM PEAK HOUR INTERSECTION VOLUMES (PART 2/2)



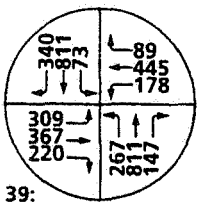
36: WALKER AVE. / EDISON AVE.



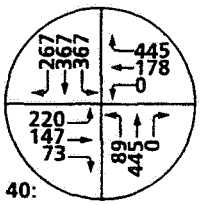
37: HELLMAN AVE. / MERRILL AVE.



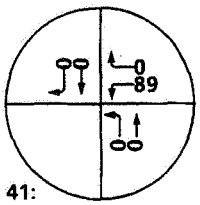
38: HELLMAN AVE. / KIMBALL AVE.



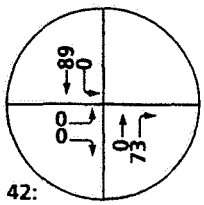
39: HELLMAN AVE. / PINE AVE.



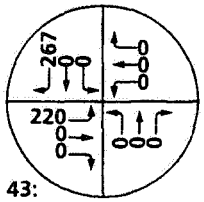
40: HELLMAN AVE. / CHANDLER ST.



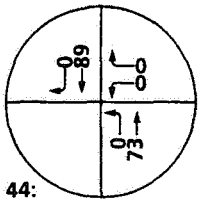
41: VINEYARD AVE. / SR-60 WB RAMPS



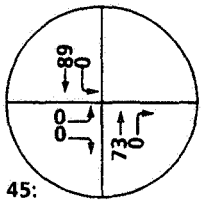
42: VINEYARD AVE. / SR-60 EB RAMPS



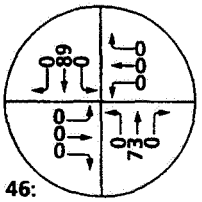
43: VINEYARD AVE. EDISON AVE.



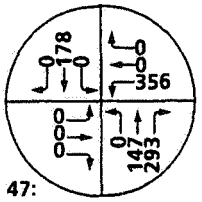
44: ARCHIBALD AVE. / SR-60 WB RAMPS



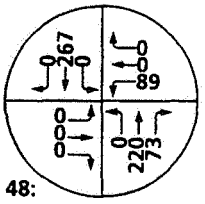
45: ARCHIBALD AVE. / SR-60 EB RAMPS



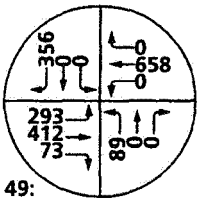
46: ARCHIBALD AVE. / RIVERSIDE DR.



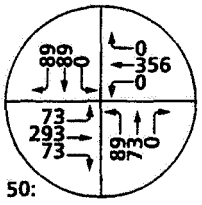
47: ARCHIBALD AVE. / EDISON AVE.



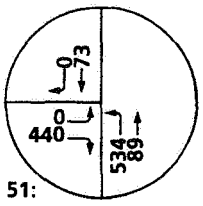
48: ARCHIBALD AVE. / MERRILL AVE.



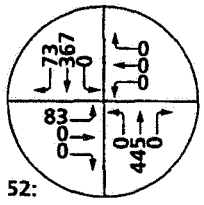
49: ARCHIBALD AVE. / CLOVERDALE RD.



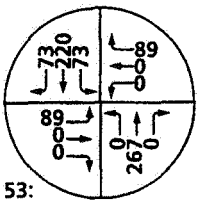
50: ARCHIBALD AVE. / PINE AVE.



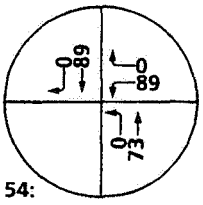
51: ARCHIBALD AVE. / RIVER RD.



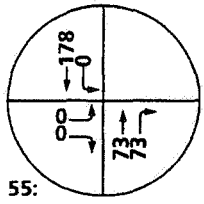
52: RIVER RD. / CORYDON ST.



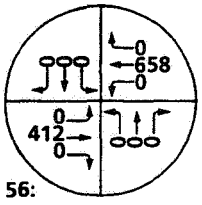
53: RIVER RD. / SECOND ST.



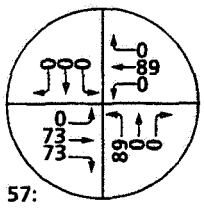
54: HAVEN AVE. / SR-60 WB RAMPS



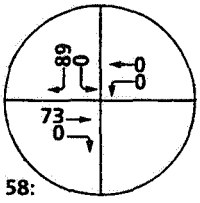
55: HAVEN AVE. / SR-60 EB RAMPS



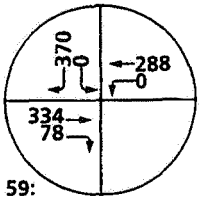
56: HAMNER AVE. / CLOVERDALE RD.



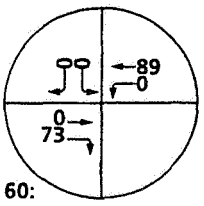
57: HAMNER AVE. / SCHLEISMAN RD.



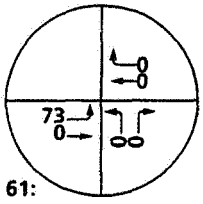
58: I-15 SB RAMPS / GALENA ST.



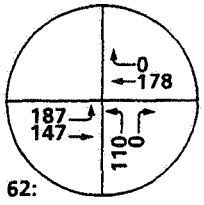
59: I-15 SB RAMPS / LIMONITE AVE.



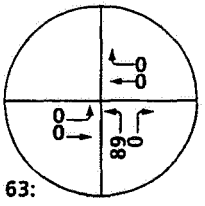
60: I-15 SB RAMPS / SECOND ST.



61: I-15 NB RAMPS / GALENA ST.



62: I-15 NB RAMPS / LIMONITE AVE.

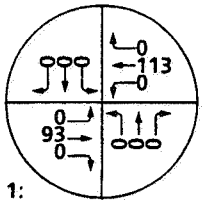


63: I-15 NB RAMPS / SECOND ST.

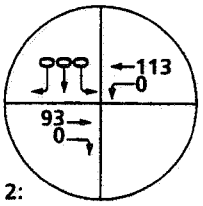
N

EXHIBIT 2-I

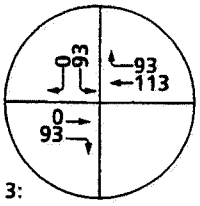
2020 PROJECT
PM PEAK HOUR INTERSECTION VOLUMES (PART 1/2)



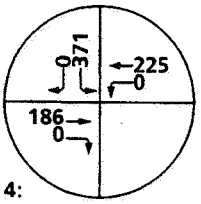
1: PIPELINE AVE. / CHINO HILLS PKWY.



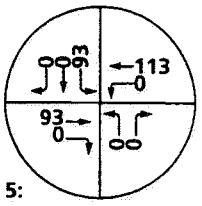
2: SR-71 SB RAMPS / CHINO HILLS PKWY.



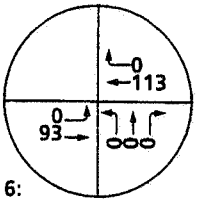
3: SR-71 SB RAMPS / SOQUEL CANYON PKWY.



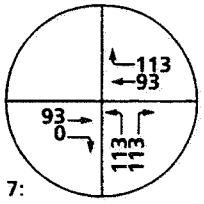
4: SR-71 SB RAMPS / PINE AVE.



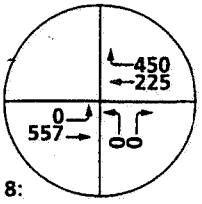
5: SR-71 SB RAMPS / EUCLID AVE.



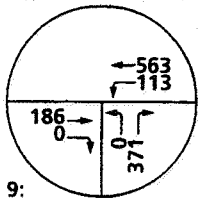
6: SR-71 NB RAMPS / CHINO HILLS PKWY.



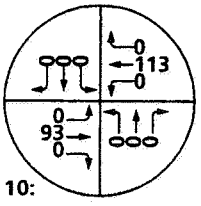
7: SR-71 NB RAMPS / SOQUEL CANYON PKWY.



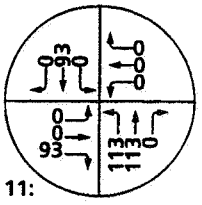
8: SR-71 NB RAMPS / PINE AVE.



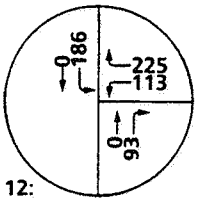
9: SR-71 NB RAMPS / EUCLID AVE.



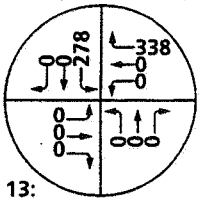
10: CENTRAL AVE. / EDISON AVE.



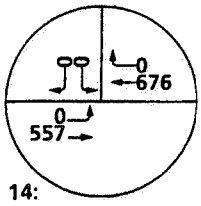
11: CENTRAL AVE. / CHINO HILLS PKWY.



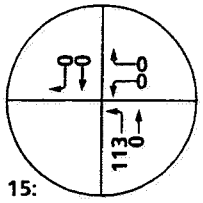
12: CENTRAL AVE. / EL PRADO RD.



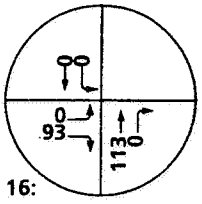
13: EL PRADO RD. / KIMBALL AVE.



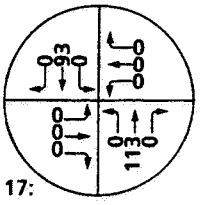
14: EL PRADO RD. / PINE AVE.



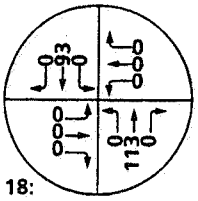
15: MOUNTAIN AVE. / SR-60 WB RAMPS



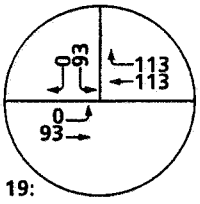
16: MOUNTAIN AVE. / SR-60 EB RAMPS



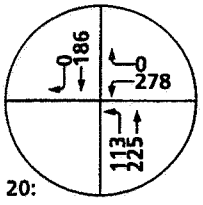
17: MOUNTAIN AVE. / WALNUT AVE.



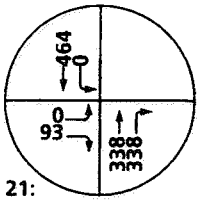
18: MOUNTAIN AVE. / RIVERSIDE DR.



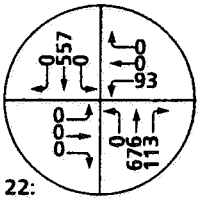
19: MOUNTAIN AVE. / EDISON AVE.



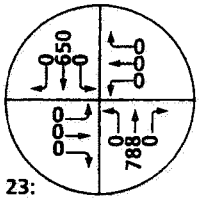
20: EUCLID AVE. / SR-60 WB RAMPS



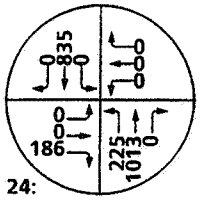
21: EUCLID AVE. / SR-60 EB RAMPS



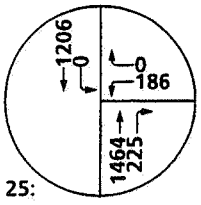
22: EUCLID AVE. / WALNUT AVE.



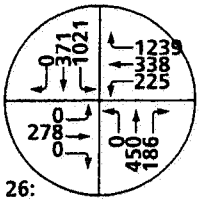
23: EUCLID AVE. / RIVERSIDE DR.



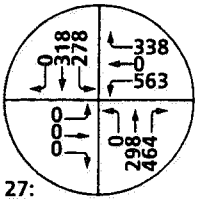
24: EUCLID AVE. / EDISON AVE.



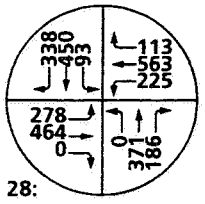
25: EUCLID AVE. / MERRILL AVE.



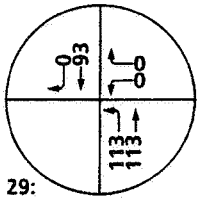
26: EUCLID AVE. / KIMBALL AVE.



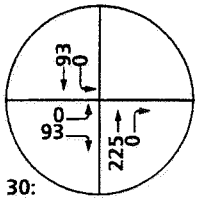
27: EUCLID AVE. / BICKMORE AVE.



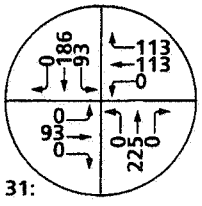
28: EUCLID AVE. / PINE AVE.



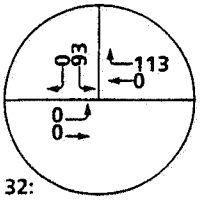
29: GROVE AVE. / SR-60 WB RAMPS



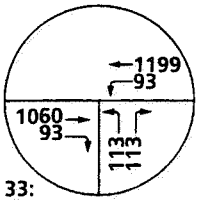
30: GROVE AVE. / SR-60 EB RAMPS



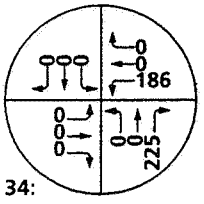
31: GROVE AVE. / EDISON AVE.



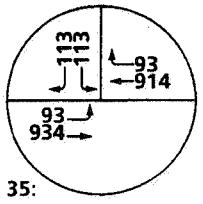
32: GROVE AVE. / MERRILL AVE.



33: GROVE AVE. / KIMBALL AVE.



34: GROVE AVE. / BICKMORE AVE.



35: GROVE AVE. / PINE AVE.

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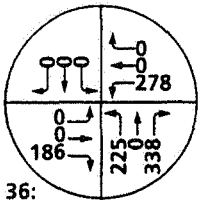
URBAN CROSSROADS

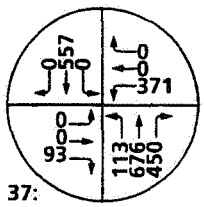
CHINO SUBAREA 2, Chino, California - 00020:88

EXHIBIT 2-I

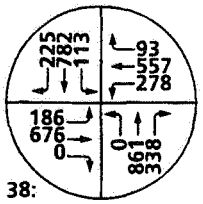
2020 PROJECT
PM PEAK HOUR INTERSECTION VOLUMES (PART 2/2)



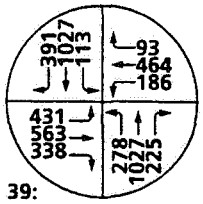
36: WALKER AVE. / EDISON AVE.



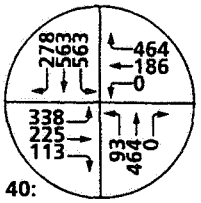
37: HELLMAN AVE. / MERRILL AVE.



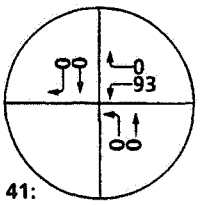
38: HELLMAN AVE. / KIMBALL AVE.



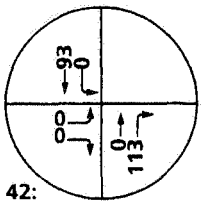
39: HELLMAN AVE. / PINE AVE.



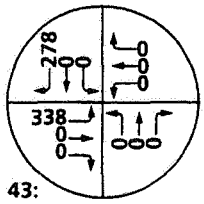
40: HELLMAN AVE. / CHANDLER ST.



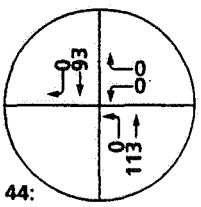
41: VINEYARD AVE. / SR-60 WB RAMPS



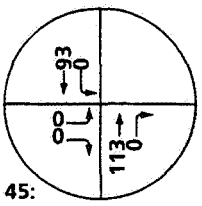
42: VINEYARD AVE. / SR-60 EB RAMPS



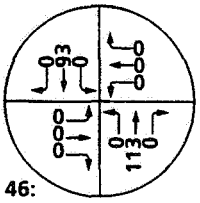
43: VINEYARD AVE. EDISON AVE.



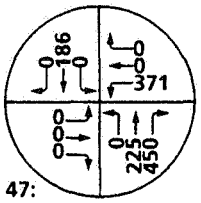
44: ARCHIBALD AVE. / SR-60 WB RAMPS



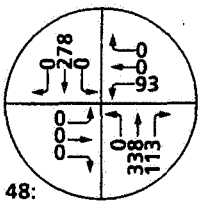
45: ARCHIBALD AVE. / SR-60 EB RAMPS



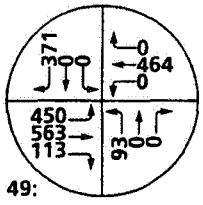
46: ARCHIBALD AVE. / RIVERSIDE DR.



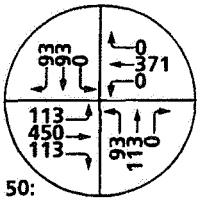
47: ARCHIBALD AVE. / EDISON AVE.



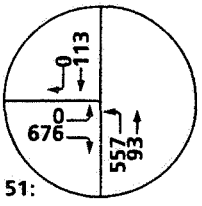
48: ARCHIBALD AVE. / MERRILL AVE.



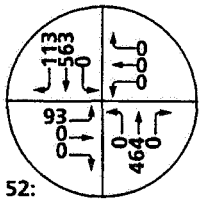
49: ARCHIBALD AVE. / CLOVERDALE RD.



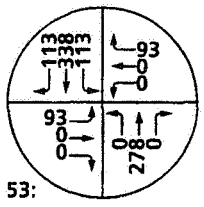
50: ARCHIBALD AVE. / PINE AVE.



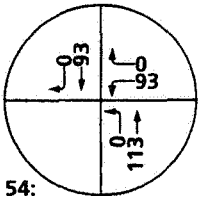
51: ARCHIBALD AVE. / RIVER RD.



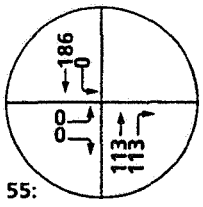
52: RIVER RD. / CORYDON ST.



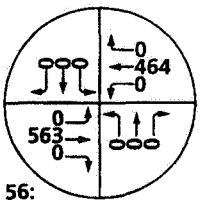
53: RIVER RD. / SECOND ST.



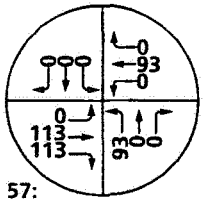
54: HAVEN AVE. / SR-60 WB RAMPS



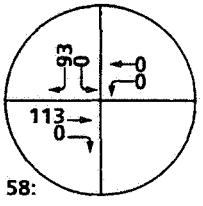
55: HAVEN AVE. / SR-60 EB RAMPS



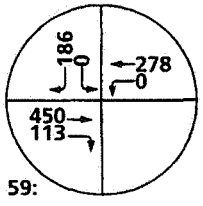
56: HAMNER AVE. / CLOVERDALE RD.



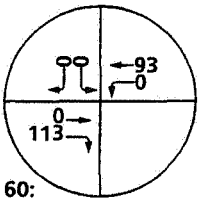
57: HAMNER AVE. / SCHLEISMAN RD.



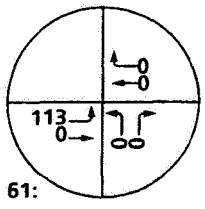
58: I-15 SB RAMPS / GALENA ST.



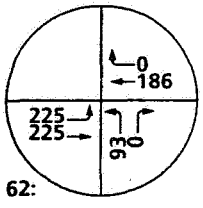
59: I-15 SB RAMPS / LIMONITE AVE.



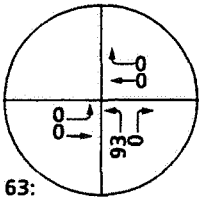
60: I-15 SB RAMPS / SECOND ST.



61: I-15 NB RAMPS / GALENA ST.



62: I-15 NB RAMPS / LIMONITE AVE.

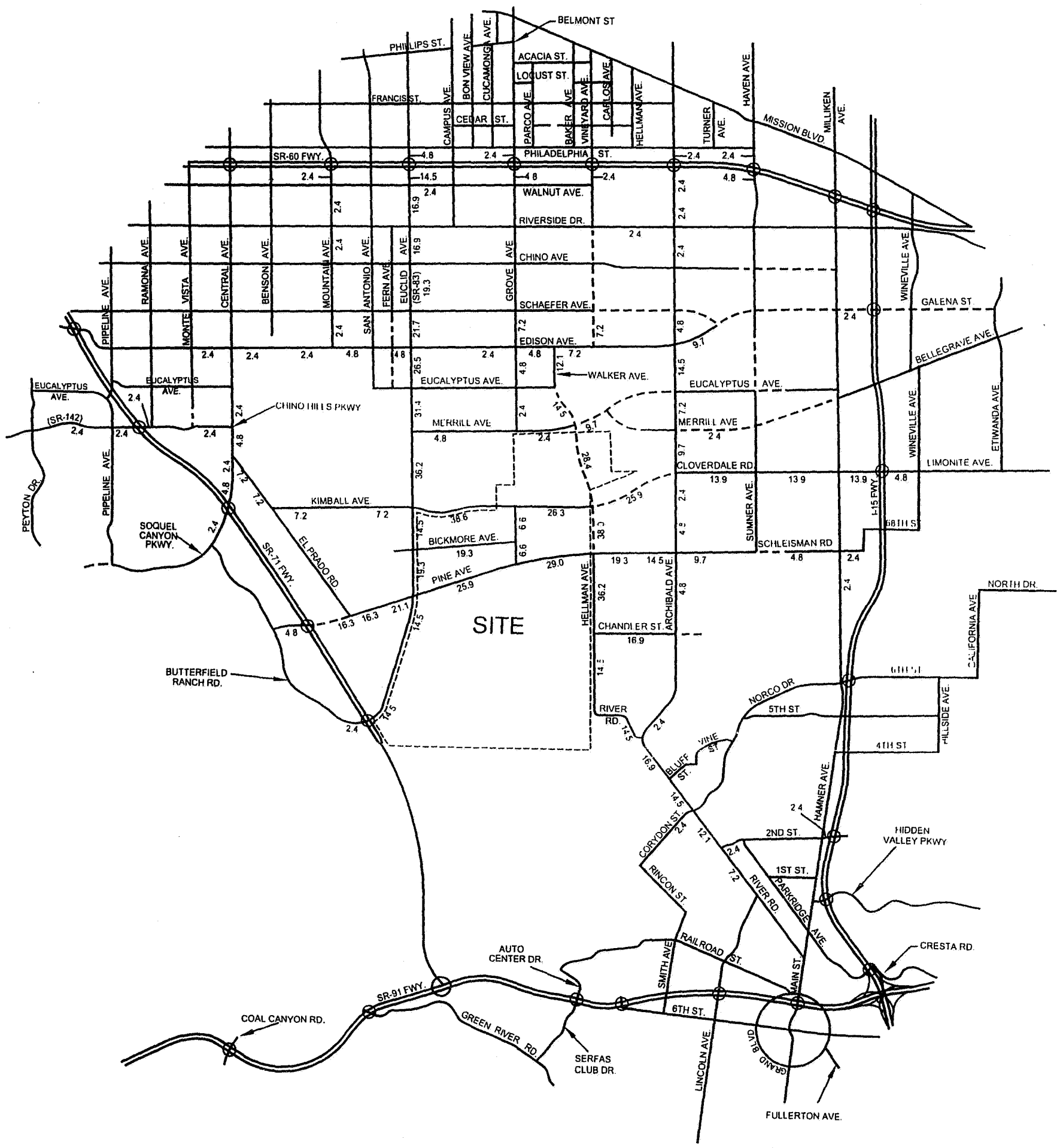


63: I-15 NB RAMPS / SECOND ST.

N

EXHIBIT 2-J

BUILDOUT PROJECT AVERAGE DAILY TRAFFIC (ADT)



LEGEND:

2.4 = VEHICLES PER DAY (1000'S)

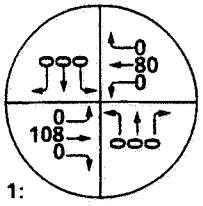
N

CHINO SUBAREA 2, Chino, California - 00020:112

URBAN CROSSROADS

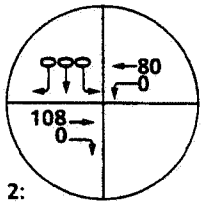
EXHIBIT 2-K

BUILDOUT PROJECT
AM PEAK HOUR INTERSECTION VOLUMES (PART 1/2)



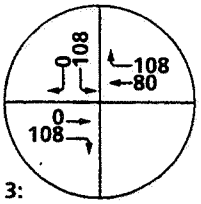
1:

PIPELINE AVE. / CHINO HILLS PKWY.



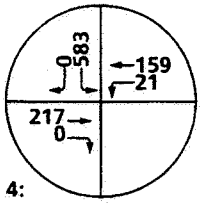
2:

SR-71 SB RAMPS / CHINO HILLS PKWY.



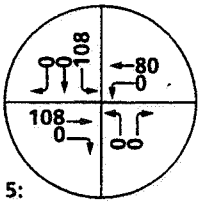
3:

SR-71 SB RAMPS / SOQUEL CANYON PKWY.



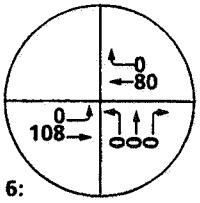
4:

SR-71 SB RAMPS / PINE AVE.



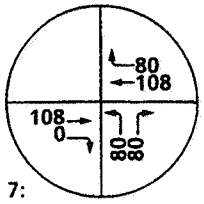
5:

SR-71 SB RAMPS / EUCLID AVE.



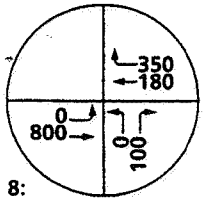
6:

SR-71 NB RAMPS / CHINO HILLS PKWY.



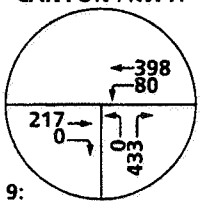
7:

SR-71 NB RAMPS / SOQUEL CANYON PKWY.



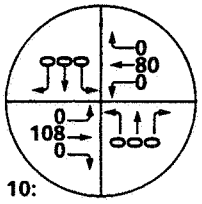
8:

SR-71 NB RAMPS / PINE AVE.



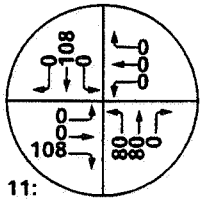
9:

SR-71 NB RAMPS / EUCLID AVE.



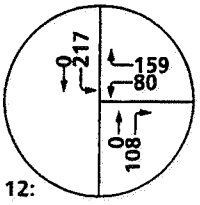
10:

CENTRAL AVE. / EDISON AVE.



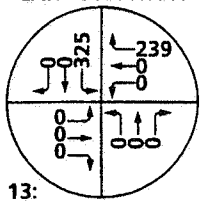
11:

CENTRAL AVE. / CHINO HILLS PKWY.



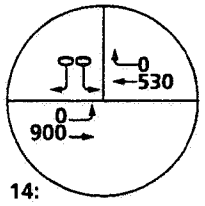
12:

CENTRAL AVE. / EL PRADO RD.



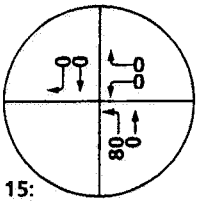
13:

EL PRADO RD. / KIMBALL AVE.



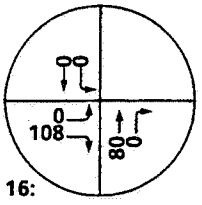
14:

EL PRADO RD. / PINE AVE.



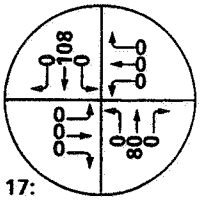
15:

MOUNTAIN AVE. / SR-60 WB RAMPS



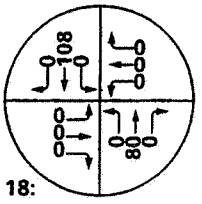
16:

MOUNTAIN AVE. / SR-60 EB RAMPS



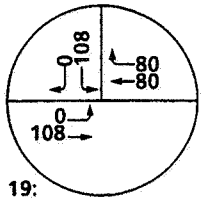
17:

MOUNTAIN AVE. / WALNUT AVE.



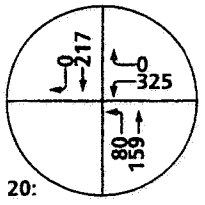
18:

MOUNTAIN AVE. / RIVERSIDE DR.



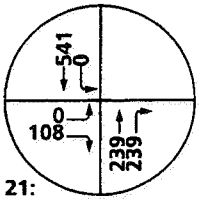
19:

MOUNTAIN AVE. / EDISON AVE.



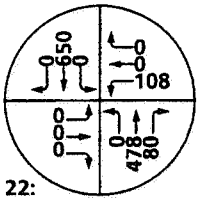
20:

EUCLID AVE. / SR-60 WB RAMPS



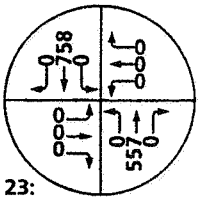
21:

EUCLID AVE. / SR-60 EB RAMPS



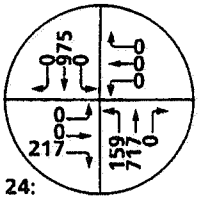
22:

EUCLID AVE. / WALNUT AVE.



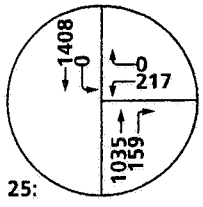
23:

EUCLID AVE. / RIVERSIDE DR.



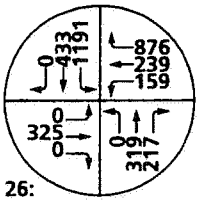
24:

EUCLID AVE. / EDISON AVE.



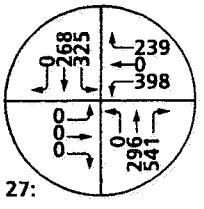
25:

EUCLID AVE. / MERRILL AVE.



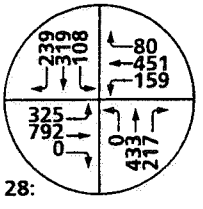
26:

EUCLID AVE. / KIMBALL AVE.



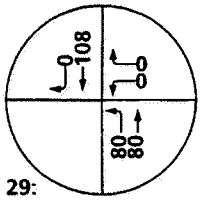
27:

EUCLID AVE. / BICKMORE AVE.



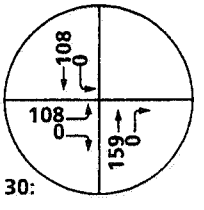
28:

EUCLID AVE. / PINE AVE.



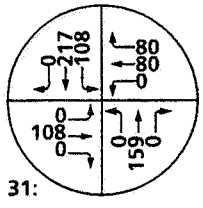
29:

GROVE AVE. / SR-60 WB RAMPS



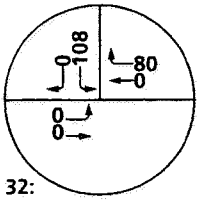
30:

GROVE AVE. / SR-60 EB RAMPS



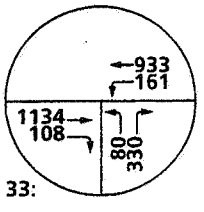
31:

GROVE AVE. / EDISON AVE.



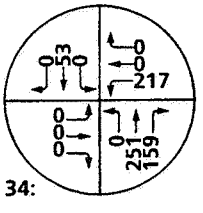
32:

GROVE AVE. / MERRILL AVE.



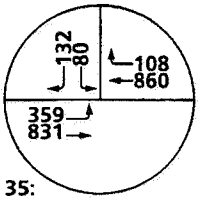
33:

GROVE AVE. / KIMBALL AVE.



34:

GROVE AVE. / BICKMORE AVE.



35:

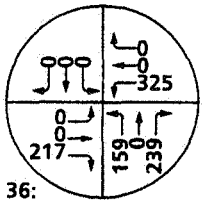
GROVE AVE. / PINE AVE.

N

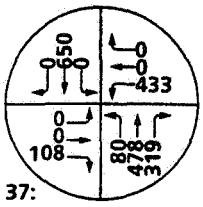
URBAN CROSSROADS

EXHIBIT 2-K

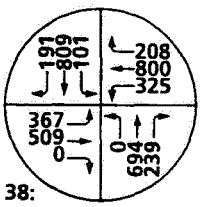
BUILDOUT PROJECT
AM PEAK HOUR INTERSECTION VOLUMES (PART 2/2)



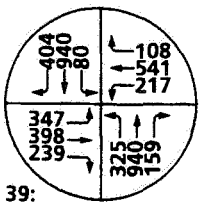
36: WALKER AVE. / EDISON AVE.



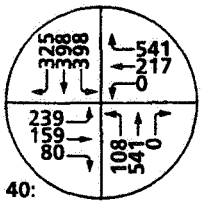
37: HELLMAN AVE. / MERRILL AVE.



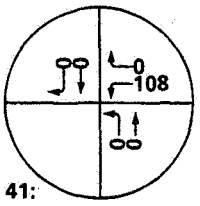
38: HELLMAN AVE. / KIMBALL AVE.



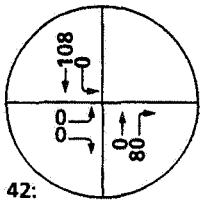
39: HELLMAN AVE. / PINE AVE.



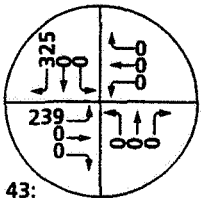
40: HELLMAN AVE. / CHANDLER ST.



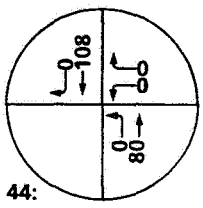
41: VINEYARD AVE. / SR-60 WB RAMPS



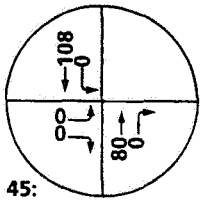
42: VINEYARD AVE. / SR-60 EB RAMPS



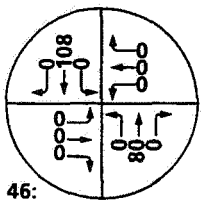
43: VINEYARD AVE. EDISON AVE.



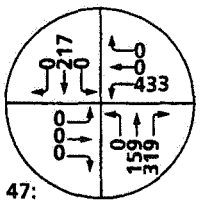
44: ARCHIBALD AVE. / SR-60 WB RAMPS



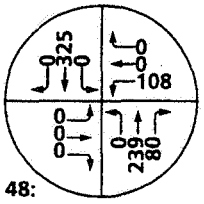
45: ARCHIBALD AVE. / SR-60 EB RAMPS



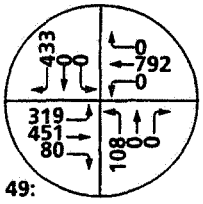
46: ARCHIBALD AVE. / RIVERSIDE DR.



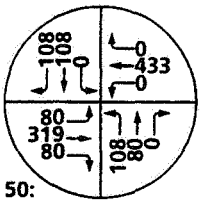
47: ARCHIBALD AVE. / EDISON AVE.



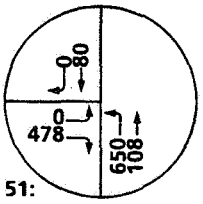
48: ARCHIBALD AVE. / MERRILL AVE.



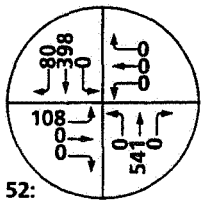
49: ARCHIBALD AVE. / CLOVERDALE RD.



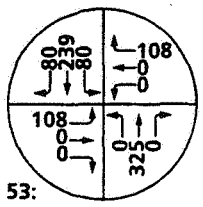
50: ARCHIBALD AVE. / PINE AVE.



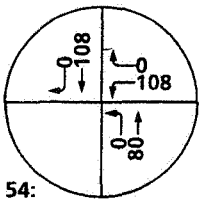
51: ARCHIBALD AVE. / RIVER RD.



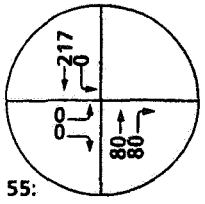
52: RIVER RD. / CORYDON ST.



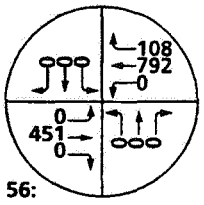
53: RIVER RD. / SECOND ST.



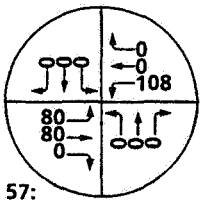
54: HAVEN AVE. / SR-60 WB RAMPS



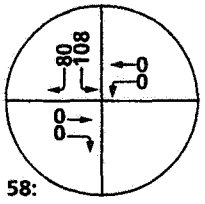
55: HAVEN AVE. / SR-60 EB RAMPS



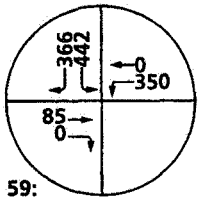
56: HAMNER AVE. / CLOVERDALE RD.



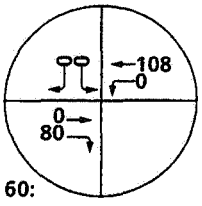
57: HAMNER AVE. / SCHLEISMAN RD.



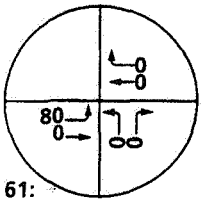
58: I-15 SB RAMPS / GALENA ST.



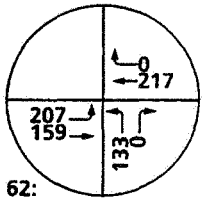
59: I-15 SB RAMPS / LIMONITE AVE.



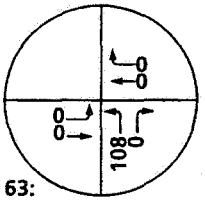
60: I-15 SB RAMPS / SECOND ST.



61: I-15 NB RAMPS / GALENA ST.



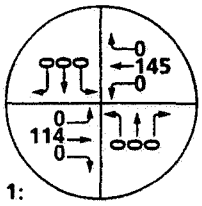
62: I-15 NB RAMPS / LIMONITE AVE.



63: I-15 NB RAMPS / SECOND ST.

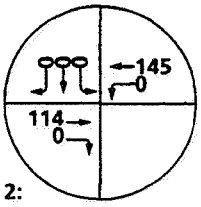
EXHIBIT 2-L

BUILDOUT PROJECT
PM PEAK HOUR INTERSECTION VOLUMES (PART 1/2)



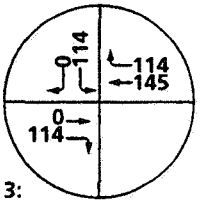
1:

PIPELINE AVE. / CHINO HILLS PKWY.



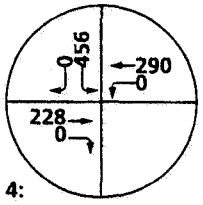
2:

SR-71 SB RAMPS / CHINO HILLS PKWY.



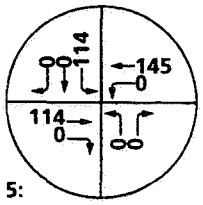
3:

SR-71 SB RAMPS / SOQUEL CANYON PKWY.



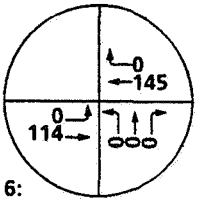
4:

SR-71 SB RAMPS / PINE AVE.



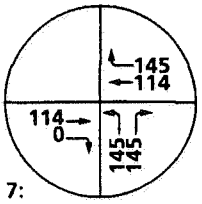
5:

SR-71 SB RAMPS / EUCLID AVE.



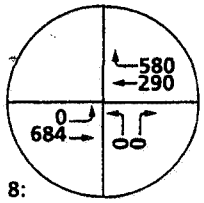
6:

SR-71 NB RAMPS / CHINO HILLS PKWY.



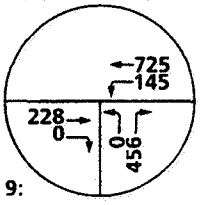
7:

SR-71 NB RAMPS / SOQUEL CANYON PKWY.



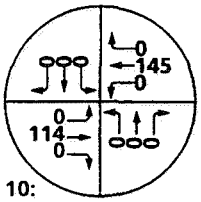
8:

SR-71 NB RAMPS / PINE AVE.



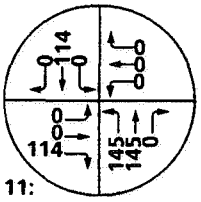
9:

SR-71 NB RAMPS / EUCLID AVE.



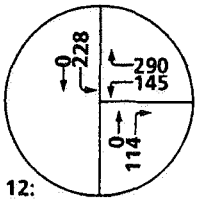
10:

CENTRAL AVE. / EDISON AVE.



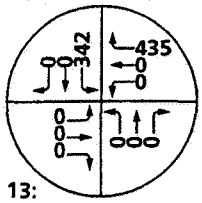
11:

CENTRAL AVE. / CHINO HILLS PKWY.



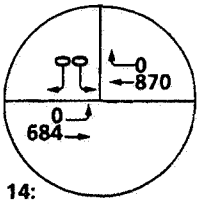
12:

CENTRAL AVE. / EL PRADO RD.



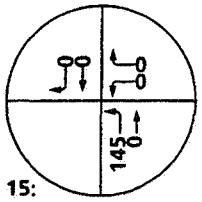
13:

EL PRADO RD. / KIMBALL AVE.



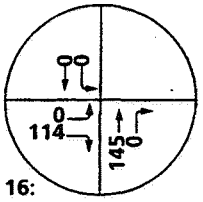
14:

EL PRADO RD. / PINE AVE.



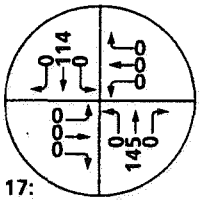
15:

MOUNTAIN AVE. / SR-60 WB RAMPS



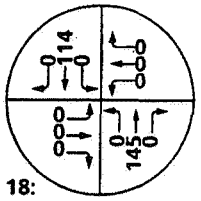
16:

MOUNTAIN AVE. / SR-60 EB RAMPS



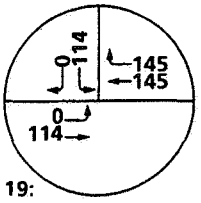
17:

MOUNTAIN AVE. / WALNUT AVE.



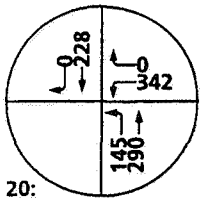
18:

MOUNTAIN AVE. / RIVERSIDE DR.



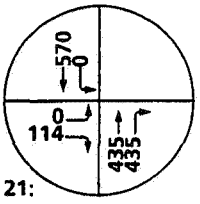
19:

MOUNTAIN AVE. / EDISON AVE.



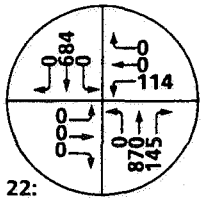
20:

EUCLID AVE. / SR-60 WB RAMPS



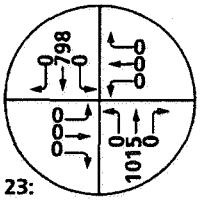
21:

EUCLID AVE. / SR-60 EB RAMPS



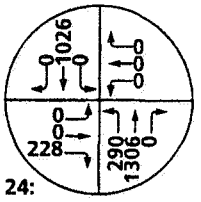
22:

EUCLID AVE. / WALNUT AVE.



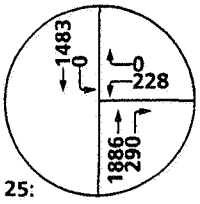
23:

EUCLID AVE. / RIVERSIDE DR.



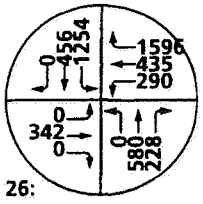
24:

EUCLID AVE. / EDISON AVE.



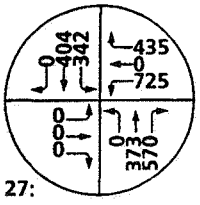
25:

EUCLID AVE. / MERRILL AVE.



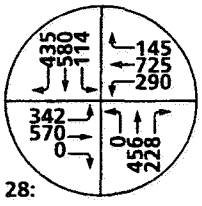
26:

EUCLID AVE. / KIMBALL AVE.



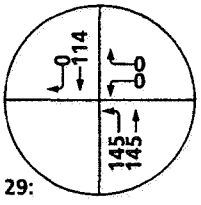
27:

EUCLID AVE. / BICKMORE AVE.



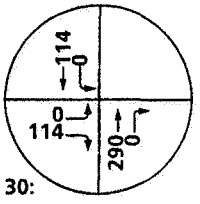
28:

EUCLID AVE. / PINE AVE.



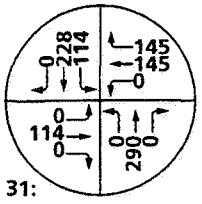
29:

GROVE AVE. / SR-60 WB RAMPS



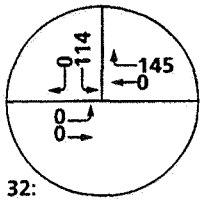
30:

GROVE AVE. / SR-60 EB RAMPS



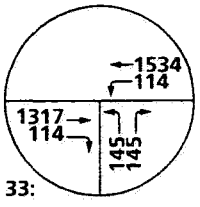
31:

GROVE AVE. / EDISON AVE.



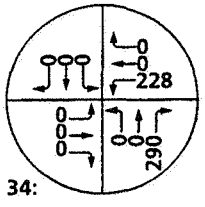
32:

GROVE AVE. / MERRILL AVE.



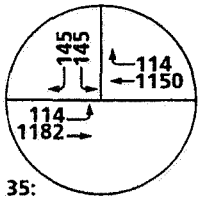
33:

GROVE AVE. / KIMBALL AVE.



34:

GROVE AVE. / BICKMORE AVE.



35:

GROVE AVE. / PINE AVE.

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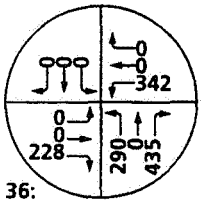
CHINO SUBAREA 2, Chino, California - 00020:107

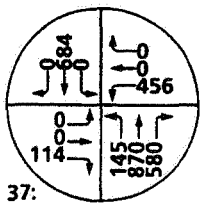
URBAN CROSSROADS

EXHIBIT 2-L

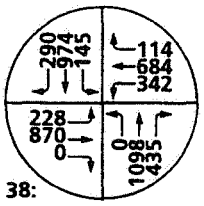
BUILDOUT PROJECT
PM PEAK HOUR INTERSECTION VOLUMES (PART 2/2)



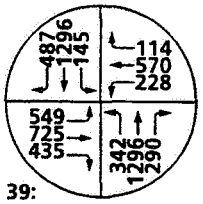
36: WALKER AVE. / EDISON AVE.



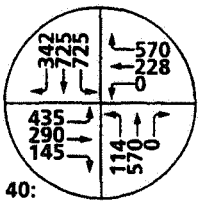
37: HELLMAN AVE. / MERRILL AVE.



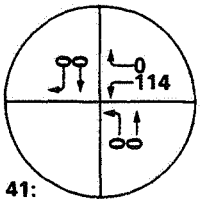
38: HELLMAN AVE. / KIMBALL AVE.



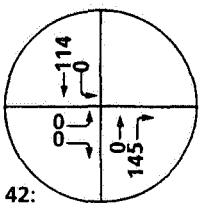
39: HELLMAN AVE. / PINE AVE.



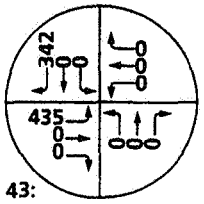
40: HELLMAN AVE. / CHANDLER ST.



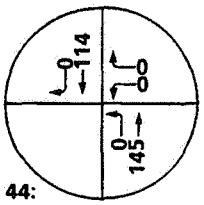
41: VINEYARD AVE. / SR-60 WB RAMPS



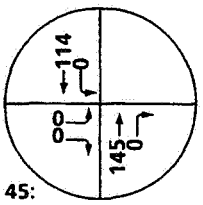
42: VINEYARD AVE. / SR-60 EB RAMPS



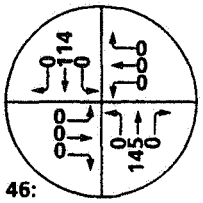
43: VINEYARD AVE. EDISON AVE.



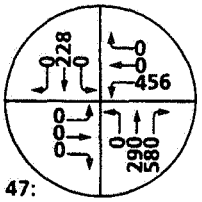
44: ARCHIBALD AVE. / SR-60 WB RAMPS



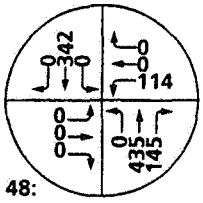
45: ARCHIBALD AVE. / SR-60 EB RAMPS



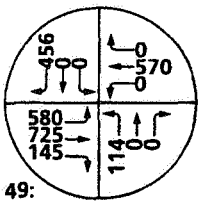
46: ARCHIBALD AVE. / RIVERSIDE DR.



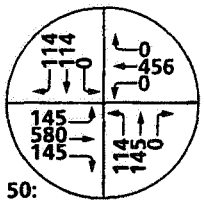
47: ARCHIBALD AVE. / EDISON AVE.



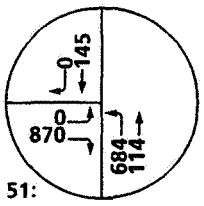
48: ARCHIBALD AVE. / MERRILL AVE.



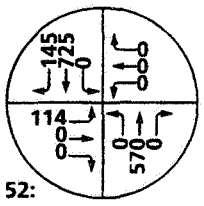
49: ARCHIBALD AVE. / CLOVERDALE RD.



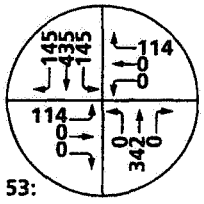
50: ARCHIBALD AVE. / PINE AVE.



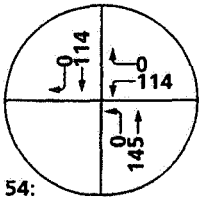
51: ARCHIBALD AVE. / RIVER RD.



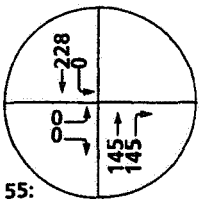
52: RIVER RD. / CORYDON ST.



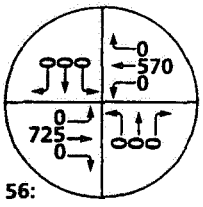
53: RIVER RD. / SECOND ST.



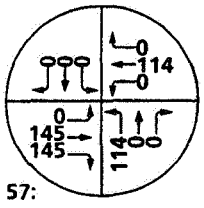
54: HAVEN AVE. / SR-60 WB RAMPS



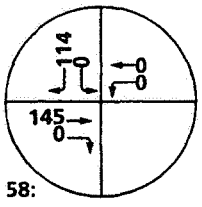
55: HAVEN AVE. / SR-60 EB RAMPS



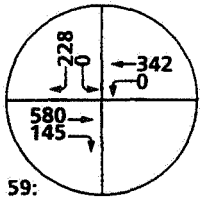
56: HAMNER AVE. / CLOVERDALE RD.



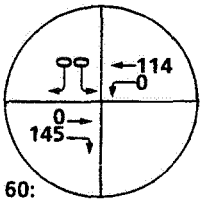
57: HAMNER AVE. / SCHLEISMAN RD.



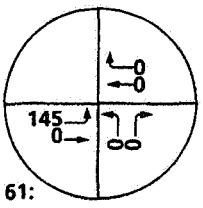
58: I-15 SB RAMPS / GALENA ST.



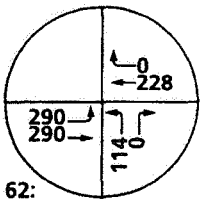
59: I-15 SB RAMPS / LIMONITE AVE.



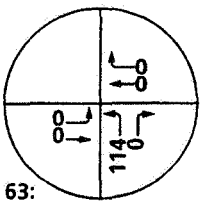
60: I-15 SB RAMPS / SECOND ST.



61: I-15 NB RAMPS / GALENA ST.



62: I-15 NB RAMPS / LIMONITE AVE.



63: I-15 NB RAMPS / SECOND ST.

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URBAN CROSSROADS

within the study area. AM and PM peak hour traffic have been compared, and AM traffic is generally greater, therefore AM peak hour volumes have been used for the CMP test. Exhibit 2-M graphically depicts the AM peak hour CMP project traffic contribution test volumes on all of the roadway segments adjacent to the potential CMP intersection analysis locations previously identified, until the project volume contribution has clearly dropped below the CMP 80 trip threshold. Exhibit 2-N presents the PM peak hour CMP project traffic volumes. Both AM and PM volumes are required for CMP fair share traffic contribution calculations.

Table 2-6 summarizes the CMP traffic contribution test for the potential freeway segments in the study area. Only freeway segments with 100 or more two-way (total) trips need to be analyzed in accordance with CMP requirements. Exhibit 2-O presents the resulting final CMP 2020 analysis locations. Overall, 63 intersection locations and 35 freeway segments have been analyzed per CMP requirements.

The project contributes traffic greater than the CMP freeway threshold volume of 100 two-way trips to the I-15 Freeway, SR-60 Freeway, SR-71 Freeway and SR-91 Freeway, and the project contribution test has indicated that the project will contribute more than 80 trips (CMP roadway threshold volume) along roadway segments serving CMP intersections within the City of Chino Hills, City of Ontario, County of San Bernardino, City of Norco, City of Corona and County of Riverside. This means that the City of Chino must notify the Congestion Management Agency (SANBAG), the California Department of Transportation (Caltrans), City of Chino Hills, City of Ontario, County of San Bernardino, City of Norco, City of

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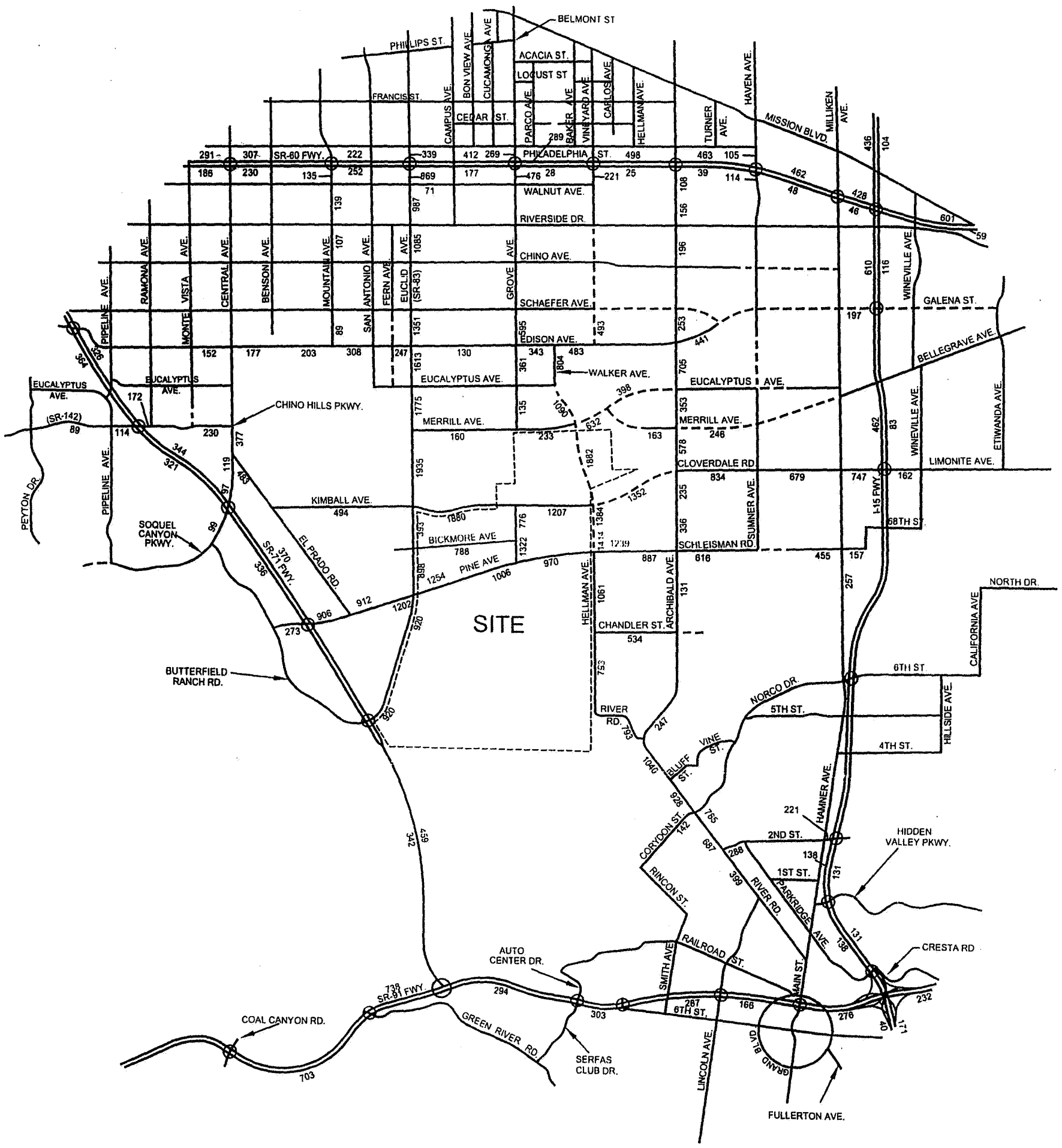
EXHIBIT 2-M

CMP AM PEAK HOUR PROJECT TRAFFIC CONTRIBUTION TEST VOLUMES



LEGEND:

262 = PROJECT AM PEAK HOUR VOLUME

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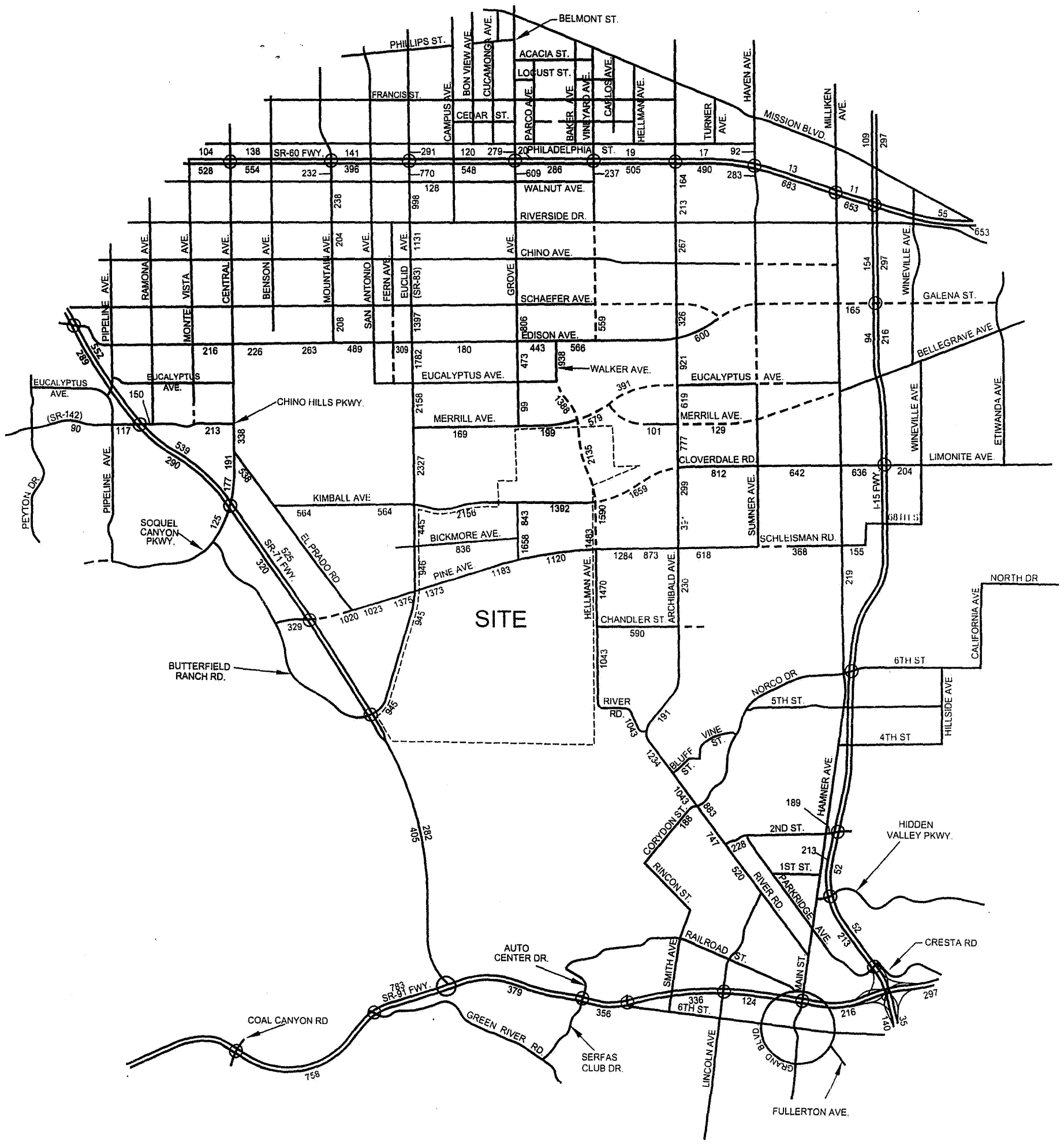
CHINO SUBAREA 2, Chino, California - 00020:114

URBAN CROSSROADS

EXHIBIT 2-N

CMP PM PEAK HOUR PROJECT TRAFFIC CONTRIBUTION TEST VOLUMES



LEGEND:

262 = PROJECT PM PEAK HOUR VOLUME

N

URBAN CROSSROADS

TABLE 2-6

CMP FREEWAY PROJECT TRIP CONTRIBUTION SUMMARY

FREEWAY	SEGMENT	PROJECT TRIPS
I-15	Jurupa St. to SR-60 Fwy.	787
I-15	SR-60 Fwy. to Galena St.	787
I-15	Galena St. to Limonite Ave.	524
I-15	Limonite Ave. to 6th St.	262
I-15	6th St. to 2nd St.	262
I-15	2nd St. to Hidden Valley Pkwy.	524
I-15	Hidden Valley Pkwy. to SR-91 Fwy.	524
I-15	SR-91 Fwy. to Magnolia Ave.	262
SR-60	Van Buren Blvd. to I-15 Fwy.	1,311
SR-60	I-15 Fwy. to Milliken Ave.	1,311
SR-60	Milliken Ave. to Haven Ave.	1,311
SR-60	Haven Ave. to Archibald Ave.	1,049
SR-60	Archibald Ave. to Vineyard Ave.	1,049
SR-60	Vineyard Ave. to Grove Ave.	787
SR-60	Grove Ave. to Euclid Ave. (SR-83)	1,311
SR-60	Euclid Ave. (SR-83) to Mountain Ave.	787
SR-60	Mountain Ave. to Central Ave.	1,049
SR-60	Central Ave. to Ramona Ave.	1,049
SR-71	Chino Ave. to Grand Ave.	1,311
SR-71	Grand Ave. to Chino Hills Pkwy. (SR-142)	1,311
SR-71	Chino Hills Pkwy. (SR-142) to Ramona Ave.	1,311
SR-71	Ramona Ave. to Soquel Canyon Pkwy.	1,311
SR-71	Soquel Canyon Pkwy. to Pine Ave.	1,573
SR-71	Pine Ave. to Euclid Ave. (SR-83)	524
SR-71	Euclid Ave. (SR-83) to SR-91 Fwy.	2,884
SR-91	McKinley St. to I-15 Fwy.	524
SR-91	I-15 Fwy. to Main St.	262
SR-91	Main St. to West Grand Blvd.	262
SR-91	West Grand Blvd. to Lincoln Ave.	262
SR-91	Lincoln Ave. to Maple St.	262
SR-91	Maple St. to Serfas Club Dr.	262
SR-91	Serfas Club Dr. to SR-71 Fwy.	262
SR-91	SR-71 Fwy. to Green River Rd.	2,622
SR-91	Green River Rd. to Coal Canyon Rd.	2,622
SR-91	Coal Canyon Rd. to Gypsum Canyon Rd.	2,622

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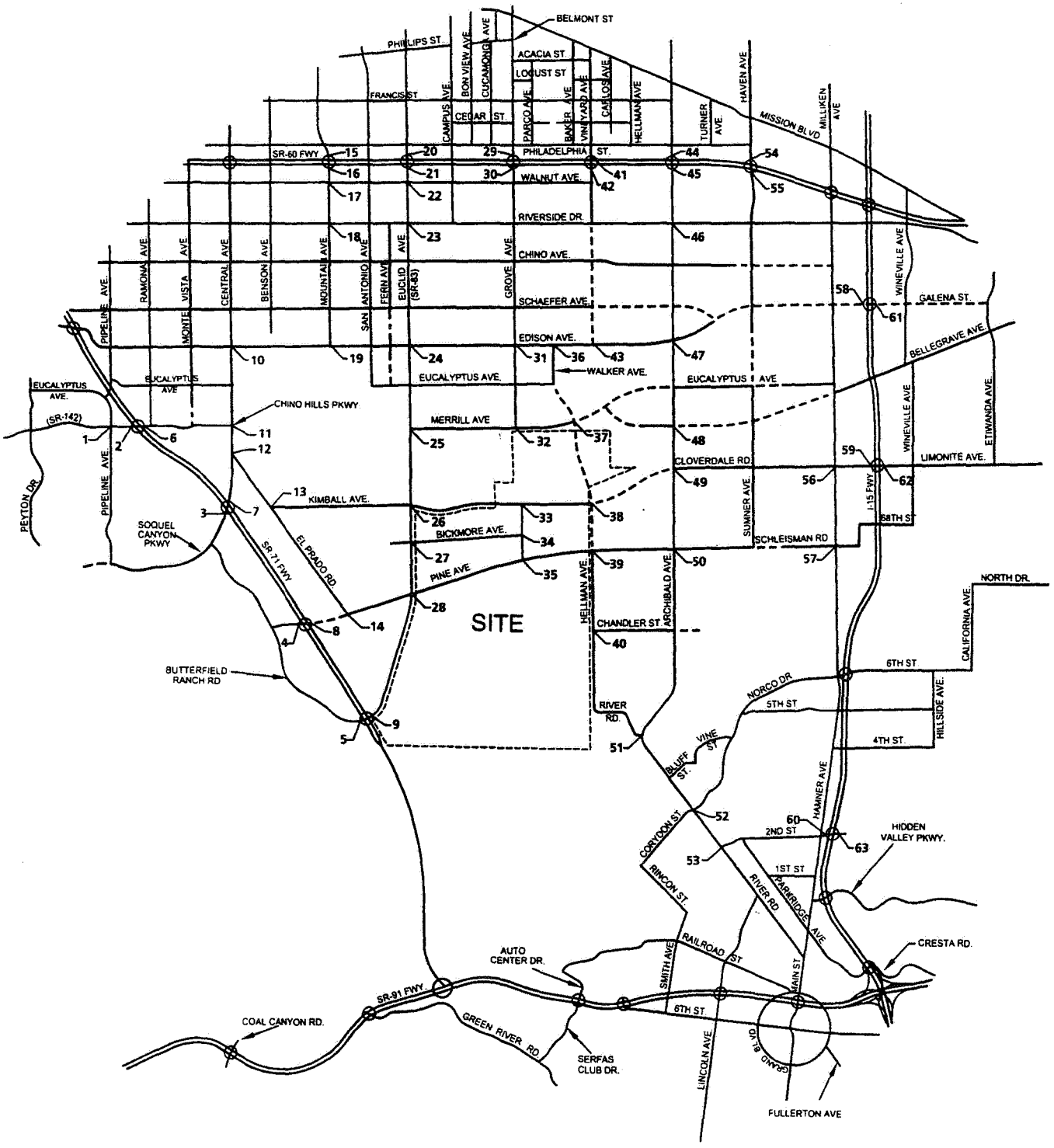
EXHIBIT 2-O

CMP HORIZON YEAR (2020) ANALYSIS LOCATIONS



LEGEND:

1 = LOCATION NUMBER

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CHINO SUBAREA 2, Chino, California - 00020:61

URBAN CROSSROADS

Corona and County of Riverside in accordance with CMP requirements. Each of these agencies must also be provided with a copy of the CMP traffic impact analysis, once the document is accepted by the City of Chino.

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3. EXISTING CONDITIONS

This section of the report summarizes existing roadway and traffic conditions in the study area. The existing conditions intersection analysis locations are presented on Exhibit 3-A. All CMP 2020 analysis locations which exist today have been analyzed. The number of through travel lanes for existing roadways and intersection controls are presented, along with existing traffic count data collected for this study. This data was used to analyze existing traffic operations in the study area. Existing plans for roadway improvements are also described in this section.

3.1 Existing Roadway System and Daily Traffic Volumes

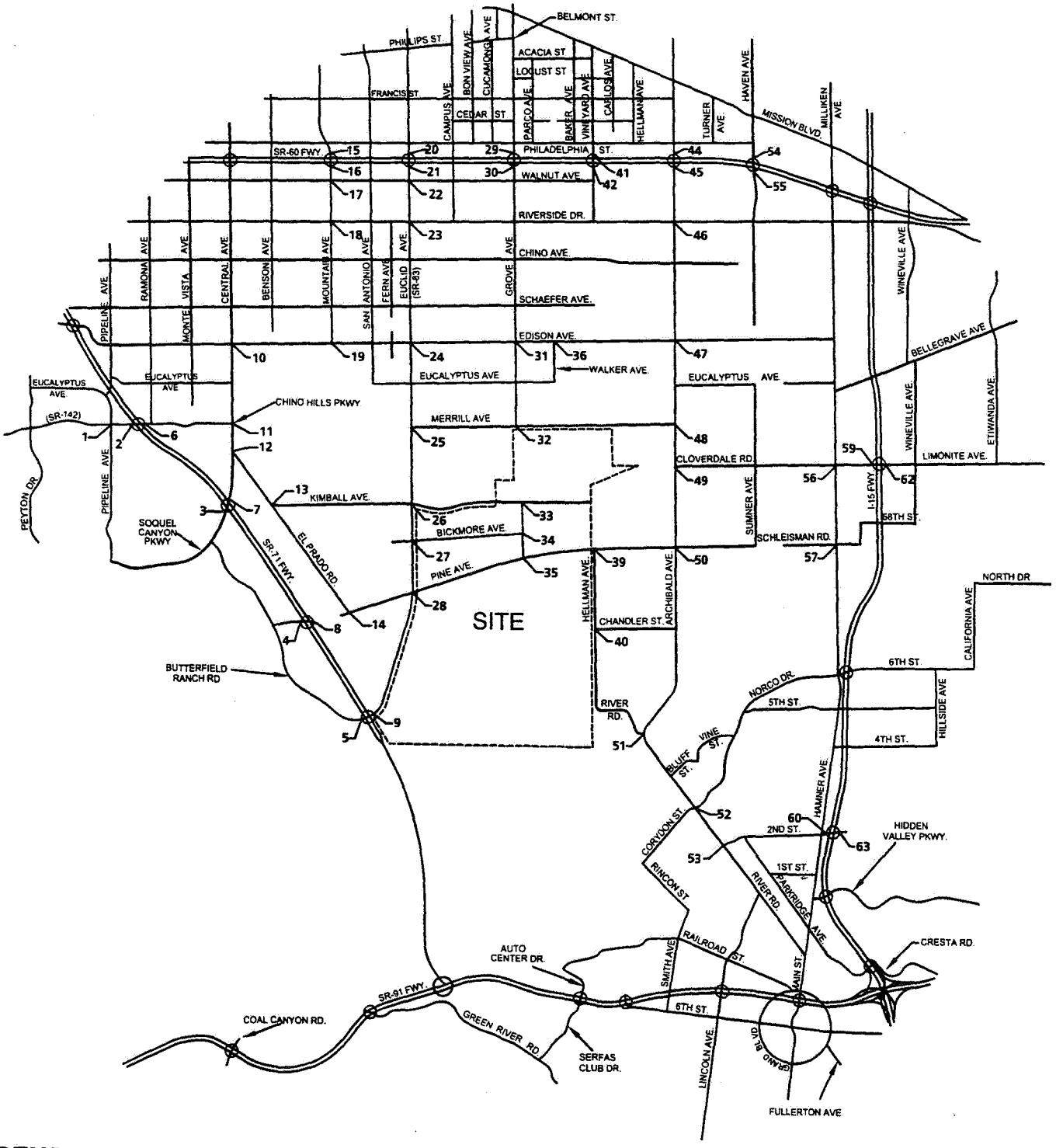
The number of through travel lanes for existing roadways are shown on Exhibit 3-B and existing intersection controls within the study area are presented on Exhibit 3-C. Exhibit 3-D depicts the current average daily traffic (ADT) volumes in the study area. Existing ADT volumes are based upon the latest traffic data collected from the Cities of Chino/Ontario (see Appendix "B") and the 1999 Traffic Volumes on California State Highways by Caltrans (the most recent data available when this report was originally prepared). The remaining ADT volumes have been estimated by Urban Crossroads, Inc. using the following formula for each intersection leg:

PM Peak Hour (Approach + Exit Volume) x 11.5 = Daily Leg Volume.

Regional access to the site is provided by the I-15 Freeway, SR-60 Freeway, SR-71 Freeway and SR-91 Freeway. Local access is provided by various arterial roadways in the vicinity of the site. The east-west arterials which will be most affected by the project include Walnut Avenue,

EXHIBIT 3-A

EXISTING ANALYSIS LOCATIONS



LEGEND:

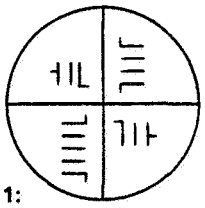
1 = LOCATION NUMBER

N

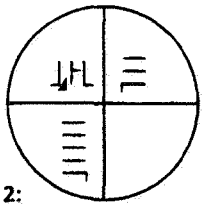
URBAN CROSSROADS

EXHIBIT 3-B

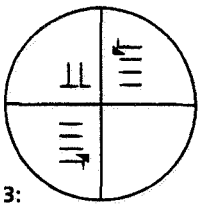
EXISTING NUMBER OF THROUGH LANES (PART 1/2)



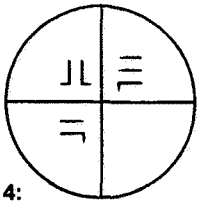
1: PIPELINE AVE. / CHINO HILLS PKWY.



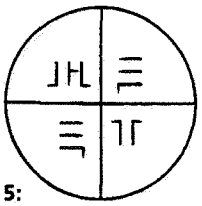
2: SR-71 SB RAMPS / CHINO HILLS PKWY.



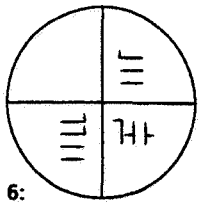
3: SR-71 SB RAMPS / SOQUEL CANYON PKWY.



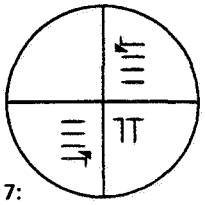
4: SR-71 SB RAMPS / PINE AVE.



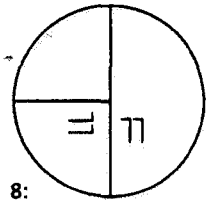
5: SR-71 SB RAMPS / EUCLID AVE.



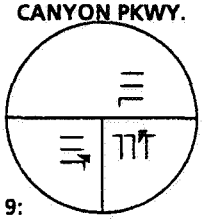
6: SR-71 NB RAMPS / CHINO HILLS PKWY.



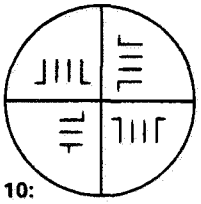
7: SR-71 NB RAMPS / SOQUEL CANYON PKWY.



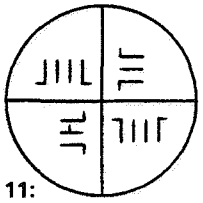
8: SR-71 NB RAMPS / PINE AVE.



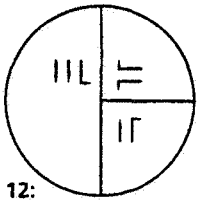
9: SR-71 NB RAMPS / EUCLID AVE.



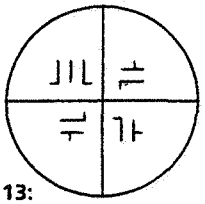
10: CENTRAL AVE. / EDISON AVE.



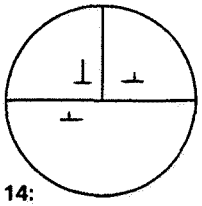
11: CENTRAL AVE. / CHINO HILLS PKWY.



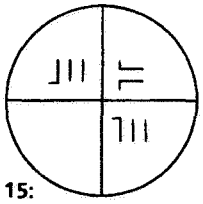
12: CENTRAL AVE. / EL PRADO RD.



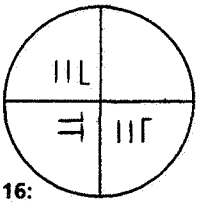
13: EL PRADO RD. / KIMBALL AVE.



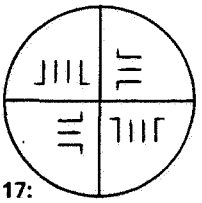
14: EL PRADO RD. / PINE AVE.



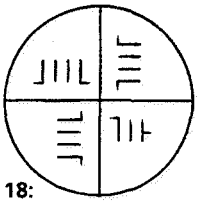
15: MOUNTAIN AVE. / SR-60 WB RAMPS



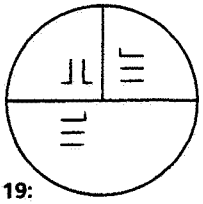
16: MOUNTAIN AVE. / SR-60 EB RAMPS



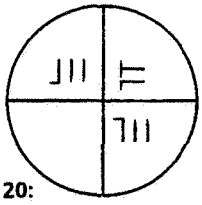
17: MOUNTAIN AVE. / WALNUT AVE.



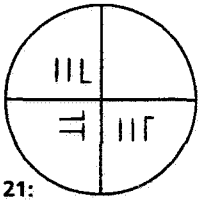
18: MOUNTAIN AVE. / RIVERSIDE DR.



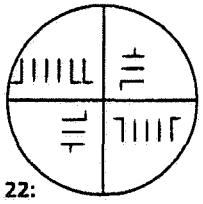
19: MOUNTAIN AVE. / EDISON AVE.



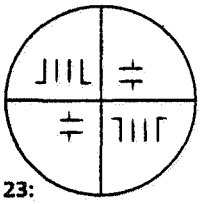
20: EUCLID AVE. / SR-60 WB RAMPS



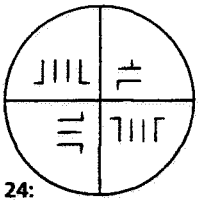
21: EUCLID AVE. / SR-60 EB RAMPS



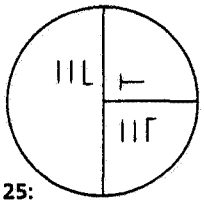
22: EUCLID AVE. / WALNUT AVE.



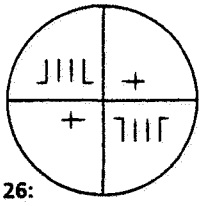
23: EUCLID AVE. / RIVERSIDE DR.



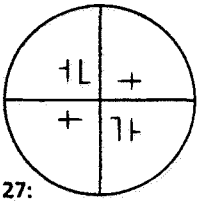
24: EUCLID AVE. / EDISON AVE.



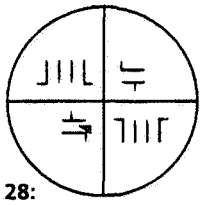
25: EUCLID AVE. / MERRILL AVE.



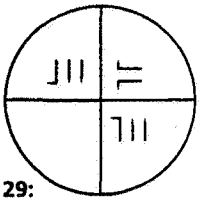
26: EUCLID AVE. / KIMBALL AVE.



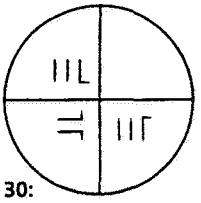
27: EUCLID AVE. / BICKMORE AVE.



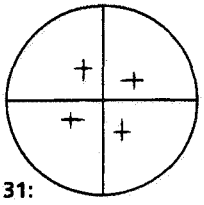
28: EUCLID AVE. / PINE AVE.



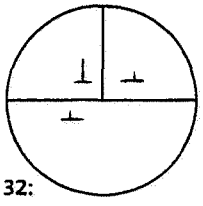
29: GROVE AVE. / SR-60 WB RAMPS



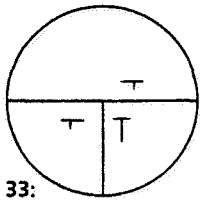
30: GROVE AVE. / SR-60 EB RAMPS



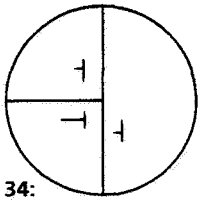
31: GROVE AVE. / EDISON AVE.



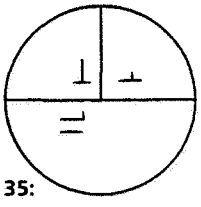
32: GROVE AVE. / MERRILL AVE.



33: GROVE AVE. / KIMBALL AVE.



34: GROVE AVE. / BICKMORE AVE.



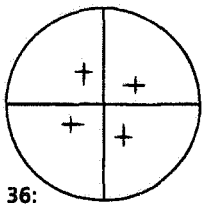
35: GROVE AVE. / PINE AVE.

N

URBAN CROSSROADS

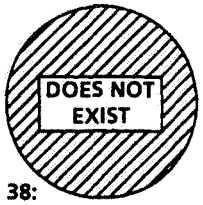
EXHIBIT 3-B

EXISTING NUMBER OF THROUGH LANES (PART 2/2)

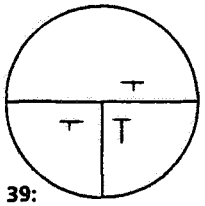


36: WALKER AVE. / EDISON AVE.

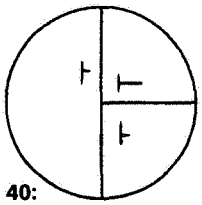
37: HELLMAN AVE. / MERRILL AVE.



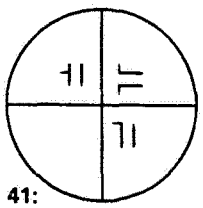
38: HELLMAN AVE. / KIMBALL AVE.



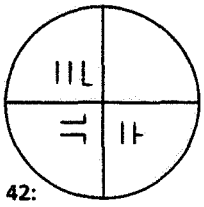
39: HELLMAN AVE. / PINE AVE.



40: HELLMAN AVE. / CHANDLER ST.

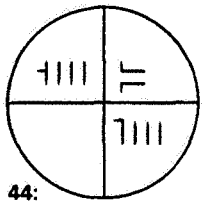


41: VINEYARD AVE. / SR-60 WB RAMPS

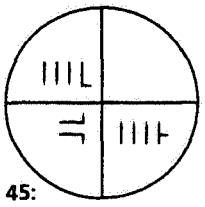


42: VINEYARD AVE. / SR-60 EB RAMPS

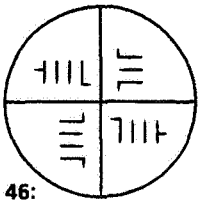
43: VINEYARD AVE. EDISON AVE.



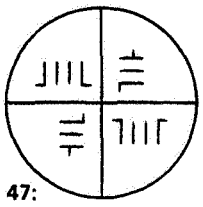
44: ARCHIBALD AVE. / SR-60 WB RAMPS



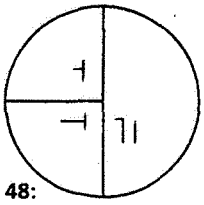
45: ARCHIBALD AVE. / SR-60 EB RAMPS



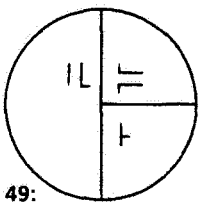
46: ARCHIBALD AVE. / RIVERSIDE DR.



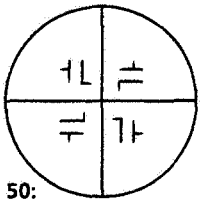
47: ARCHIBALD AVE. / EDISON AVE.



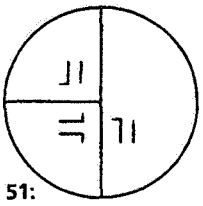
48: ARCHIBALD AVE. / MERRILL AVE.



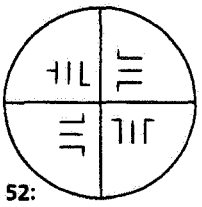
49: ARCHIBALD AVE. / CLOVERDALE RD.



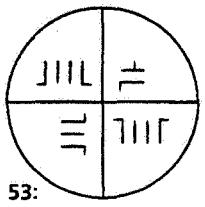
50: ARCHIBALD AVE. / PINE AVE.



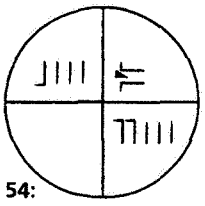
51: ARCHIBALD AVE. / RIVER RD.



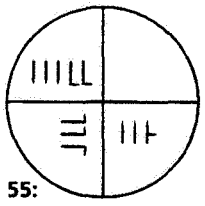
52: RIVER RD. / CORYDON ST.



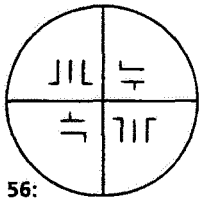
53: RIVER RD. / SECOND ST.



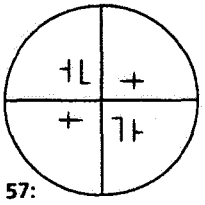
54: HAVEN AVE. / SR-60 WB RAMPS



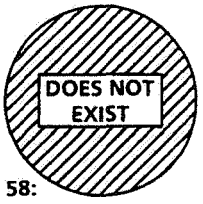
55: HAVEN AVE. / SR-60 EB RAMPS



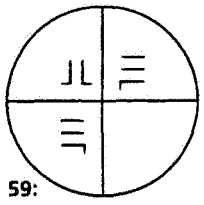
56: HAMNER AVE. / CLOVERDALE RD.



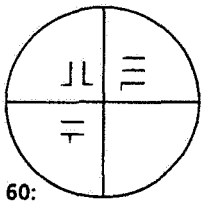
57: HAMNER AVE. / SCHLEISMAN RD.



58: I-15 SB RAMPS / GALENA ST.

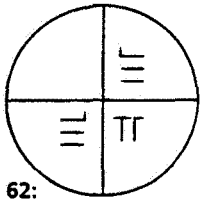


59: I-15 SB RAMPS / LIMONITE AVE.

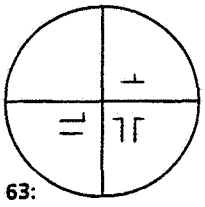


60: I-15 SB RAMPS / SECOND ST.

61: I-15 NB RAMPS / GALENA ST.



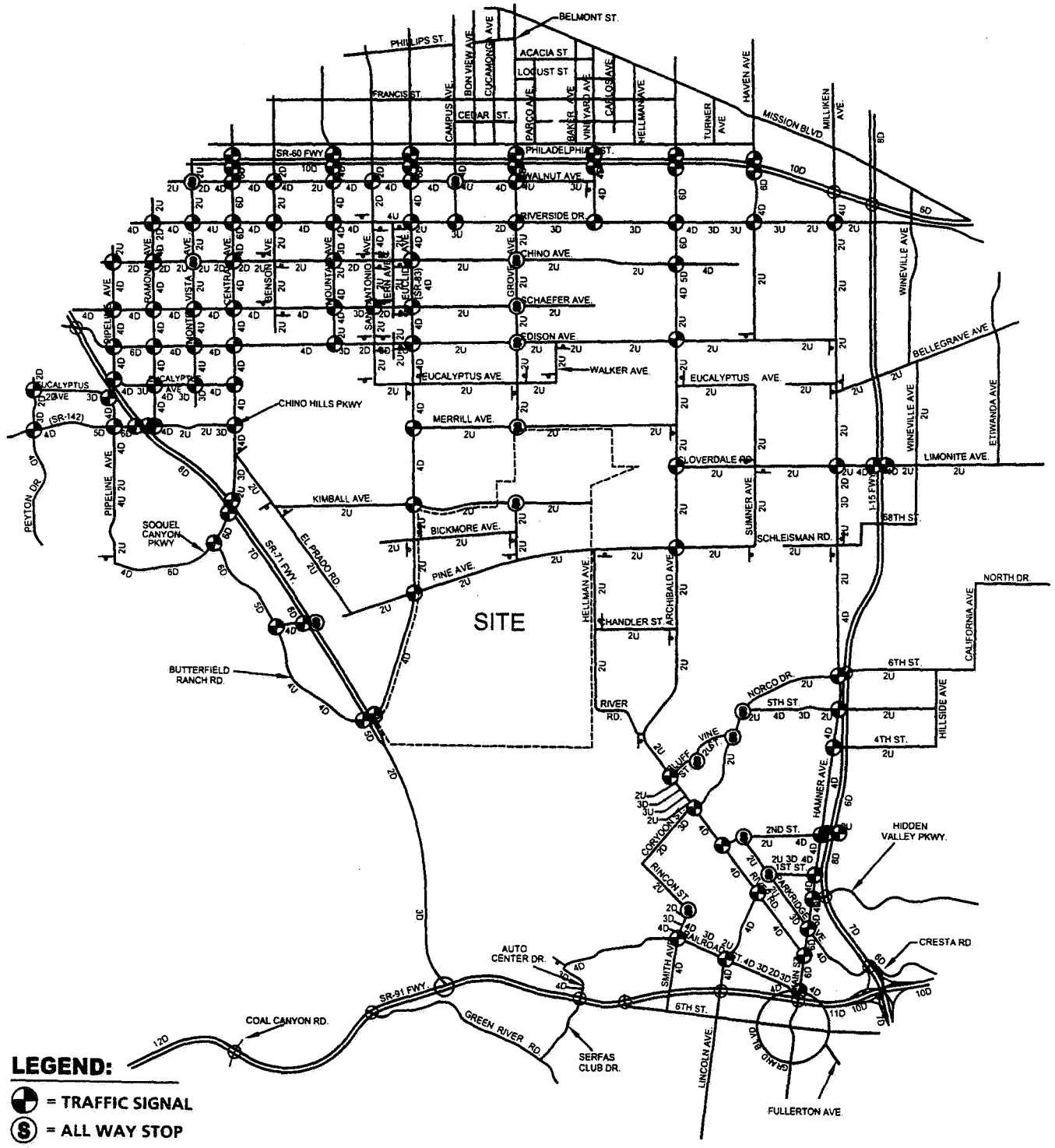
62: I-15 NB RAMPS / LIMONITE AVE.



63: I-15 NB RAMPS / SECOND ST.

EXHIBIT 3-C

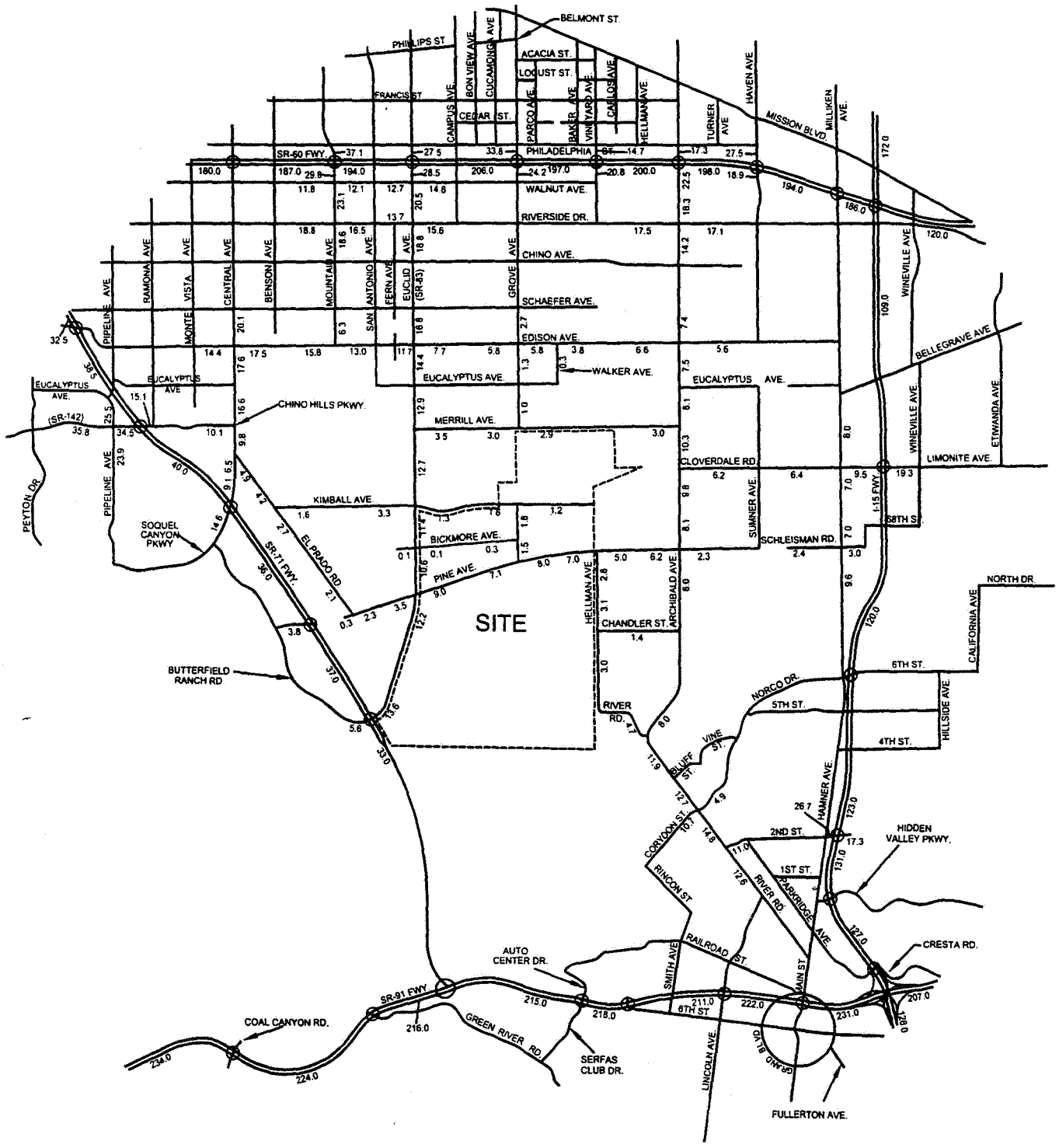
EXISTING INTERSECTION CONTROLS



URBAN CROSSROADS

EXHIBIT 3-D

EXISTING AVERAGE DAILY TRAFFIC (ADT)



LEGEND:

5.6 = VEHICLES PER DAY (1000'S)

Riverside Drive, Edison Avenue, Galena Street, Chino Hills Parkway (SR-142), Merrill Avenue, Kimball Avenue, Cloverdale Road, Limonite Avenue, Bickmore Avenue, Pine Avenue, Schleisman Road, Chandler Street, River Road, Corydon Street and 2nd Street. North-south arterials expected to provide local access include Pipeline Avenue, Central Avenue, El Prado Road, Mountain Avenue, Euclid Avenue (SR-83), Grove Avenue, Walker Avenue, Hellman Avenue, Vineyard Avenue, Archibald Avenue, Haven Avenue and Hamner Avenue.

3.2 Existing Peak Hour Traffic Volumes

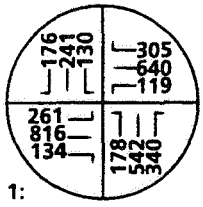
Existing intersection level of service calculations are based upon manual AM and PM peak hour turning movement counts conducted specifically for Urban Crossroads, Inc., as shown on Exhibits 3-E and 3-F. Peak hour traffic count worksheets are included in Appendix "B". Explicit peak hour factors have been calculated using the data collected for this effort as well. The AM peak hour traffic volumes were determined by counting the two hour period between 7 - 9 AM in the morning. Similarly, the PM peak hour traffic volumes were identified by counting the two hour period from 4 -6 PM in the evening.

3.3 Existing Traffic Operations

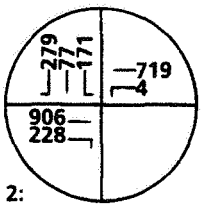
Existing peak hour traffic operations have been evaluated for both the AM and PM peak hours of traffic throughout the study area. The results of this analysis are summarized in Table 3-1, along with the existing intersection geometrics and control devices at each analysis location.

EXHIBIT 3-E

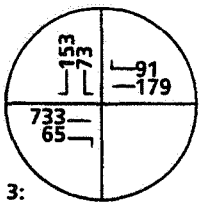
EXISTING AM PEAK HOUR INTERSECTION VOLUMES (PART 1/2)



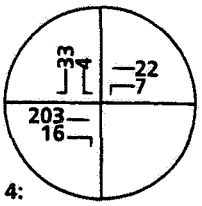
1: PIPELINE AVE. / CHINO HILLS PKWY.



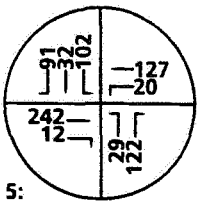
2: SR-71 SB RAMPS / CHINO HILLS PKWY.



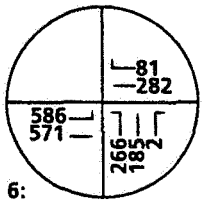
3: SR-71 SB RAMPS / SOQUEL CANYON PKWY.



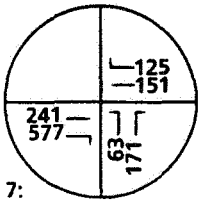
4: SR-71 SB RAMPS / PINE AVE.



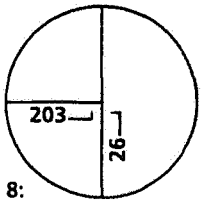
5: SR-71 SB RAMPS / EUCLID AVE.



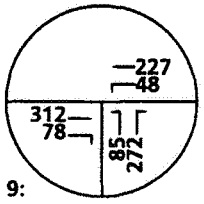
6: SR-71 NB RAMPS / CHINO HILLS PKWY.



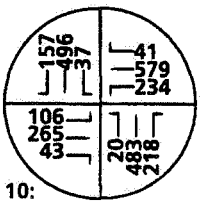
7: SR-71 NB RAMPS / SOQUEL CANYON PKWY.



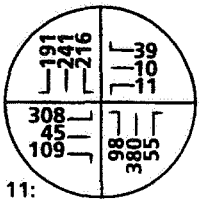
8: SR-71 NB RAMPS / PINE AVE.



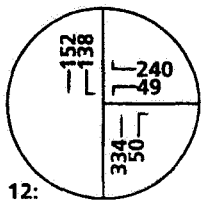
9: SR-71 NB RAMPS / EUCLID AVE.



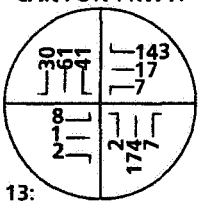
10: CENTRAL AVE. / EDISON AVE.



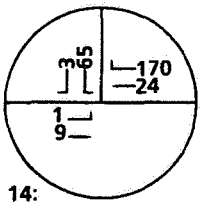
11: CENTRAL AVE. / CHINO HILLS PKWY.



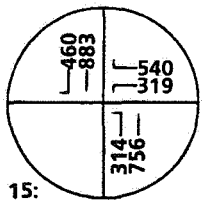
12: CENTRAL AVE. / EL PRADO RD.



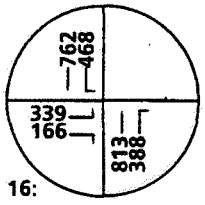
13: EL PRADO RD. / KIMBALL AVE.



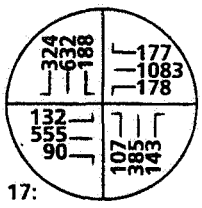
14: EL PRADO RD. / PINE AVE.



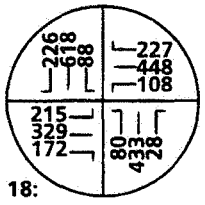
15: MOUNTAIN AVE. / SR-60 WB RAMPS



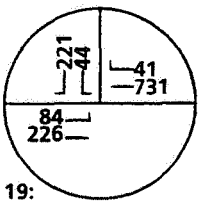
16: MOUNTAIN AVE. / SR-60 EB RAMPS



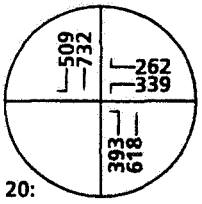
17: MOUNTAIN AVE. / WALNUT AVE.



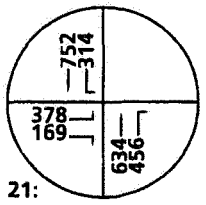
18: MOUNTAIN AVE. / RIVERSIDE DR.



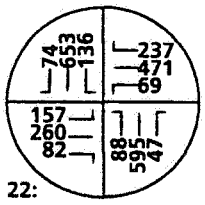
19: MOUNTAIN AVE. / EDISON AVE.



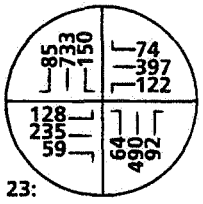
20: EUCLID AVE. / SR-60 WB RAMPS



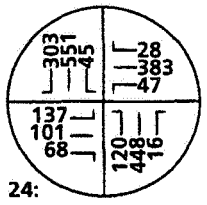
21: EUCLID AVE. / SR-60 EB RAMPS



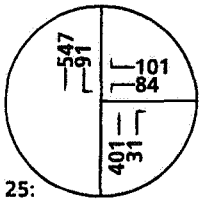
22: EUCLID AVE. / WALNUT AVE.



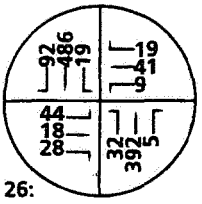
23: EUCLID AVE. / RIVERSIDE DR.



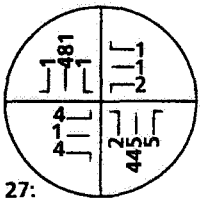
24: EUCLID AVE. / EDISON AVE.



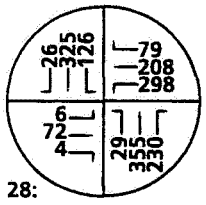
25: EUCLID AVE. / MERRILL AVE.



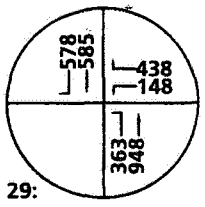
26: EUCLID AVE. / KIMBALL AVE.



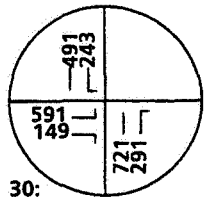
27: EUCLID AVE. / BICKMORE AVE.



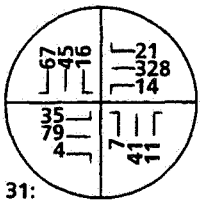
28: EUCLID AVE. / PINE AVE.



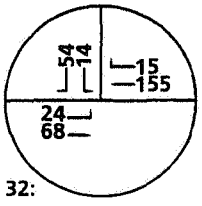
29: GROVE AVE. / SR-60 WB RAMPS



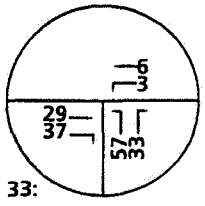
30: GROVE AVE. / SR-60 EB RAMPS



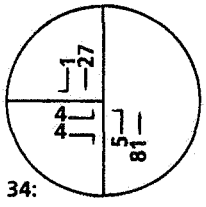
31: GROVE AVE. / EDISON AVE.



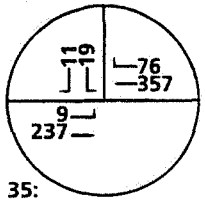
32: GROVE AVE. / MERRILL AVE.



33: GROVE AVE. / KIMBALL AVE.



34: GROVE AVE. / BICKMORE AVE.



35: GROVE AVE. / PINE AVE.

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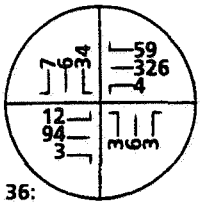
CHINO SUBAREA 2, Chino, California - 00020:11

URBAN CROSSROADS

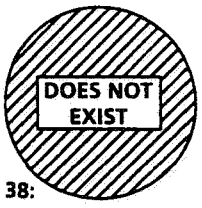
EXHIBIT 3-E

EXISTING AM PEAK HOUR INTERSECTION VOLUMES (PART 2/2)

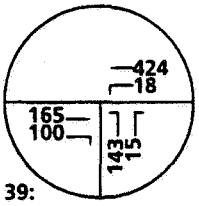


36: WALKER AVE. / EDISON AVE.

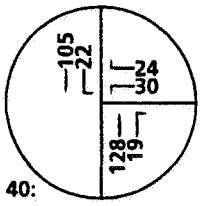
37: HELLMAN AVE. / MERRILL AVE.



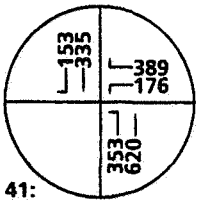
38: HELLMAN AVE. / KIMBALL AVE.



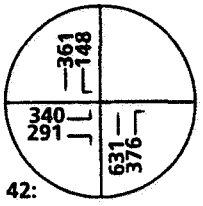
39: HELLMAN AVE. / PINE AVE.



40: HELLMAN AVE. / CHANDLER ST.

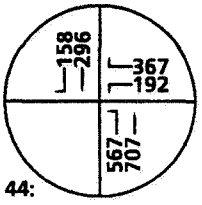


41: VINEYARD AVE. / SR-60 WB RAMPS

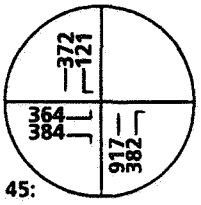


42: VINEYARD AVE. / SR-60 EB RAMPS

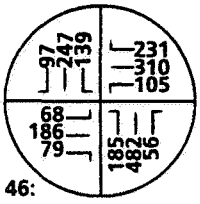
43: VINEYARD AVE. EDISON AVE.



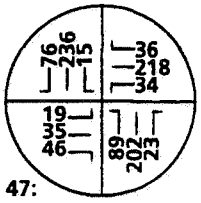
44: ARCHIBALD AVE. / SR-60 WB RAMPS



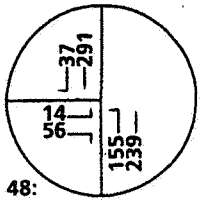
45: ARCHIBALD AVE. / SR-60 EB RAMPS



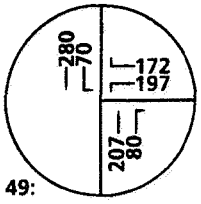
46: ARCHIBALD AVE. / RIVERSIDE DR.



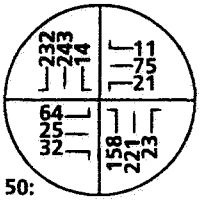
47: ARCHIBALD AVE. / EDISON AVE.



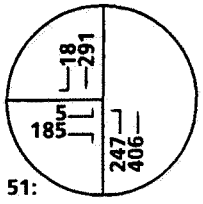
48: ARCHIBALD AVE. / MERRILL AVE.



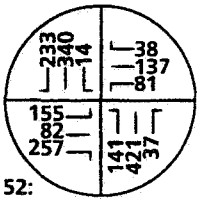
49: ARCHIBALD AVE. / CLOVERDALE RD.



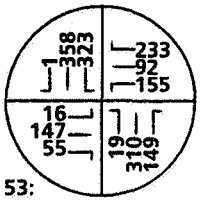
50: ARCHIBALD AVE. / PINE AVE.



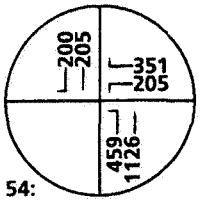
51: ARCHIBALD AVE. / RIVER RD.



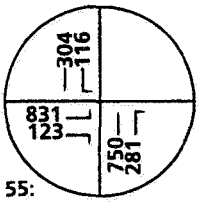
52: RIVER RD. / CORYDON ST.



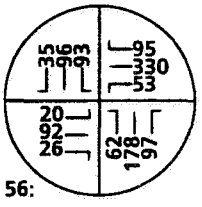
53: RIVER RD. / SECOND ST.



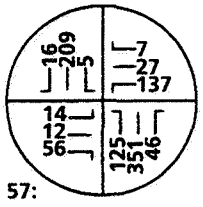
54: HAVEN AVE. / SR-60 WB RAMPS



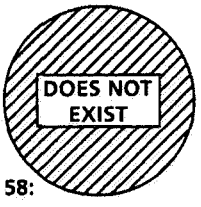
55: HAVEN AVE. / SR-60 EB RAMPS



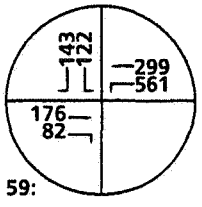
56: HAMNER AVE. / CLOVERDALE RD.



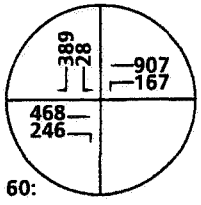
57: HAMNER AVE. / SCHLEISMAN RD.



58: I-15 SB RAMPS / GALENA ST.

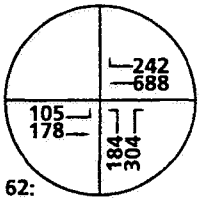


59: I-15 SB RAMPS / LIMONITE AVE.

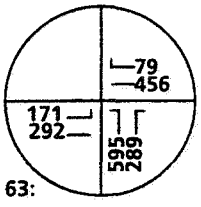


60: I-15 SB RAMPS / SECOND ST.

61: I-15 NB RAMPS / GALENA ST.



62: I-15 NB RAMPS / LIMONITE AVE.

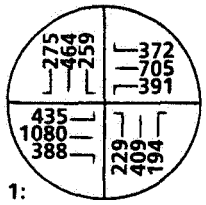


63: I-15 NB RAMPS / SECOND ST.

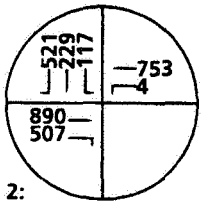
URBAN CROSSROADS

EXHIBIT 3-F

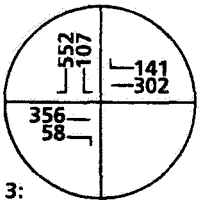
EXISTING PM PEAK HOUR INTERSECTION VOLUMES (PART 1/2)



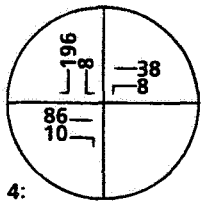
1: PIPELINE AVE. / CHINO HILLS PKWY.



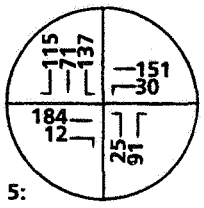
2: SR-71 SB RAMPS / CHINO HILLS PKWY.



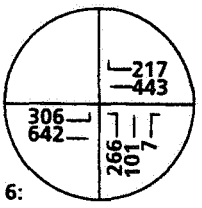
3: SR-71 SB RAMPS / SOQUEL CANYON PKWY.



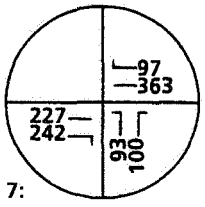
4: SR-71 SB RAMPS / PINE AVE.



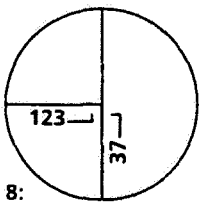
5: SR-71 SB RAMPS / EUCLID AVE.



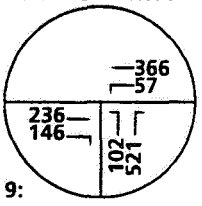
6: SR-71 NB RAMPS / CHINO HILLS PKWY.



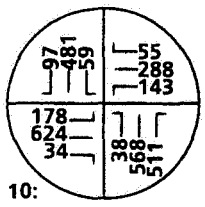
7: SR-71 NB RAMPS / SOQUEL CANYON PKWY.



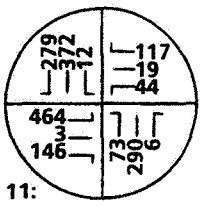
8: SR-71 NB RAMPS / PINE AVE.



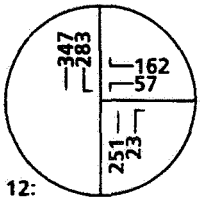
9: SR-71 NB RAMPS / EUCLID AVE.



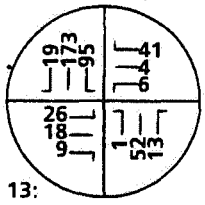
10: CENTRAL AVE. / EDISON AVE.



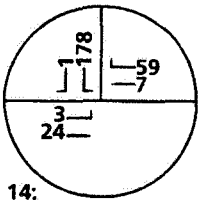
11: CENTRAL AVE. / CHINO HILLS PKWY.



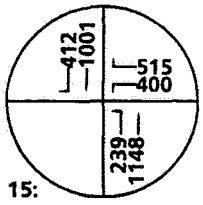
12: CENTRAL AVE. / EL PRADO RD.



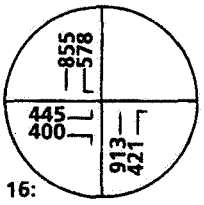
13: EL PRADO RD. / KIMBALL AVE.



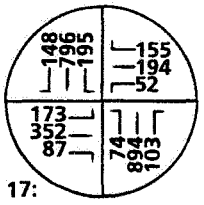
14: EL PRADO RD. / PINE AVE.



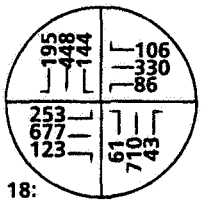
15: MOUNTAIN AVE. / SR-60 WB RAMPS



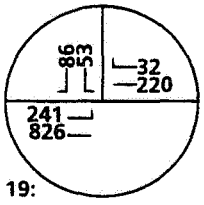
16: MOUNTAIN AVE. / SR-60 EB RAMPS



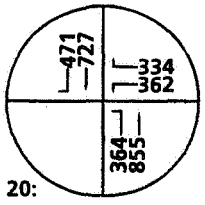
17: MOUNTAIN AVE. / WALNUT AVE.



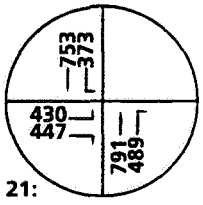
18: MOUNTAIN AVE. / RIVERSIDE DR.



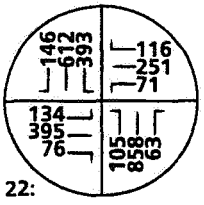
19: MOUNTAIN AVE. / EDISON AVE.



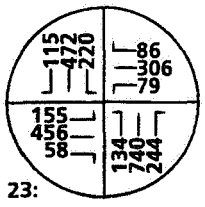
20: EUCLID AVE. / SR-60 WB RAMPS



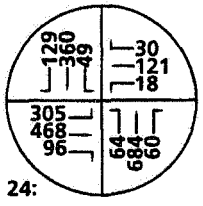
21: EUCLID AVE. / SR-60 EB RAMPS



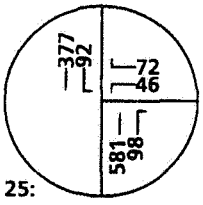
22: EUCLID AVE. / WALNUT AVE.



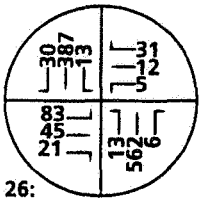
23: EUCLID AVE. / RIVERSIDE DR.



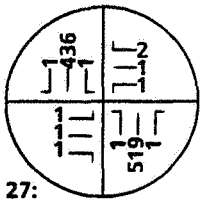
24: EUCLID AVE. / EDISON AVE.



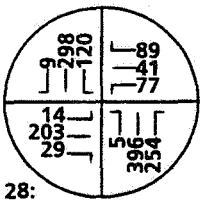
25: EUCLID AVE. / MERRILL AVE.



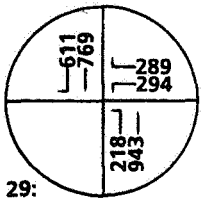
26: EUCLID AVE. / KIMBALL AVE.



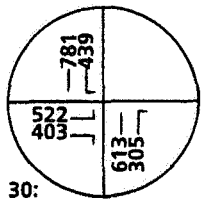
27: EUCLID AVE. / BICKMORE AVE.



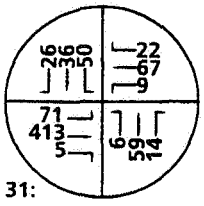
28: EUCLID AVE. / PINE AVE.



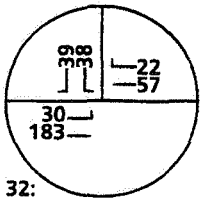
29: GROVE AVE. / SR-60 WB RAMPS



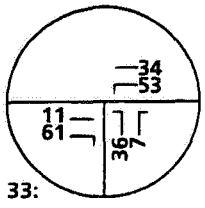
30: GROVE AVE. / SR-60 EB RAMPS



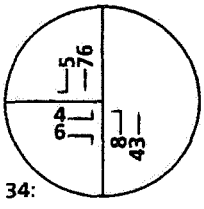
31: GROVE AVE. / EDISON AVE.



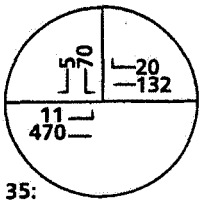
32: GROVE AVE. / MERRILL AVE.



33: GROVE AVE. / KIMBALL AVE.



34: GROVE AVE. / BICKMORE AVE.



35: GROVE AVE. / PINE AVE.

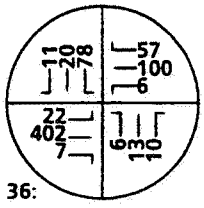
N

URBAN CROSSROADS

CHINO SUBAREA 2, Chino, California - 00020:13

EXHIBIT 3-F

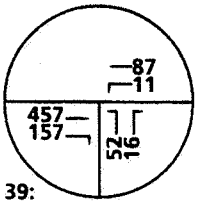
EXISTING PM PEAK HOUR INTERSECTION VOLUMES (PART 2/2)



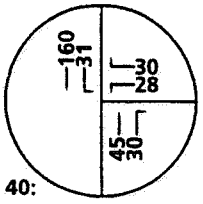
36: WALKER AVE. / EDISON AVE.

37: HELLMAN AVE. / MERRILL AVE.

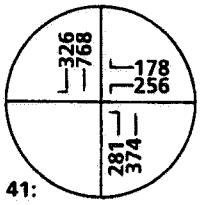
38: HELLMAN AVE. / KIMBALL AVE.



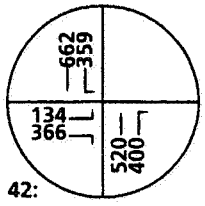
39: HELLMAN AVE. / PINE AVE.



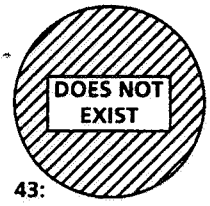
40: HELLMAN AVE. / CHANDLER ST.



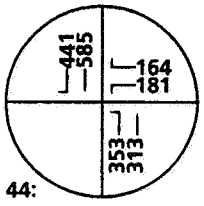
41: VINEYARD AVE. / SR-60 WB RAMPS



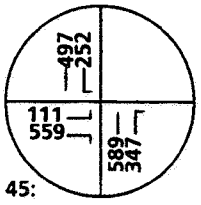
42: VINEYARD AVE. / SR-60 EB RAMPS



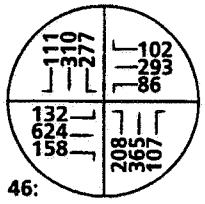
43: VINEYARD AVE. EDISON AVE.



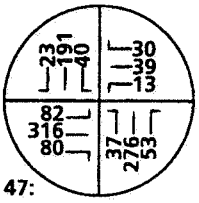
44: ARCHIBALD AVE. / SR-60 WB RAMPS



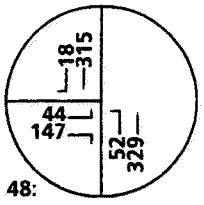
45: ARCHIBALD AVE. / SR-60 EB RAMPS



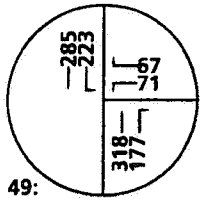
46: ARCHIBALD AVE. / RIVERSIDE DR.



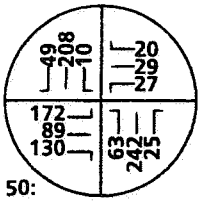
47: ARCHIBALD AVE. / EDISON AVE.



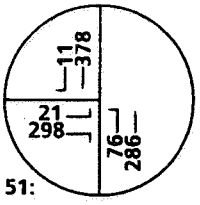
48: ARCHIBALD AVE. / MERRILL AVE.



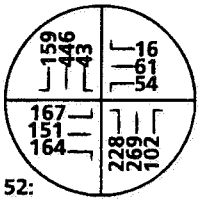
49: ARCHIBALD AVE. / CLOVERDALE RD.



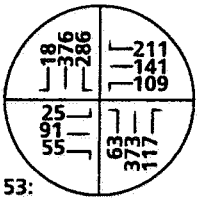
50: ARCHIBALD AVE. / PINE AVE.



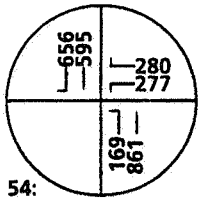
51: ARCHIBALD AVE. / RIVER RD.



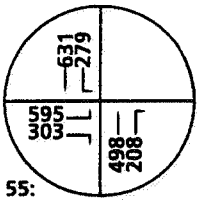
52: RIVER RD. / CORYDON ST.



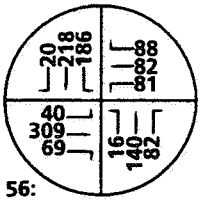
53: RIVER RD. / SECOND ST.



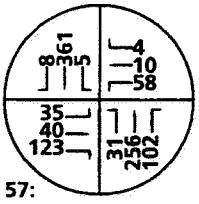
54: HAVEN AVE. / SR-60 WB RAMPS



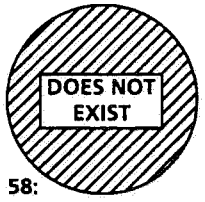
55: HAVEN AVE. / SR-60 EB RAMPS



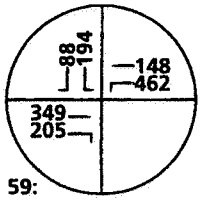
56: HAMNER AVE. / CLOVERDALE RD.



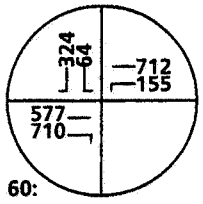
57: HAMNER AVE. / SCHLEISMAN RD.



58: I-15 SB RAMPS / GALENA ST.

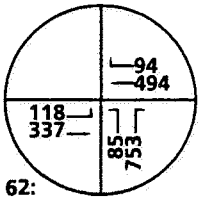


59: I-15 SB RAMPS / LIMONITE AVE.

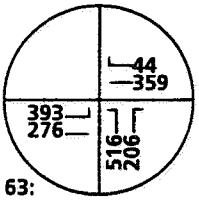


60: I-15 SB RAMPS / SECOND ST.

61: I-15 NB RAMPS / GALENA ST.



62: I-15 NB RAMPS / LIMONITE AVE.



63: I-15 NB RAMPS / SECOND ST.

TABLE 3-1

EXISTING CONDITIONS INTERSECTION ANALYSIS

INTERSECTION	TRAFFIC CONTROL[3]	INTERSECTION APPROACH LANES[1] NORTH-BOUND			SOUTH-BOUND			EAST-BOUND			WEST-BOUND			DELAY[2] (SECS.)		LEVEL OF SERVICE	
		L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
Pipeline Ave. (NS) at:																	
• Chino Hills Pkwy. (EW)	TS	1	2	0	1	2	0	1	3	1	1	2	1	45.4	64.4	D	E
SR-71 Fwy. SB Ramps (NS) at:																	
• Chino Hills Pkwy. (EW)	TS	0	0	0	1.5	0.5	1>>	0	4	1	1	2	0	9.4	9.6	A	A
• Soquel Canyon Pkwy. (EW)	TS	0	0	0	1.5	0	0.5	0	3	1>>	0	3	1>>	8.6	11.5	A	B
• Pine Ave. (EW)	TS	0	0	0	1	0	1	0	1	1	1	2	0	8.3	12.8	A	B
• Euclid Ave. (EW)	TS	1	0	1	1.5	0.5	1	0	2	1	1	2	0	17.7	17.1	B	B
SR-71 Fwy. NB Ramps (NS) at:																	
• Chino Hills Pkwy. (EW)	TS	1.5	1.5	0	0	0	0	2	2	0	0	2	1	12.9	12.1	B	B
• Soquel Canyon Pkwy. (EW)	TS	1.5	0	0.5	0	0	0	0	3	1>>	0	3	1>>	12.0	10.8	B	B
• Pine Ave. (EW)	AWS	2	0	0	0	0	0	2	0	0	0	0	0	8.8	8.6	A	A
• Euclid Ave. (EW)	TS	2	0	1>>	0	0	0	0	2	1>>	1	2	0	8.2	8.6	A	A
Central Ave. (NS) at:																	
• Edison Ave. (EW)	TS	1	2	1	1	2	1	1	2	0	1	2	1	31.4	31.4	C	C
• Chino Hills Pkwy. (EW)	TS	1	2	1	1	2	1	1.5	0.5	1	1	2	1	22.9	22.9	C	C
• El Prado Rd. (EW)	CSS	0	1	1	1	2	0	0	0	0	1	0	1	17.2	29.2	C	D
El Prado Rd. (NS) at:																	
• Kimball Ave. (EW)	CSS	1	1	0	1	1	1	1	1	0	1	1	0	12.6	12.7	B	B
• Pine Ave. (EW)	CSS	0	0	0	0	1	0	0	1	0	0	1	0	9.7	9.9	A	A
Mountain Ave. (NS) at:																	
• SR-60 Fwy. WB Ramps (EW)	TS	1	2	0	0	2	1	0	0	0	1	0	1	37.2	20.5	D	C
• SR-60 Fwy. EB Ramps (EW)	TS	0	2	1	1	2	0	1.5	0	0.5	0	0	0	23.4	--[4]	C	F
• Walnut Ave. (EW)	TS	1	2	1	1	2	1	1	1	1	1	1	1	--	17.4	F	B
• Riverside Dr. (EW)	TS	1	2	0	1	2	1	1	2	1	1	2	1	25.1	29.7	C	C
• Edison St. (EW)	TS	0	0	0	1	0	1	1	2	0	0	2	1	14.4	11.6	B	B
Euclid Ave. (NS) at:																	
• SR-60 Fwy. WB Ramps (EW)	TS	1	2	0	0	2	1	0	0	0	1.5	0	0.5	35.1	28.9	D	C
• SR-60 Fwy. EB Ramps (EW)	TS	0	2	1	1	2	0	1.5	0	0.5	0	0	0	17.8	50.9	B	D
• Walnut Ave. (EW)	TS	1	3	1	2	3	1	1	2	0	1	2	0	24.1	25.0	C	C
• Riverside Dr. (EW)	TS	1	2	1	1	2	1	0	2	0	0	2	0	19.0	25.7	B	C
• Edison St. (EW)	TS	1	2	1	1	2	1	1	1	1	1	1	0	18.6	17.6	B	B
• Merrill Ave. (EW)	TS	0	2	1	1	2	0	0	0	0	0	1	0	11.7	12.0	B	B
• Kimball Ave. (EW)	TS	1	2	1	1	2	1	0	1	0	0	1	0	14.2	14.3	B	B
• Bickmore Ave. (EW)	CSS	1	1	0	1	1	0	0	1	0	0	1	0	19.6	18.4	C	C
• Pine Ave. (EW)	TS	1	2	1	1	2	1	0	1	1	0	1	1	17.3	15.2	B	B

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.
L = Left; T = Through; R = Right; >> = Free Right Turn

[2] Delay and level of service calculated using the following analysis software: Traffix, Version 7.1.0607 (1999). Per the 1997 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[3] TS = Traffic Signal
AWS = All Way Stop
CSS = Cross Street Stop

[4] -- = Delay High, Intersection Unstable, Level of Service "F".

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TABLE 3-1 (CONTINUED)

EXISTING CONDITIONS INTERSECTION ANALYSIS

INTERSECTION	TRAFFIC CONTROL[3]	INTERSECTION APPROACH LANES[1]												DELAY[2] (SECS.)		LEVEL OF SERVICE	
		NORTH-BOUND			SOUTH-BOUND			EAST-BOUND			WEST-BOUND						
		L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
Grove Ave. (NS) at:																	
• SR-60 Fwy. WB Ramps (EW)	TS	1	2	0	0	2	1	0	0	0	1	0	1	27.4	14.9	C	B
• SR-60 Fwy. EB Ramps (EW)	TS	0	2	1	1	2	0	1	0	1	0	0	0	22.5	24.6	C	C
• Edison St. (EW)	AWS	0	1	0	0	1	0	0	1	0	0	1	0	11.6	14.0	B	B
• Merrill Ave. (EW)	AWS	0	0	0	0	1	0	0	1	0	0	1	0	7.9	8.6	A	A
• Kimball Ave. (EW)	AWS	0	1	0	0	0	0	0	1	0	0	1	0	7.5	7.6	A	A
• Bickmore Ave. (EW)	CSS	0	1	0	0	1	0	0	1	0	0	0	0	8.9	9.0	A	A
• Pine Ave. (EW)	CSS	0	0	0	0	1	0	1	1	0	0	1	0	13.7	17.7	B	C
Walker Ave. (NS) at:																	
• Edison Ave. (EW)	CSS	0	1	0	0	1	0	0	1	0	0	1	0	13.9	20.6	B	C
Hellman Ave. (NS) at:																	
• Pine Ave. (EW)	CSS	0	1	0	0	0	0	0	1	0	0	1	0	24.2	15.3	C	C
• Chandler St. (EW)	CSS	0	1	0	0	1	0	0	0	0	0	1	0	10.4	10.1	B	B
Vineyard Ave. (NS) at:																	
• SR-60 Fwy. WB Ramps (EW)	TS	1	1	0	0	2	0	0	0	0	1	0	1	19.0	18.4	B	B
• SR-60 Fwy. EB Ramps (EW)	TS	0	2	0	1	2	0	1	0	1	0	0	0	17.1	19.5	B	B
Archibald Ave. (NS) at:																	
• SR-60 Fwy. WB Ramps (EW)	TS	1	3	0	0	4	0	0	0	0	1	0	1	21.8	17.2	C	B
• SR-60 Fwy. EB Ramps (EW)	TS	0	4	0	1	3	0	1	0	1	0	0	0	15.6	22.8	B	C
• Riverside Dr. (EW)	TS	1	3	0	1	3	0	1	2	1	1	1	1	27.5	50.1	C	D
• Edison Ave. (EW)	TS	1	2	1	1	2	1	1	2	0	1	2	0	19.4	19.8	B	B
• Merrill Ave. (EW)	CSS	1	1	0	0	1	0	0	1	0	0	0	0	13.1	15.5	B	C
• Cloverdale Rd. (EW)	TS	0	1	0	1	1	0	0	0	0	1	0	1	13.0	15.4	B	B
• Pine Ave. (EW)	TS	1	1	0	1	1	0	1	1	0	1	1	0	31.1	24.4	C	C
• River Rd. (EW)	CSS	1	1	0	0	1	1	1	0	1	0	0	0	34.1	18.8	D	C
River Rd. (NS) at:																	
• Corydon St. (EW)	TS	1	1	1	1	2	0	1	1	1	1	1	1	28.6	28.0	C	C
• Second St. (EW)	TS	1	2	1	1	2	1	1	1	1	1	1	0	35.2	26.0	D	C
Haven Ave. (NS) at:																	
• SR-60 Fwy. WB Ramps (EW)	TS	2	3	0	0	3	1	0	0	0	1	0	1>>	10.8	9.2	B	A
• SR-60 Fwy. EB Ramps (EW)	TS	0	3	0	2	3	0	2	0	1	0	0	0	16.3	14.5	B	B
Hamner Ave. (NS) at:																	
• Cloverdale Rd. (EW)	TS	1	1	1	1	1	1	0	1	1	0	1	1	26.0	23.2	C	C
• Schleisman Rd. (EW)	CSS	1	1	0	1	1	0	0	1	0	0	1	0	--[4]	41.8	F	E
I-15 Fwy. SB Ramps (NS) at:																	
• Limonite Ave. (EW)	TS	0	0	0	1	0	1	0	2	1	1	2	0	15.2	17.4	B	B
• Second St. (EW)	TS	0	0	0	1	0	1	0	2	0	1	2	0	15.6	17.1	B	B
I-15 Fwy. NB Ramps (NS) at:																	
• Limonite Ave. (EW)	TS	0.5	0	1.5	0	0	0	1	2	0	0	2	1	14.7	15.0	B	B
• Second St. (EW)	TS	1	0	1	0	0	0	1	1	0	0	1	0	43.4	33.6	D	C

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.
L = Left; T = Through; R = Right; >> = Free Right Turn

[2] Delay and level of service calculated using the following analysis software: Traffix, Version 7.1.0607 (1999). Per the 1997 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[3] TS = Traffic Signal
AWS = All Way Stop
CSS = Cross Street Stop

[4] -- = Delay High, Intersection Unstable, Level of Service "F".

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The study area intersections analyzed currently operate at Level of Service "D" or better during the peak hours, except for the following intersections which operate at Level of Service "E" or "F" during the peak hours:

Pipeline Avenue (NS) at:

- Chino Hills Parkway (EW)

Mountain Avenue (NS) at:

- SR-60 Freeway Eastbound Ramps (EW)
- Walnut Avenue (EW)

Hamner Avenue (NS) at:

- Schleisman Road (EW)

The operations analysis worksheets for existing conditions are included in Appendix "C".

Traffic signals appear to currently be warranted at the following study area intersections (see Appendix "D"):

Central Avenue (NS) at:

- El Prado Road (EW)

Hellman Avenue (NS) at:

- Pine Avenue (EW)

Archibald Avenue (NS) at:

- Merrill Avenue (EW)
- River Road (EW)

Hamner Avenue (NS) at:

- Schleisman Road (EW)

3.4 Planned Transportation Improvements and Relationships to General Plan

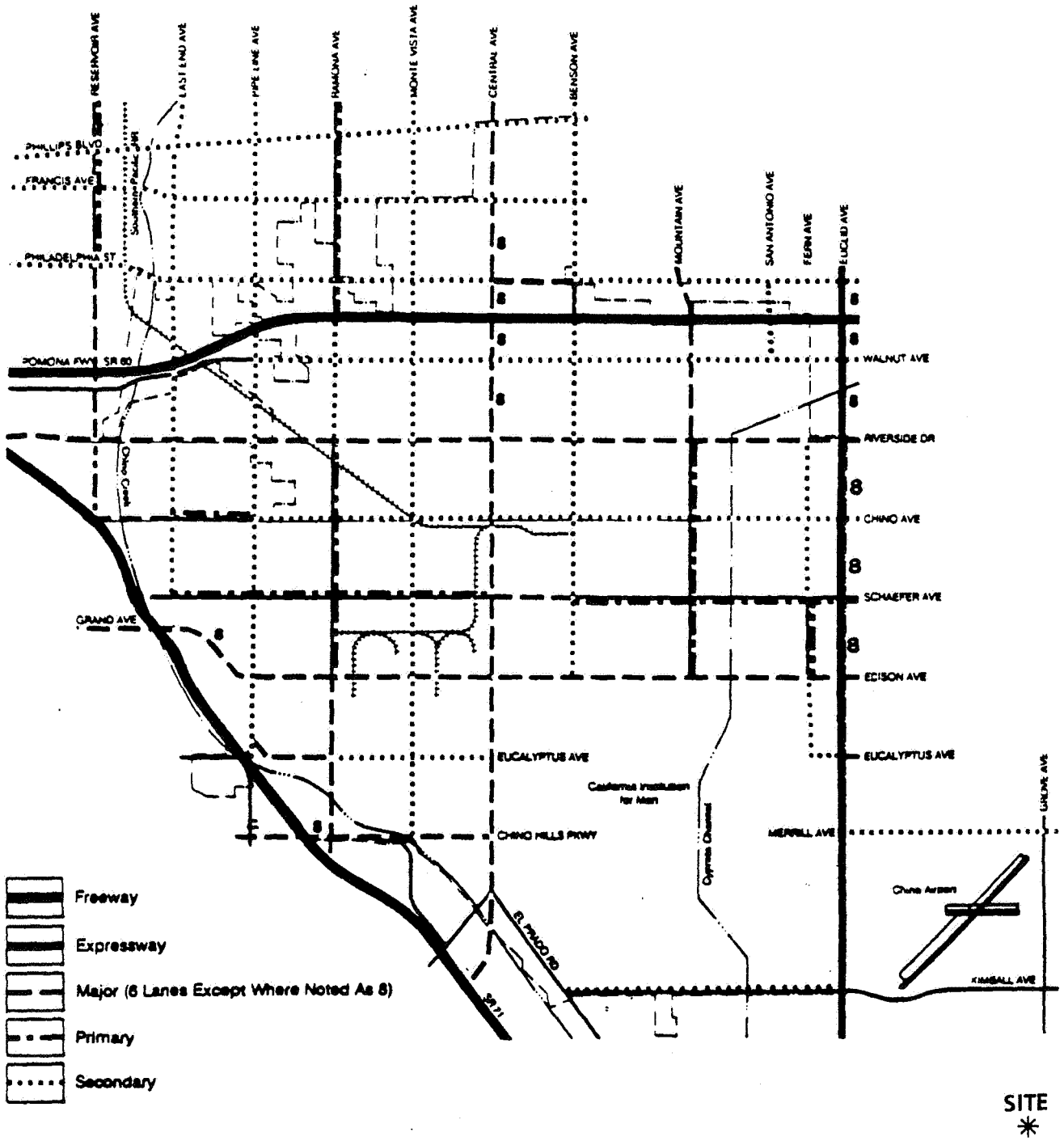
The City of Chino General Plan Circulation Element and typical roadway cross-sections are shown on Exhibits 3-G and 3-H, respectively. The City of Chino Hills General Plan Circulation Element and typical roadway cross-sections are shown on Exhibits 3-I and 3-J, respectively. The City of Ontario General Plan Circulation Element and typical roadway cross-sections are shown on Exhibits 3-K and 3-L, respectively. The County of San Bernardino General Plan Circulation Element is shown on Exhibit 3-M. The City of Norco General Plan Circulation Element and typical roadway cross-sections are shown on Exhibits 3-N and 3-O, respectively. The City of Corona General Plan Circulation Element and typical roadway cross-sections are shown on Exhibits 3-P and 3-Q, respectively. The County of Riverside General Plan Circulation Element and typical roadway cross-sections are shown on Exhibits 3-R and 3-S, respectively.

3.4.1 Funded Roadway Improvements

The 2020 anticipated improvements have been determined through discussions with local agency staff. Traffic signal modifications and installation have been programmed within the City of Chino Capital Improvement Program (CIP) at the intersections of Central Avenue/El Prado Road, El Prado Road/Kimball Avenue and Mountain Avenue/Walnut Avenue. No other committed sources of funding for additional improvements necessary to serve the increase in traffic are in place. The analyses contained in this report, therefore, assumed minimal additional improvements beyond those anticipated in by the City of Chino and other local agencies CIP.

EXHIBIT 3-G

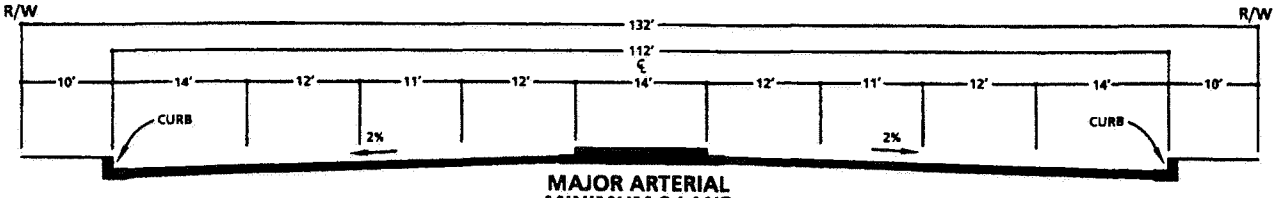
CITY OF CHINO
GENERAL PLAN CIRCULATION ELEMENT



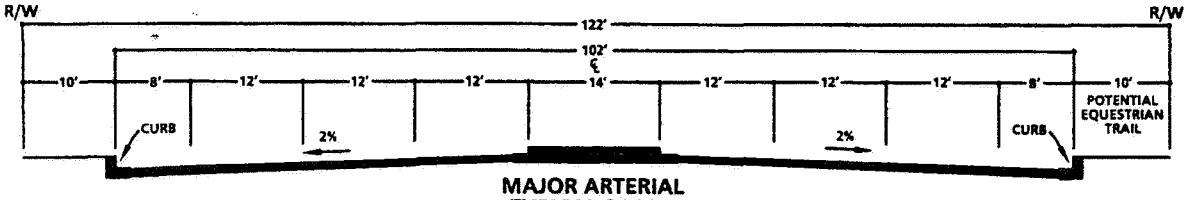
SOURCE: CITY OF CHINO

EXHIBIT 3-H

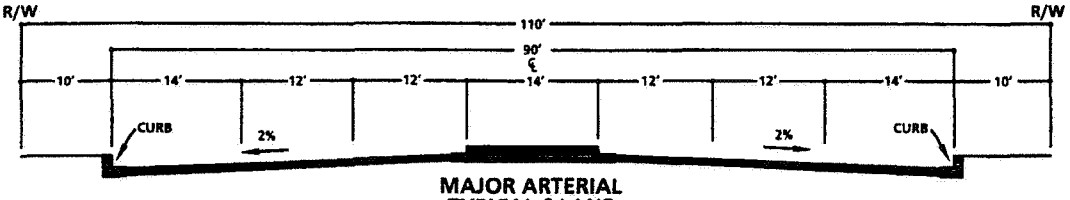
CITY OF CHINO
TYPICAL ROADWAY CROSS-SECTIONS



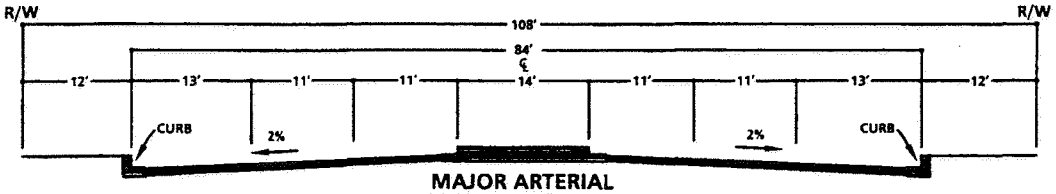
MAJOR ARTERIAL
MINIMUM 8 LANE
PROVIDES 8 TRAFFIC LANES
SEPARATED BY A MEDIAN WITHOUT PARKING



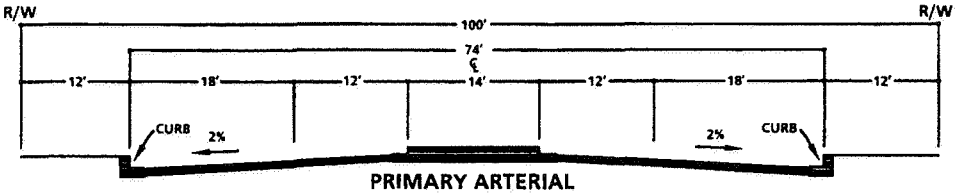
MAJOR ARTERIAL
TYPICAL 6 LANE
PROVIDES 6 TRAFFIC LANES WITH BIKE LANE
SEPARATED BY A MEDIAN WITHOUT PARKING



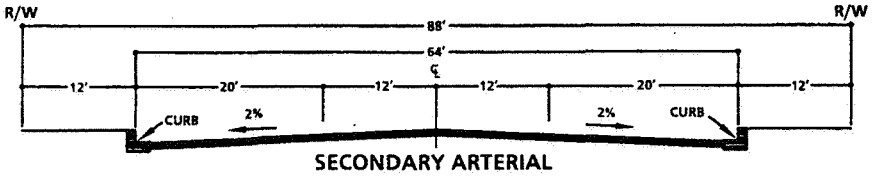
MAJOR ARTERIAL
TYPICAL 6 LANE
NO BIKE LANES



MAJOR ARTERIAL
MINIMUM 6 LANE
NO BIKE LANES



PRIMARY ARTERIAL
TYPICAL 4 LANE
PROVIDES 4 TRAFFIC LANES
SEPARATED BY A MEDIAN WITHOUT PARKING



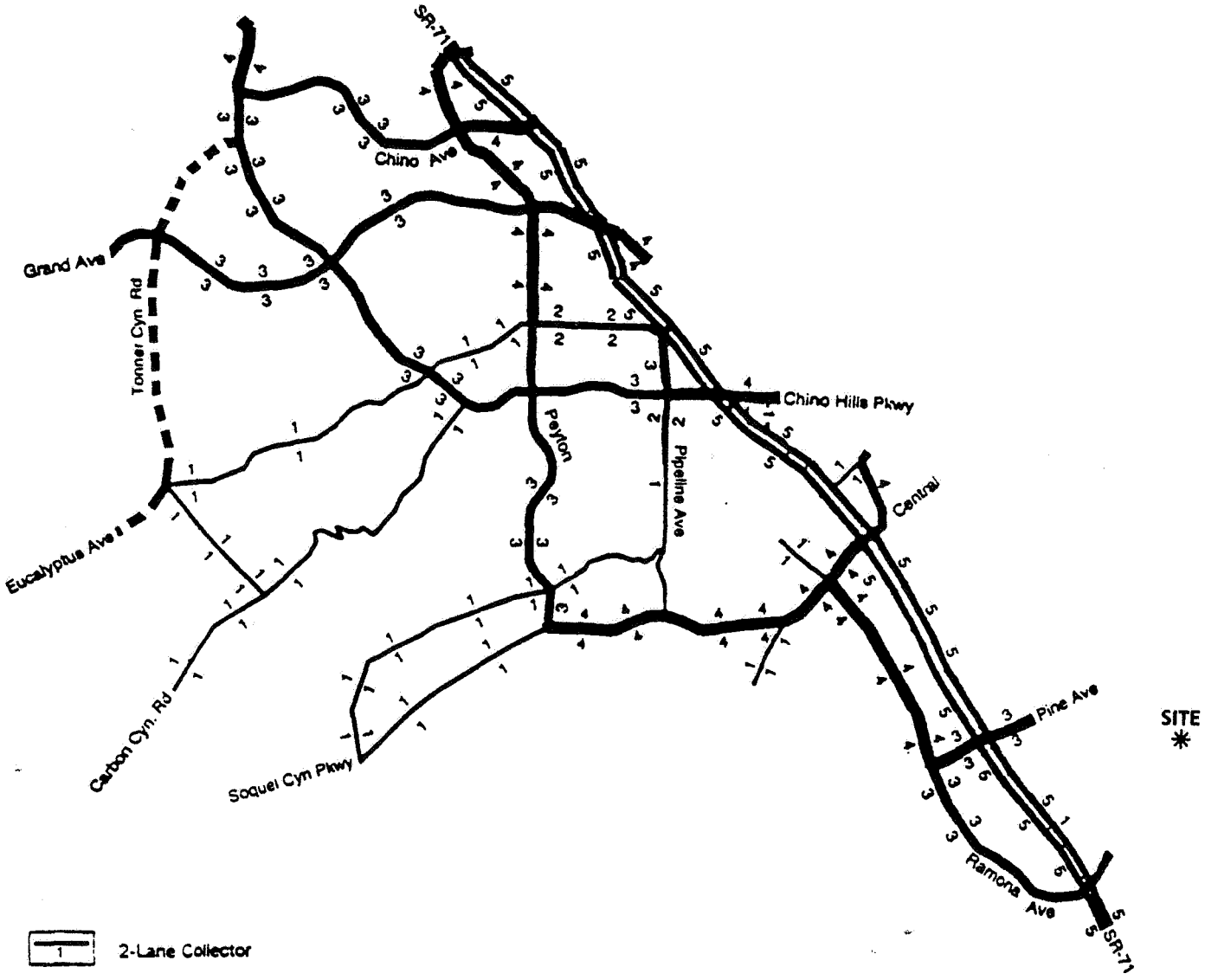
SECONDARY ARTERIAL
PROVIDES 4 TRAFFIC LANES WITH PARKING *

SOURCE: CITY OF CHINO

* ON APPROACHES TO INTERSECTIONS OR WHERE LEFT TURNING MOVEMENTS ARE PREDOMINANT BETWEEN INTERSECTIONS, PARKING MAY BE PROHIBITED TO PROVIDE FOR PAINTED MEDIAN WITH LEFT TURN LANES

EXHIBIT 3-I

CITY OF CHINO HILLS GENERAL PLAN CIRCULATION ELEMENT



1 2-Lane Collector

2 4-Lane Secondary Highway

3 4-Lane Major Highway

4 6-Lane Major Artenal

5 Freeway

Corridor (Exact alignment and size to be determined)

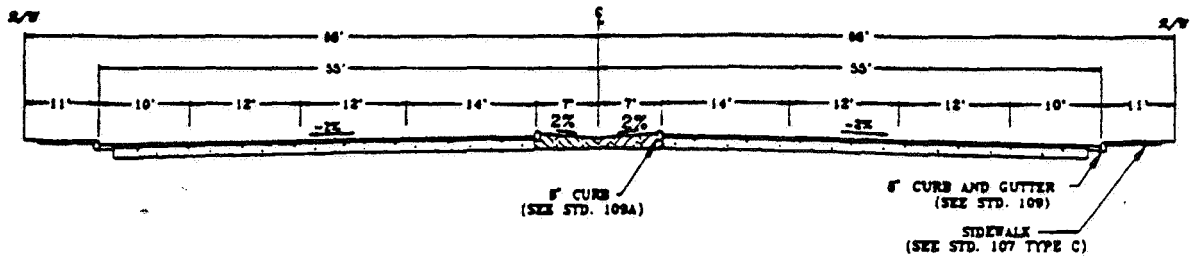
N

SOURCE: CITY OF CHINO HILLS

URBAN CROSSROADS

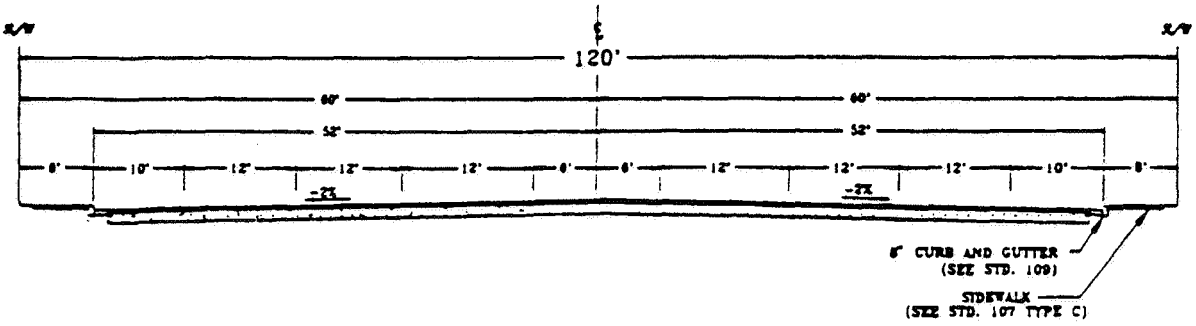
EXHIBIT 3-J

CITY OF CHINO HILLS
TYPICAL ROADWAY CROSS-SECTIONS (PART 1/5)



TYPICAL SECTION

WITH RAISED MEDIAN



TYPICAL SECTION

WITH CONTINUOUS LEFT TURN LANE

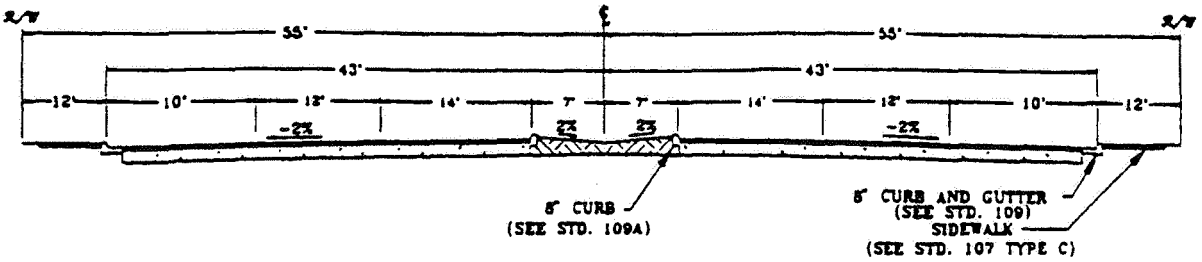
NOTES:

1. STRUCTURAL SECTION OF ROADWAY SHALL BE DETERMINED FROM SOILS TESTS AND SO INDICATED ON CONSTRUCTION PLANS. MINIMUM AC THICKNESS IS 0.45'
2. DRAINAGE FACILITIES SHALL BE PROVIDED TO DEWATER RAISED MEDIAN AREAS
3. TEN FEET (10') SHOULDER AREAS MAY BE DESIGNATED AS A BIKE LANE AND EMERGENCY PARKING ONLY
4. IRRIGATION SYSTEM IN MEDIAN AREA SHALL BE DRIP OR BUBBLE SYSTEM.
5. ALL CURB RETURNS AT MAJOR ARTERIALS, MAJOR HIGHWAYS, AND SECONDARY HIGHWAYS WILL HAVE A RADIUS = 50'

SOURCE: CITY OF CHINO HILLS

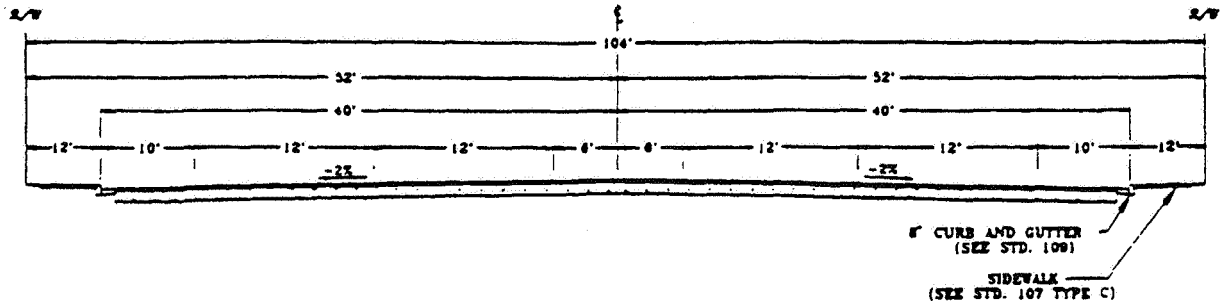
EXHIBIT 3-J

CITY OF CHINO HILLS
TYPICAL ROADWAY CROSS-SECTIONS (PART 2/5)



TYPICAL SECTION

WITH RAISED MEDIAN



TYPICAL SECTION

WITH CONTINUOUS LEFT TURN LANE

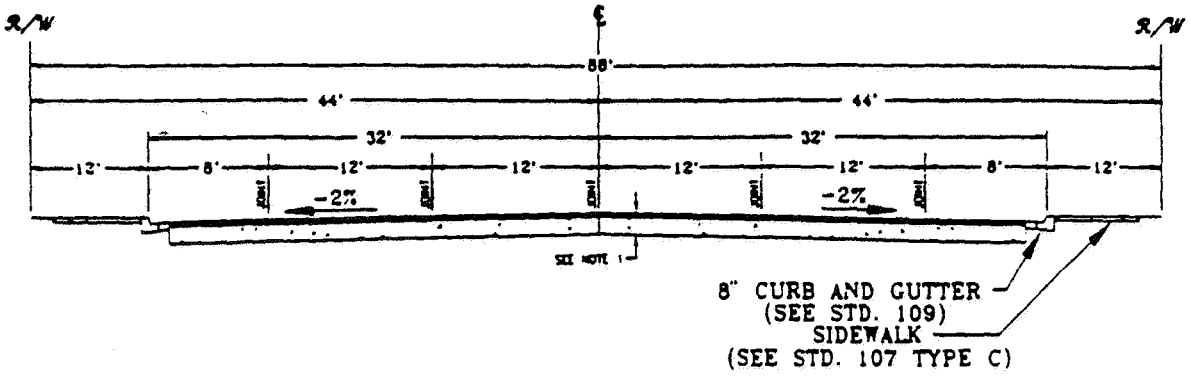
NOTES:

1. STRUCTURAL SECTION OF ROADWAY SHALL BE DETERMINED FROM SOILS TESTS AND SO INDICATED ON CONSTRUCTION PLANS. MINIMUM AC THICKNESS IS 0.45'
2. DRAINAGE FACILITIES SHALL BE PROVIDED TO DEWATER RAISED MEDIAN AREAS.
3. TEN FEET (10') SHOULDER AREAS MAY BE DESIGNATED AS A BIKE LANE AND EMERGENCY PARKING ONLY.
4. IRRIGATION SYSTEM IN MEDIAN AREA SHALL BE DRIP OR BUBBLE SYSTEM.
5. ALL CURB RETURNS AT MAJOR ARTERIALS, MAJOR HIGHWAYS, AND SECONDARY HIGHWAYS WILL HAVE A RADIUS = 50'.

SOURCE: CITY OF CHINO HILLS

EXHIBIT 3-J

CITY OF CHINO HILLS
TYPICAL ROADWAY CROSS-SECTIONS (PART 3/5)



TYPICAL SECTION

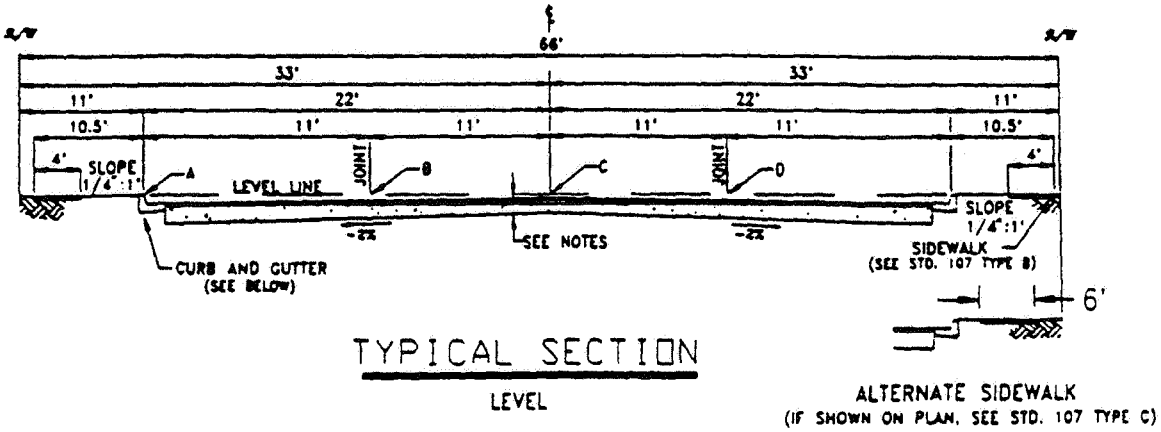
NOTES:

1. STRUCTURAL SECTION OF ROADWAY SHALL BE DETERMINED FROM SOILS TESTS AND SO INDICATED ON CONSTRUCTION PLANS. MINIMUM AC THICKNESS 0.45'
2. 8' SHOULDER AREAS MAY BE DESIGNATED AS BIKE LANES AND EMERGENCY PARKING ONLY

SOURCE: CITY OF CHINO HILLS

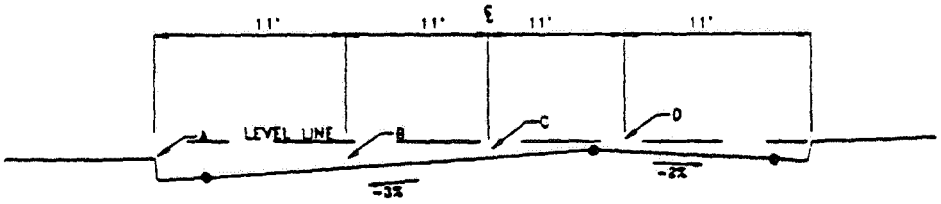
EXHIBIT 3-J

CITY OF CHINO HILLS
TYPICAL ROADWAY CROSS-SECTIONS (PART 4/5)



TYPICAL SECTION

LEVEL



TYPICAL SECTION

TILT

		A	B	C	D
8" CURB (SEE STD. 109)	LEVEL	0.00'	0.36'	0.14'	0.36'
	TILT	0.76'	1.02'	0.69'	0.36'
6" CURB (SEE STD. 109B)	LEVEL	0.00'	0.19'	(0.03')	0.19'
	TILT	0.76'	0.85'	0.52'	0.19'

( ) INDICATES ABOVE LEVEL LINE

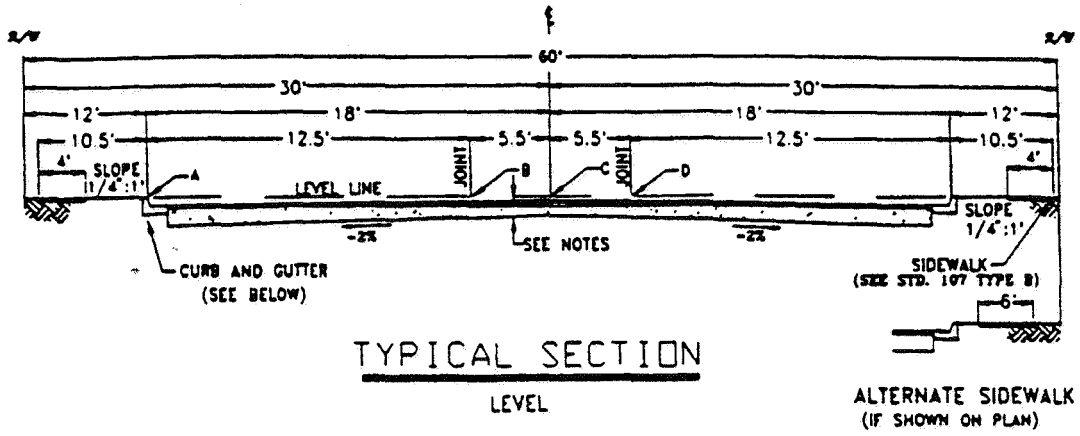
NOTES:

1. STRUCTURAL SECTION OF ROADWAY SHALL BE DETERMINED FROM SOIL TESTS AND SO INDICATED ON CONSTRUCTION PLANS.
2. MINIMUM DESIGN PAVING THICKNESS SHALL BE 0.25' ASPHALT CONCRETE.
3. CONSTRUCTION OUTSIDE R/W WILL REQUIRE SLOPE EASEMENTS.

SOURCE: CITY OF CHINO HILLS

EXHIBIT 3-J

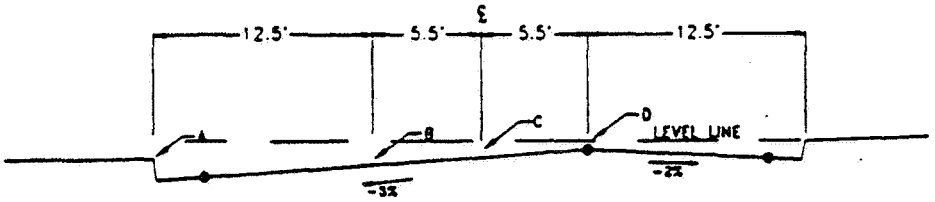
CITY OF CHINO HILLS
TYPICAL ROADWAY CROSS-SECTIONS (PART 5/5)



TYPICAL SECTION

LEVEL

ALTERNATE SIDEWALK (IF SHOWN ON PLAN)



TYPICAL SECTION

TILT

		A	B	C	D
8" CURB (SEE STD. 100)	LEVEL	0.00'	0.33'	0.22'	0.33'
	TILT	0.44'	0.66'	0.50'	0.33'
6" CURB (SEE STD. 100B)	LEVEL	0.00'	0.16'	0.05'	0.16'
	TILT	0.44'	0.49'	0.33'	0.16'

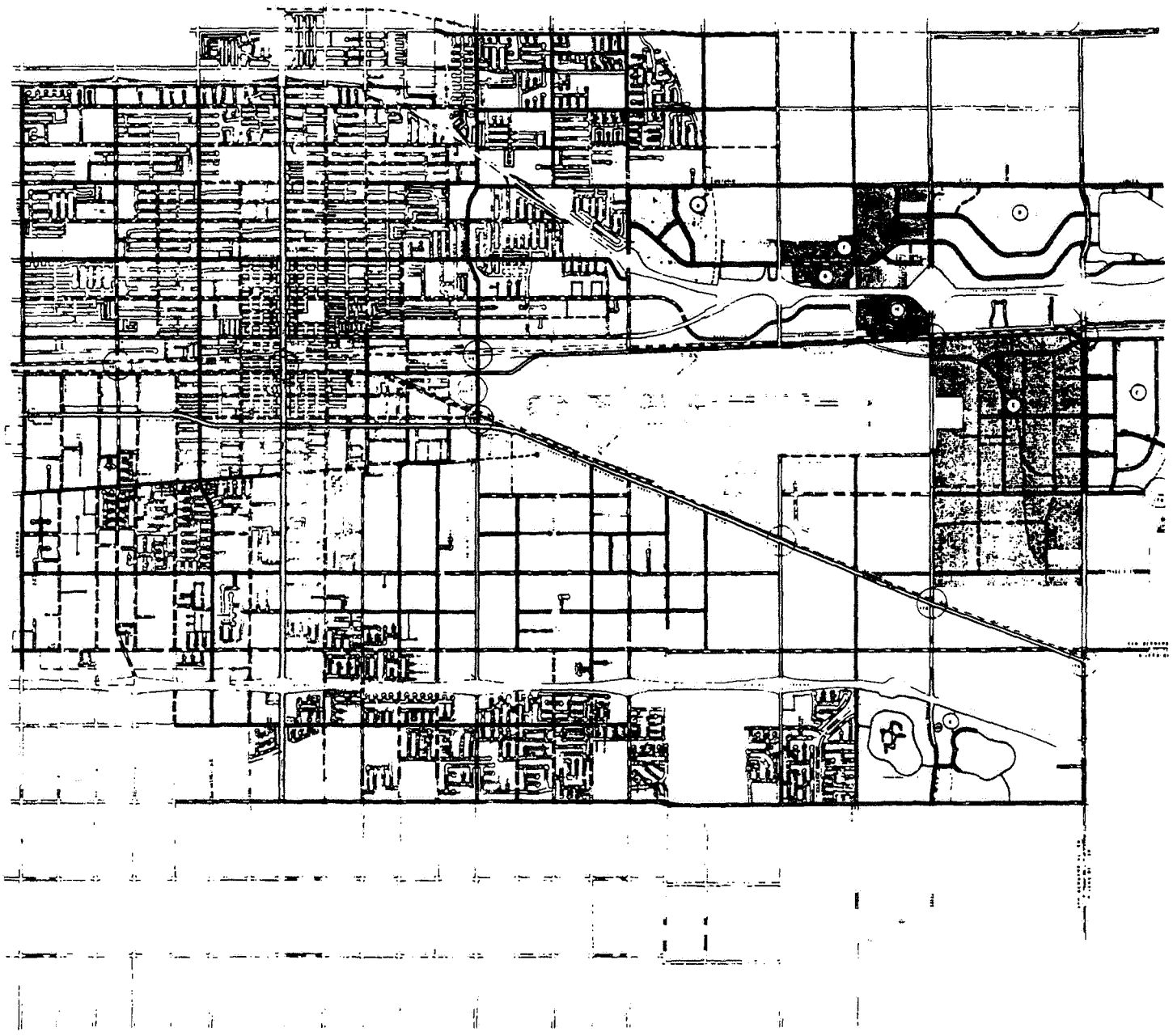
NOTES:

1. STRUCTURAL SECTION OF ROADWAY SHALL BE DETERMINED FROM SOIL TESTS AND SO INDICATED ON CONSTRUCTION PLANS.
2. MINIMUM DESIGN PAVING THICKNESS SHALL BE 0.25' ASPHALT CONCRETE.
3. CONSTRUCTION OUTSIDE R/W WILL REQUIRE SLOPE EASEMENTS.
4. WHEN PREPARING SUBGRADE FOR PAVING, CENTERLINE CROWN ON THE "LEVEL SECTION" SHALL BE RELOCATED EITHER LEFT OF RIGHT 0.50' TO MATCH CROWN BREAK IN PAVING MACHINE.

SOURCE: CITY OF CHINO HILLS

EXHIBIT 3-K

CITY OF ONTARIO GENERAL PLAN CIRCULATION ELEMENT



SITE

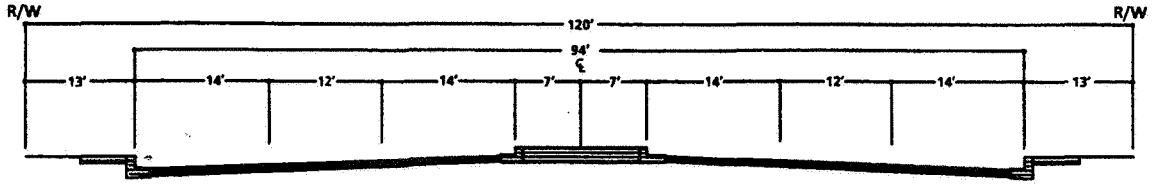
LEGEND

- DIVIDED ARTERIAL
- STANDARD ARTERIAL
- COLLECTOR STREET
- LOCAL STREET
- LOCAL STREET
- SPECIAL DESIGN & CHANGE NO
- SEE SPECIAL SECTION ATTACHMENT

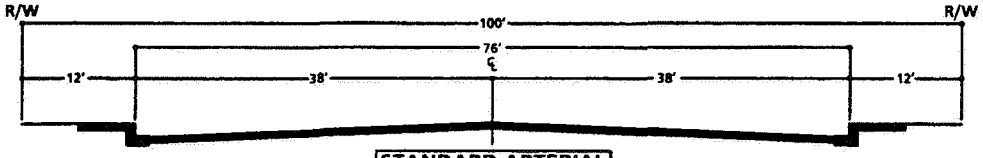
SOURCE: CITY OF ONTARIO

EXHIBIT 3-L

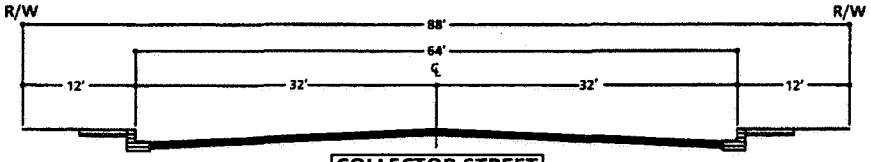
CITY OF ONTARIO
TYPICAL ROADWAY CROSS-SECTIONS



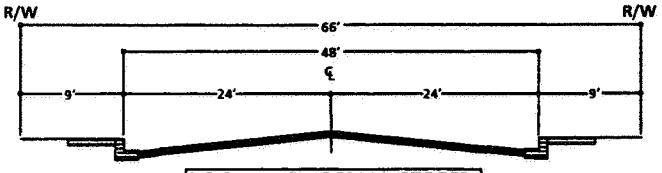
DIVIDED ARTERIAL



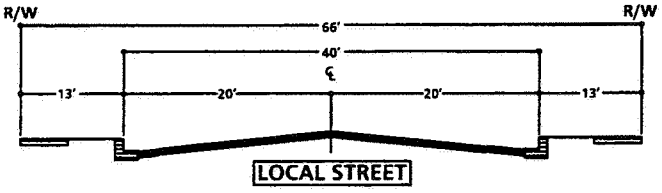
STANDARD ARTERIAL



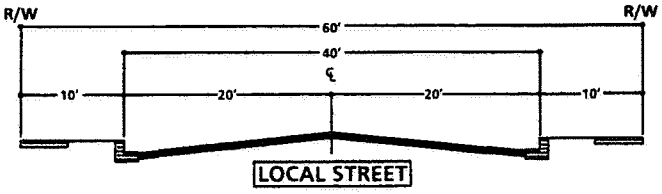
COLLECTOR STREET



LOCAL INDUSTRIAL STREET



LOCAL STREET



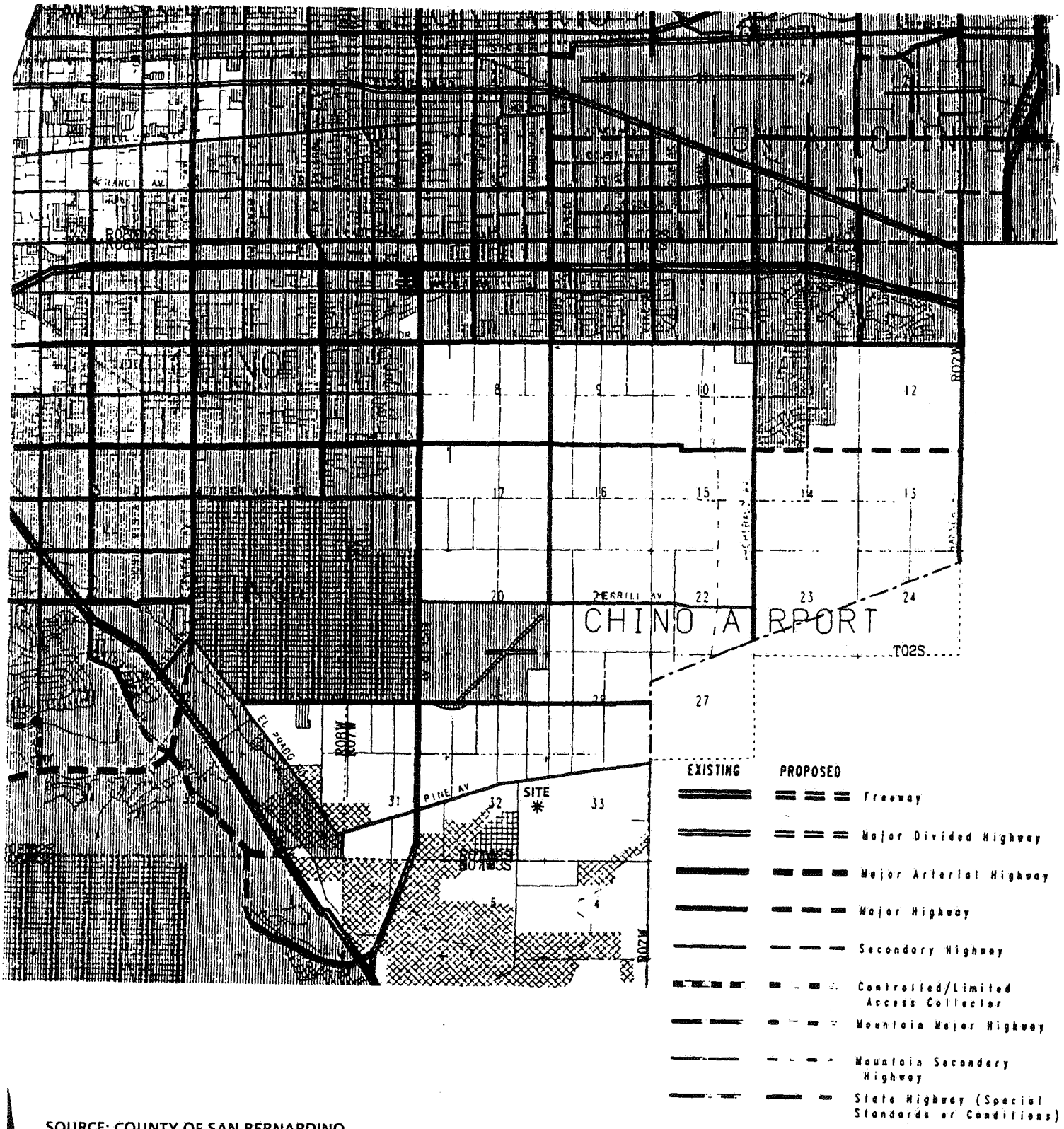
LOCAL STREET

SOURCE: CITY OF ONTARIO

URBAN CROSSROADS

EXHIBIT 3-M

COUNTY OF SAN BERNARDINO GENERAL PLAN CIRCULATION ELEMENT



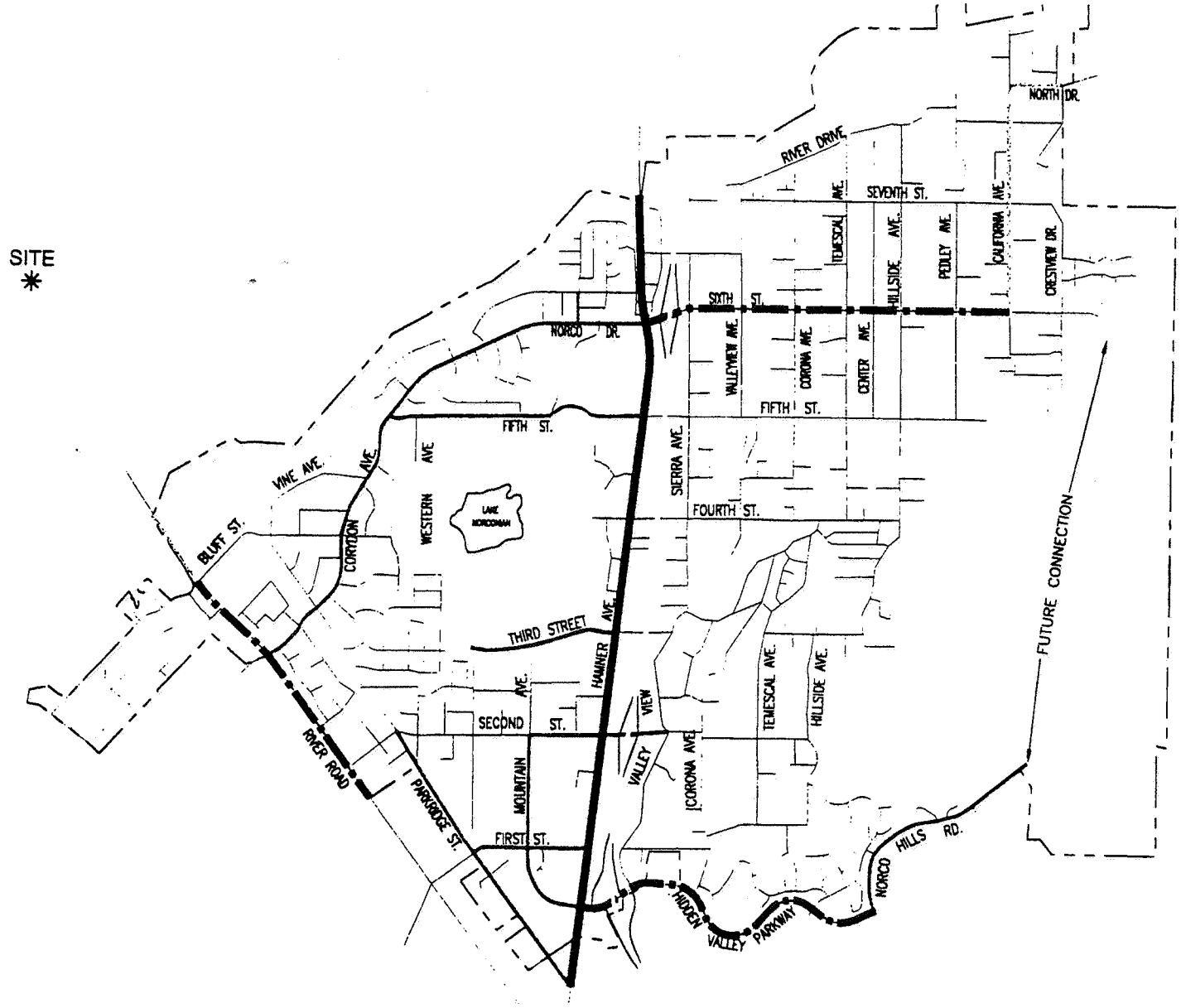
SOURCE: COUNTY OF SAN BERNARDINO

CHINO SUBAREA 2, Chino, California - 00020:24

URBAN CROSSROADS

EXHIBIT 3-N

CITY OF NORCO
GENERAL PLAN CIRCULATION ELEMENT



LEGEND

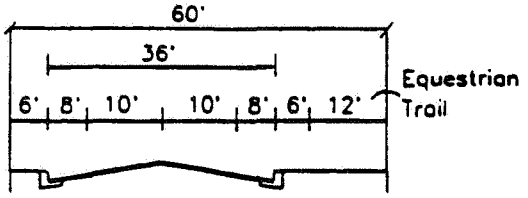
- FREEWAY
- URBAN ARTERIAL
- MAJOR ARTERIAL 4 LN
- MAJOR ARTERIAL 2 LN
- COLLECTOR STREET
- LOCAL STREETS

SOURCE: CITY OF NORCO

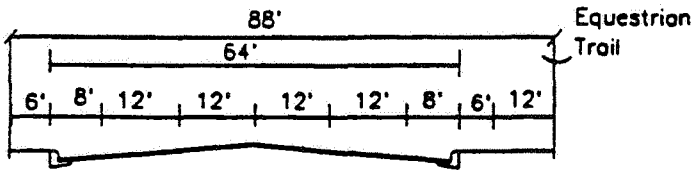
EXHIBIT 3-O

CITY OF NORCO
TYPICAL ROADWAY CROSS-SECTIONS

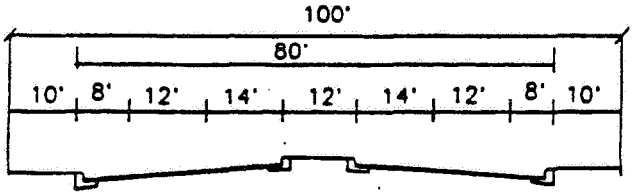
Local



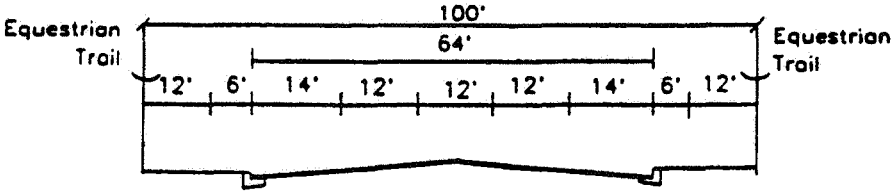
Collector



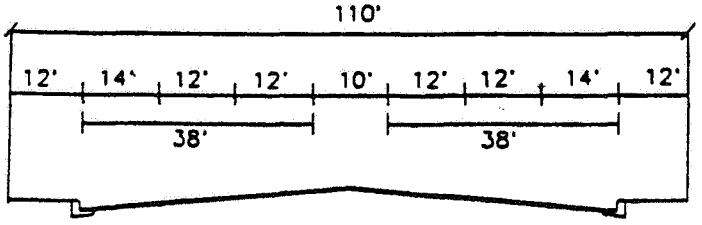
Major – 4
River Road



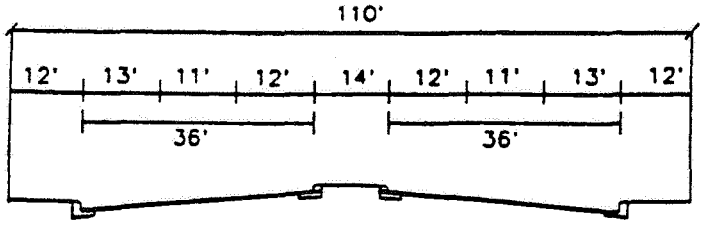
Major – 4E
Sixth Street
Hidden Valley Parkway (½)



Urban Arterial
Hamner Avenue Without Median



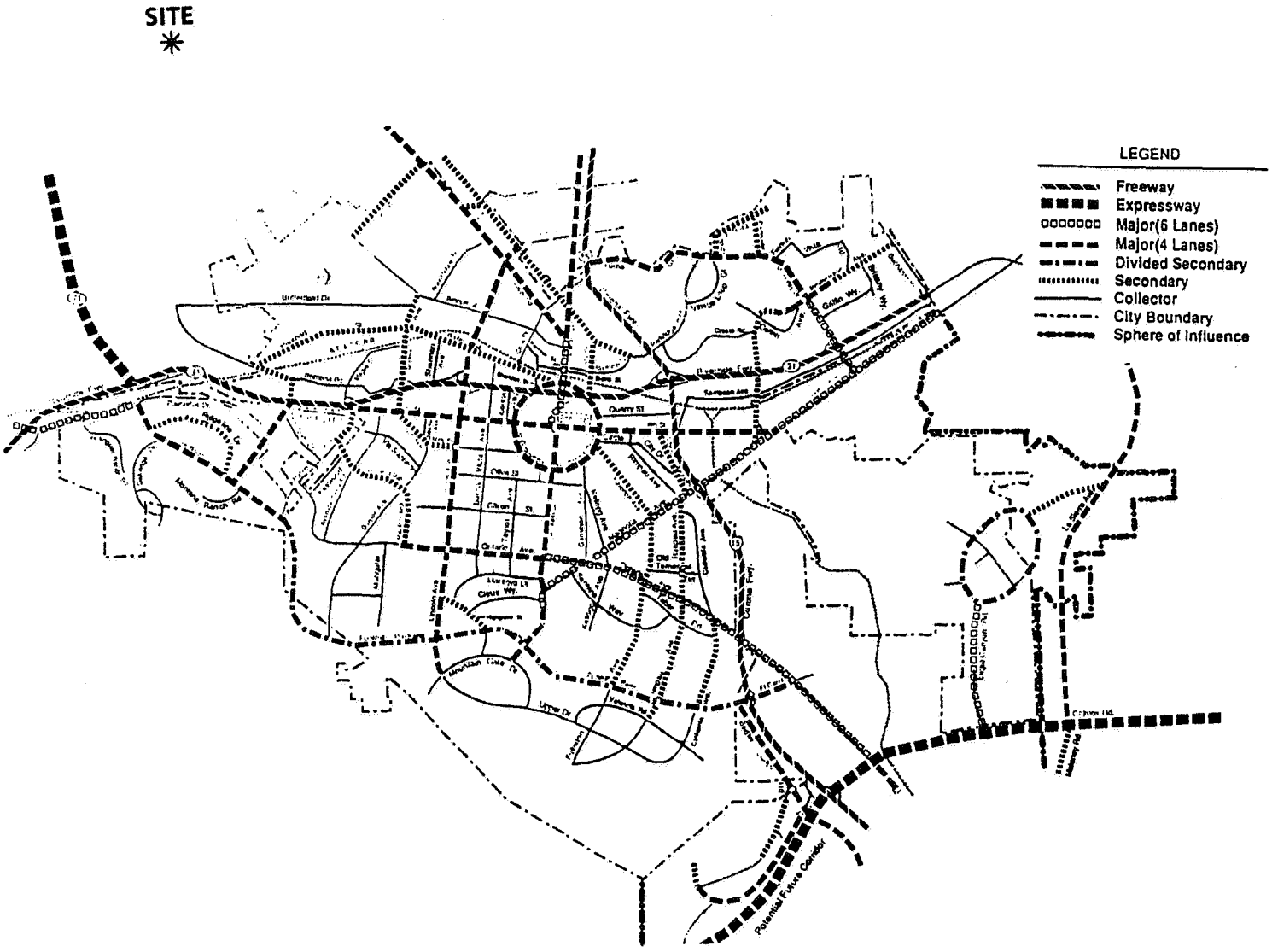
Urban Arterial
Hamner Avenue
With Raised Median



SOURCE: CITY OF NORCO

EXHIBIT 3-P

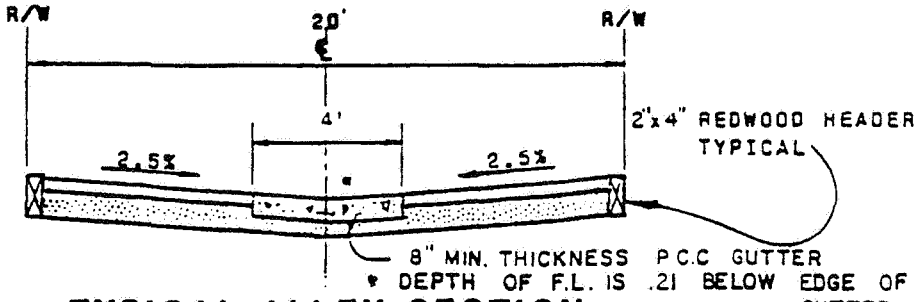
CITY OF CORONA GENERAL PLAN CIRCULATION ELEMENT



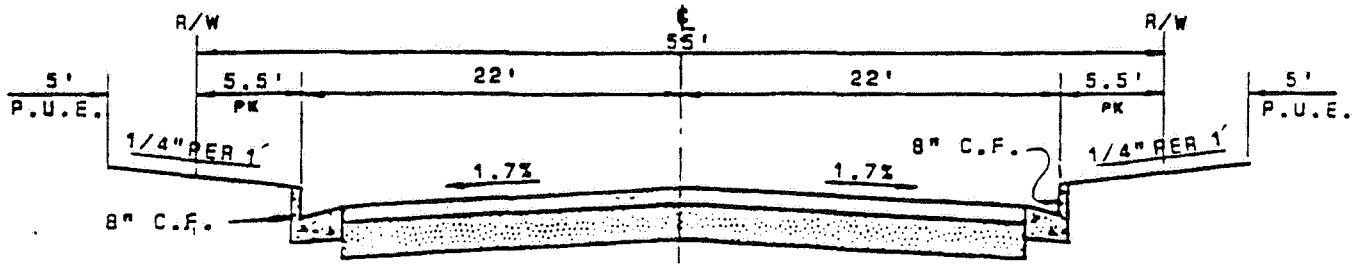
SOURCE: CITY OF CORONA

EXHIBIT 3-Q

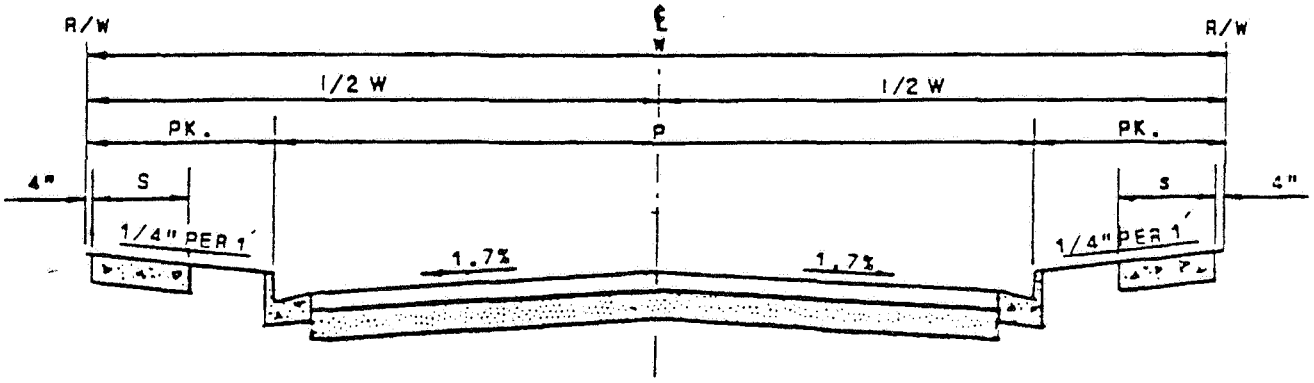
CITY OF CORONA
TYPICAL ROADWAY CROSS-SECTIONS (PART 1/2)



TYPICAL ALLEY SECTION



TYPICAL INDUSTRIAL STREET SECTION



TYPICAL STREET SECTION

STREET DIMENSIONS					LEGEND
STREET TYPE	W	P	PK	S	
LOCAL - INDUSTRIAL	55'	44'	5.5'	--	W = WIDTH OF RIGHT-OF-WAY
LOCAL	64'	40'	12'	4'	P = WIDTH OF STREET
COLLECTOR	68'	44'	12'	5'	PK = WIDTH OF PARKWAY
SECONDARY	88'	64'	12'	5'	S = WIDTH OF SIDEWALK

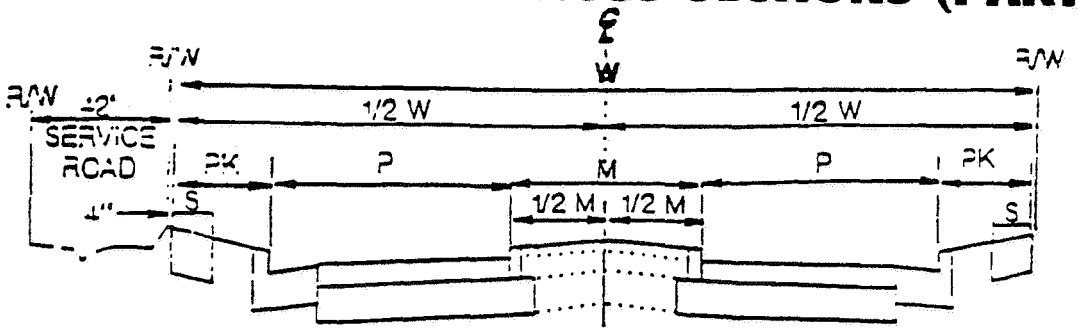
NOTES:

1. THICKNESS OF STREET SECTION TO BE DETERMINED BY SOIL TESTS TO DETERMINE STRUCTURAL SECTION OF FLEXIBLE PAVEMENT. (MIN. .30' AC. OVER .50' AB.)
2. FOR CURB AND GUTTER SEE STANDARD PLAN 104-0.
3. USE 8" CURB FOR ALL COLLECTOR, SECONDARY OR MAJOR STREETS - USE 6" CURB FOR ALL LOCAL STREETS.

SOURCE: CITY OF CORONA

EXHIBIT 3-Q

CITY OF CORONA
TYPICAL ROADWAY CROSS-SECTIONS (PART 2/2)



MAJOR STREET SECTIONS

STREET & LIMIT	W	P	PK	M	S*	MEDIAN
FOOTHILL PKWY** - GREEN RIVER - STATE ST.	88'	32'	5'	14'	5'	LANDSCAPE
GRAND BLVD. - FULL CIRCLE	100'	33'	10'	14'	10'	STRIPED
GREEN RIVER RD. - 91 FWY TO PASEO GRANDE	100'	33'	10'	14'	5'	STRIPED
LINCOLN AVE. - ONTARIO TO MOUNTAIN GATE	100'	33'	10'	14'	5'	LANDSCAPE
MAGNOLIA - McKINLEY TO SIXTH	80'	33'	10'	9.4'	10'	LANDSCAPE
- SIX TO I-15	100'	33'	10'	14'	10'	LANDSCAPE
- I-15 TO ONTARIO	122'	36'	17.5'	14'	10'	LANDSCAPE
- ONTARIO TO MAIN	120'	44'	9'	14'	10'	STRIPED
MAIN ST. - PARKRIDGE TO ONTARIO	100'	33'	10'	14'	10'	STRIPED
- ONTARIO TO MAGNOLIA	100'	33'	10'	14'	5'	LANDSCAPE
- MAGNOLIA TO FOOTHILL	120'	44'	9'	14'	10'	LANDSCAPE
- FOOTHILL PKWY TO MOUNTAIN GATE	88'	32'	10'	14'	5'	STRIPED
McKINLEY ST. - MAGNOLIA TO SAMSON	100'	33'	10'	14'	10'	STRIPED
- SAMSON TO 91 FWY.	100'	33'	10'	14'	10'	LANDSCAPE
- 91 FWY. TO PROMENADE	132'	44'	10'	24'	10'	LANDSCAPE
- PROMENADE TH YUMA	100'	33'	10'	14'	10'	LANDSCAPE
ONTARIO - I-15 TO WREN	100'	33'	10'	14'	10'	STRIPED
- WREN TO BLUEJAY	100'	33'	10'	14'	10'	ADJ. TO EXIST. SVC RD.
- BLUEJAY TO MAGNOLIA	100'	33'	10'	14'	10'	STRIPED
- MAGNOLIA TO VIA PACIFIC	122'	36'	16.5'	22'	5'	STRIPED
PROMENADE AVE. - COLLECT TO KENNEDY	100'	33'	10'	14'	7'	LANDSCAPE
RIVER RD. - CORYDON TO LINCOLN	110'	34'	12'	18'	5'	HARDSCAPE
- LINCOLN TO MAIN	110'	34'	12'	18'	5'	LANDSCAPE
SIXTH ST. - MAGNOLIA TO I-15	80'	33'	10'	9.4'	10'	LANDSCAPE
- I-15 TO MAPLE	88'	27'	12'	12'	12'	STRIPED
YUMA DRIVE - I-15 TO PARKRIDGE	88'	26'	12'	14'	5'	LANDSCAPE
- PARKRIDGE TO McKINLEY	100'	33'	10'	14'	5'	LANDSCAPE

LEGEND

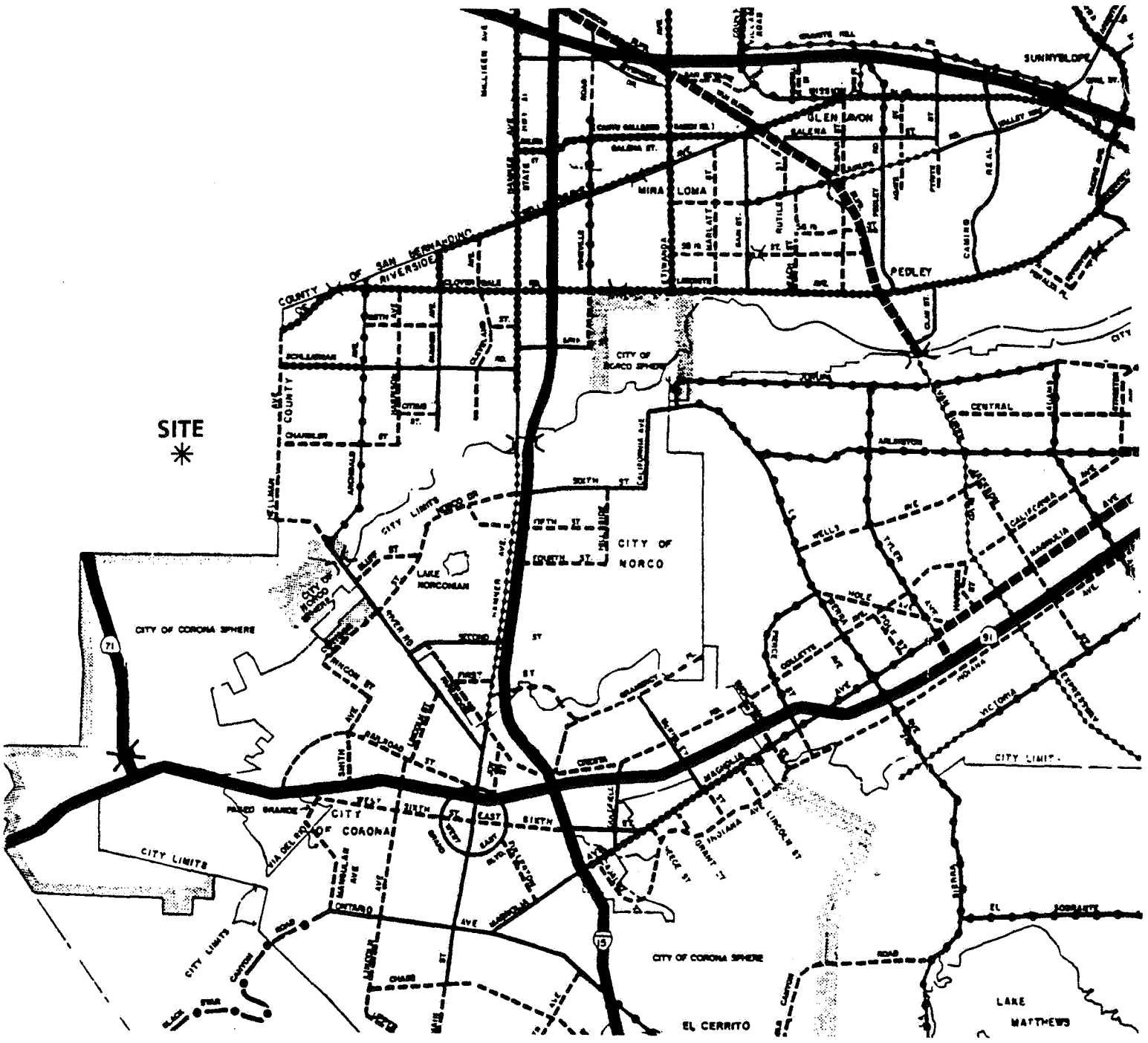
W= MINIMUM RIGHT-OF-WAY WIDTH
PK= PARKWAY WIDTH TO FACE OF CURB
P = TOTAL CURB TO CURB WIDTH
M = TOTAL MEDIAN WIDTH
S = WIDTH OF SIDEWALK (* FULL PARKWAY WITH 4' X 4' TREE WELLS)
* SEE APPROPRIATE SPECIFIC PLAN
** FOOTHILL PKWY SHALL BE WIDENED AT ALL INTERSECTIONS TO PROVIDE ADEQUATE RIGHT & LEFT TURN LANES.

NOTE: ALL STREETS SHALL BE CONSTRUCTED IN MINIMUM OF 2 STAGES. THE FINAL STAGE (LIFT) SHALL BE A MINIMUM .2' THICK

SOURCE: CITY OF CORONA

EXHIBIT 3-R

RIVERSIDE COUNTY GENERAL PLAN CIRCULATION ELEMENT



LEGEND:

CLASSIFICATION	RIGHT OF WAY	SYMBOL
SECONDARY	88'	
MAJOR	100'	
ARTERIAL	110'	
MOUNTAIN ARTERIAL	110'	
URBAN ARTERIAL	134'	
EXPRESSWAY	VARIABLE	
FREEWAY	VARIALBE	
SPECIFIC PLAN ROAD	VARIABLE	
BRIDGE		
SPHERE OF INFLUENCE		
STATE AND FEDERAL LANDS		
1/2 MILE ACCESS RESTRICTION		
25' TRANSPORTATION EASEMENT		

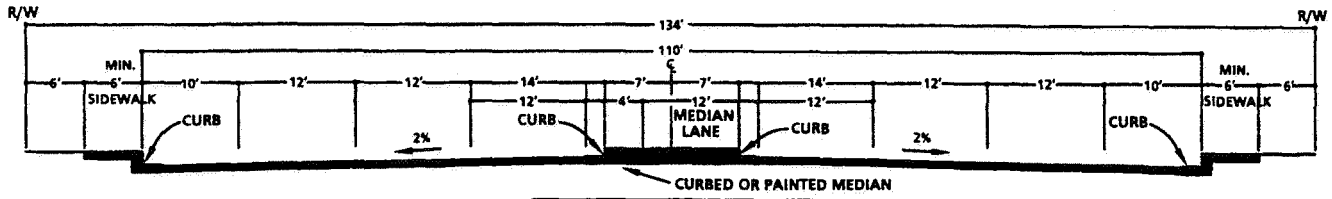
SOURCE: COUNTY OF RIVERSIDE

CHINO SUBAREA 2, Chino, California - 00020:18

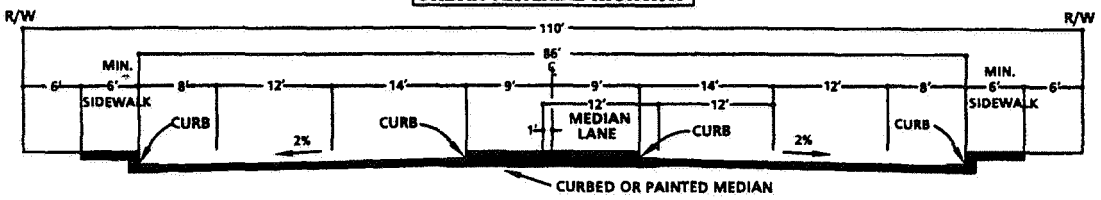
URBAN CROSSROADS

EXHIBIT 3-S

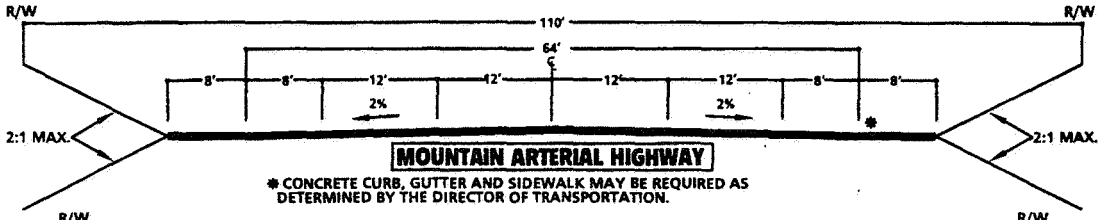
RIVERSIDE COUNTY TYPICAL ROADWAY CROSS-SECTIONS



URBAN ARTERIAL HIGHWAY

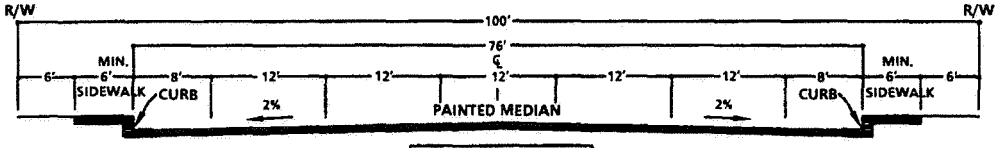


ARTERIAL HIGHWAY

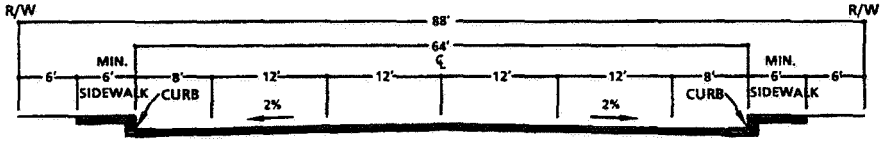


MOUNTAIN ARTERIAL HIGHWAY

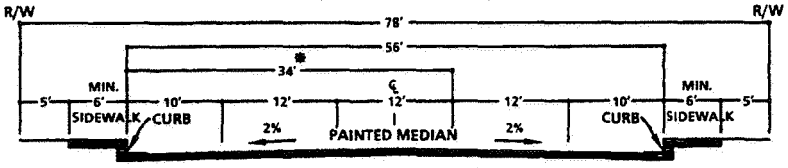
* CONCRETE CURB, GUTTER AND SIDEWALK MAY BE REQUIRED AS DETERMINED BY THE DIRECTOR OF TRANSPORTATION.



MAJOR HIGHWAY

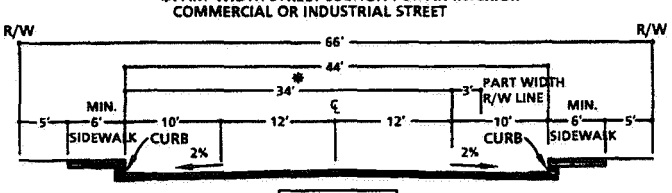


SECONDARY HIGHWAY



INDUSTRIAL COLLECTOR

* PART WIDTH STREET SECTION FOR AN INTERIOR COMMERCIAL OR INDUSTRIAL STREET



COLLECTOR

* PART WIDTH STREET SECTION FOR ALL COLLECTOR STREET - 34' IMPROVEMENTS ON 48' R/W

SOURCE: COUNTY OF RIVERSIDE

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4. FUTURE TRAFFIC CONDITIONS

This chapter of the report describes the development of the future year traffic volume forecasts and presents the resulting traffic volumes which will be used for traffic operations analysis. Future traffic conditions without the project are presented first, followed by the future with project traffic volumes.

4.1 Future Without Project Traffic Conditions

As described within Section 1.3.1, the 2020 ADT volume forecasts with the project are developed using a growth increment process based on volumes predicted by the CTP traffic model 1994 and 2020 models. The growth increment for CMP 2020 with project conditions on each roadway segment is the increase in CTP traffic model volume from existing 2001 to 2020. The 2020 without project roadway segment volume used for analysis purposes is then determined by deducting the project 2020 growth increment volume from the 2020 with project volume, then checking to ensure that the 2020 (daily) traffic volume is greater than or equal to the existing counted volume. This procedure was reviewed with and approved by City of Chino staff.

The 2010 With Project traffic projections have been interpolated between 2020 traffic volumes and existing traffic volumes utilizing a portion of the growth increment (see Section 1.3.1). A similar project traffic reduction process has then been applied to determine 2010 With Project (daily) traffic volumes.

4.1.1 2010 Without Project

ADT volumes for the 2010 Without Project Conditions have been determined as described above using the volume subtraction

process (see Section 1.3.1). 2010 ADT volumes without the project traffic are shown on Exhibit 4-A.

For 2010 without project traffic conditions, traffic signals are projected to be warranted at the following additional study area intersections (see Appendix "D"):

SR-71 Freeway Northbound Ramps (NS) at:

- Pine Avenue (EW)

El Prado Road (NS) at:

- Kimball Avenue (EW)

Grove Avenue (NS) at:

- Edison Avenue (EW)

Walker Avenue (NS) at:

- Edison Avenue (EW)

I-15 Freeway Southbound Ramps (NS) at:

- Galena Street (EW)

I-15 Freeway Northbound Ramps (NS) at:

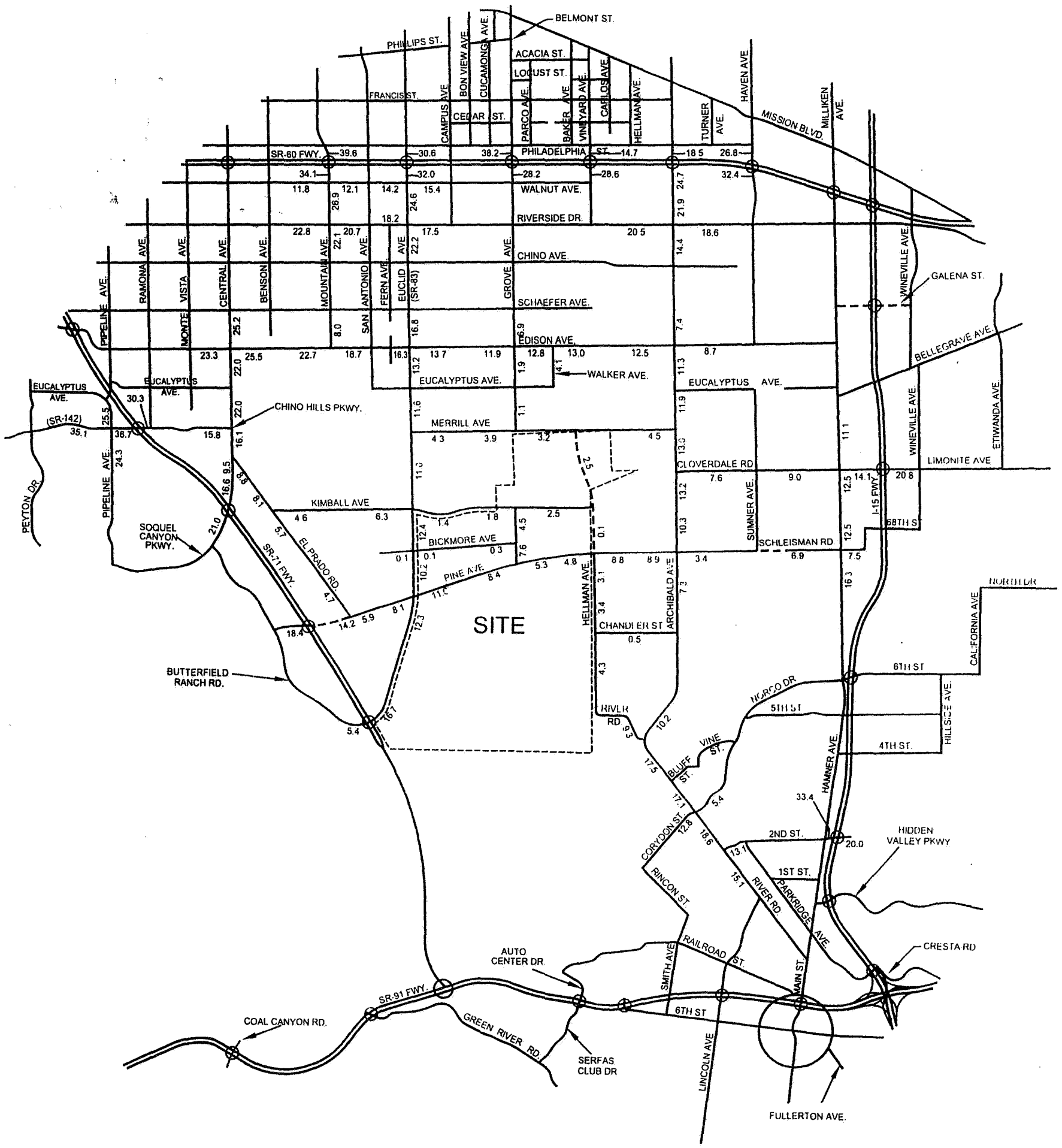
- Galena Street (EW)

4.1.2 2020 Without Project Conditions

ADT volumes for 2020 have been determined as described above using the volume subtraction process (see Section 1.3.1). 2020 ADT volumes without the project traffic are shown on Exhibit 4-B. Background (no project) traffic volumes show little or no increase

EXHIBIT 4-A

INTERIM 2010 WITHOUT PROJECT AVERAGE DAILY TRAFFIC (ADT)



LEGEND:

6.2 = VEHICLES PER DAY (1000'S)

N

CHINO SUBAREA 2, Chino, California - 00020:104

URBAN CROSSROADS

EXHIBIT 4-B

2020 WITHOUT PROJECT AVERAGE DAILY TRAFFIC (ADT)

LEGEND:

6.2 = VEHICLES PER DAY (1000'S)

N

CHINO SUBAREA 2, Chino, California - 00020:101

URBAN CROSSROADS

from 2010 to 2020 on certain facilities, particularly those near to or within the project site (e.g. Euclid Street, Pine Avenue, etc.). This is a result of the project traffic utilizing most of the planned long range capacity of these roadways.

For 2020 without project traffic conditions, a traffic signal is projected to be warranted at the following additional study area intersection (see Appendix "D"):

Vineyard Avenue (NS) at:

- Edison Avenue (EW)

4.2 Future With Project Traffic Conditions

Project traffic volumes on study area roadway segments (except CMP project only traffic) are determined by generating project trips and manually routing the traffic through the roadway network. The routing patterns follow the trip distributions which were presented in Section 2 on Exhibits 2-B and 2-C. Trips are assigned to each individual roadway link occurring along a specific route.

The accumulation of traffic assigned to each roadway link represents the project traffic volume for that link. Project only ADT volumes for each analysis year were presented in Section 2 on Exhibits 2-D, 2-G and 2-J.

The future year with project traffic volumes are presented in the following sections.

4.2.1 2010 With Project

The ADT for 2010 with project conditions have been determined as described previously using the interpolation process (see Section 1.3.1). 2010 ADT volumes with the project traffic are shown on Exhibit 4-C.

For 2010 with project traffic conditions, traffic signals are projected to be warranted at the following additional study area intersections (see Appendix "D"):

EL Prado Road (NS) at:

- Pine Avenue

Euclid Avenue (NS) at:

- Bickmore Avenue (EW)

Grove Avenue (NS) at:

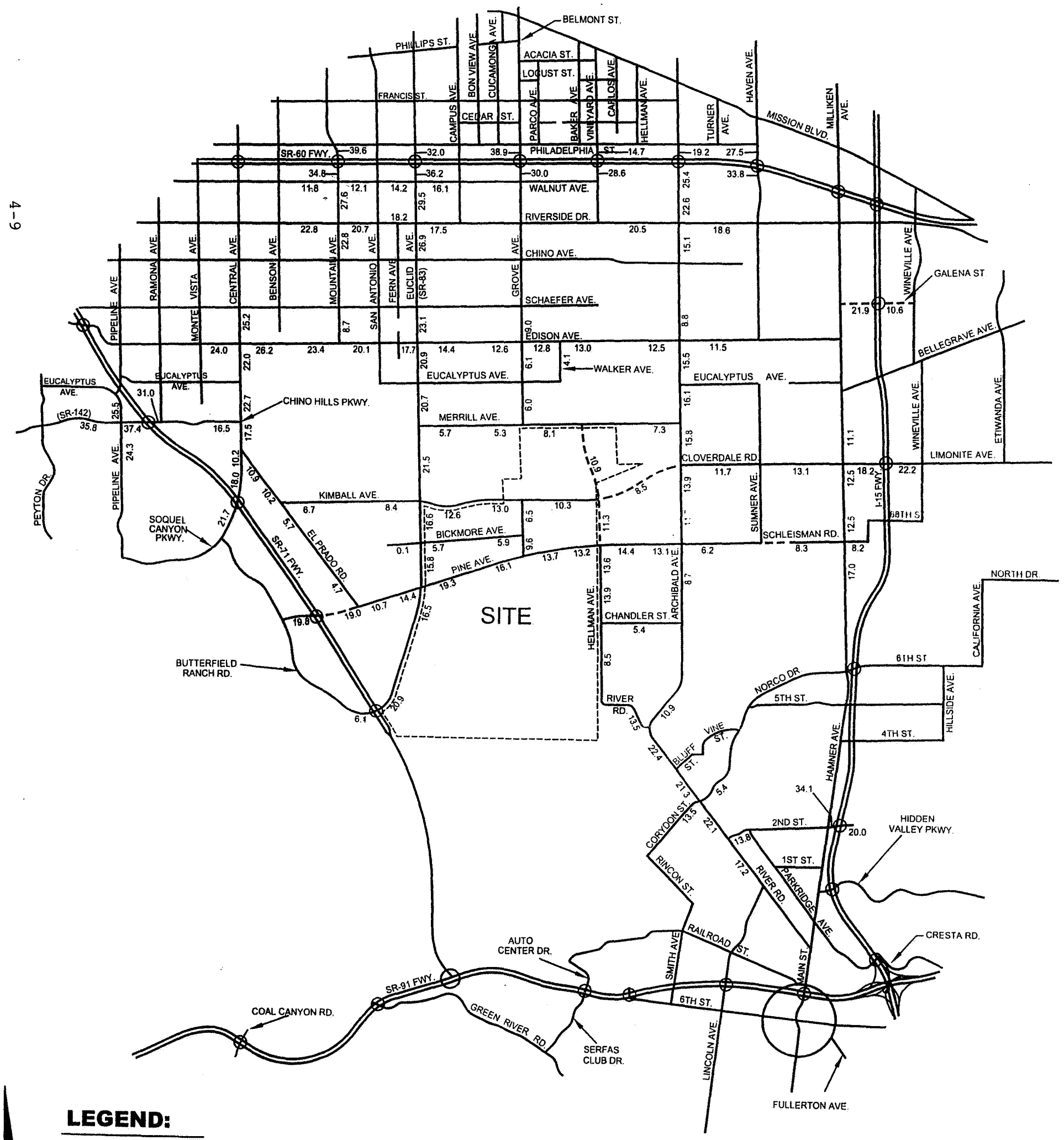
- Merrill Avenue (EW)
- Kimball Avenue (EW)
- Bickmore Avenue (EW)
- Pine Avenue (EW)

Hellman Avenue (NS) at:

- Merrill Avenue (EW)
- Kimball Avenue (EW)
- Chandler Street (EW)

EXHIBIT 4-C

INTERIM 2010 WITH PROJECT AVERAGE DAILY TRAFFIC (ADT)



LEGEND:

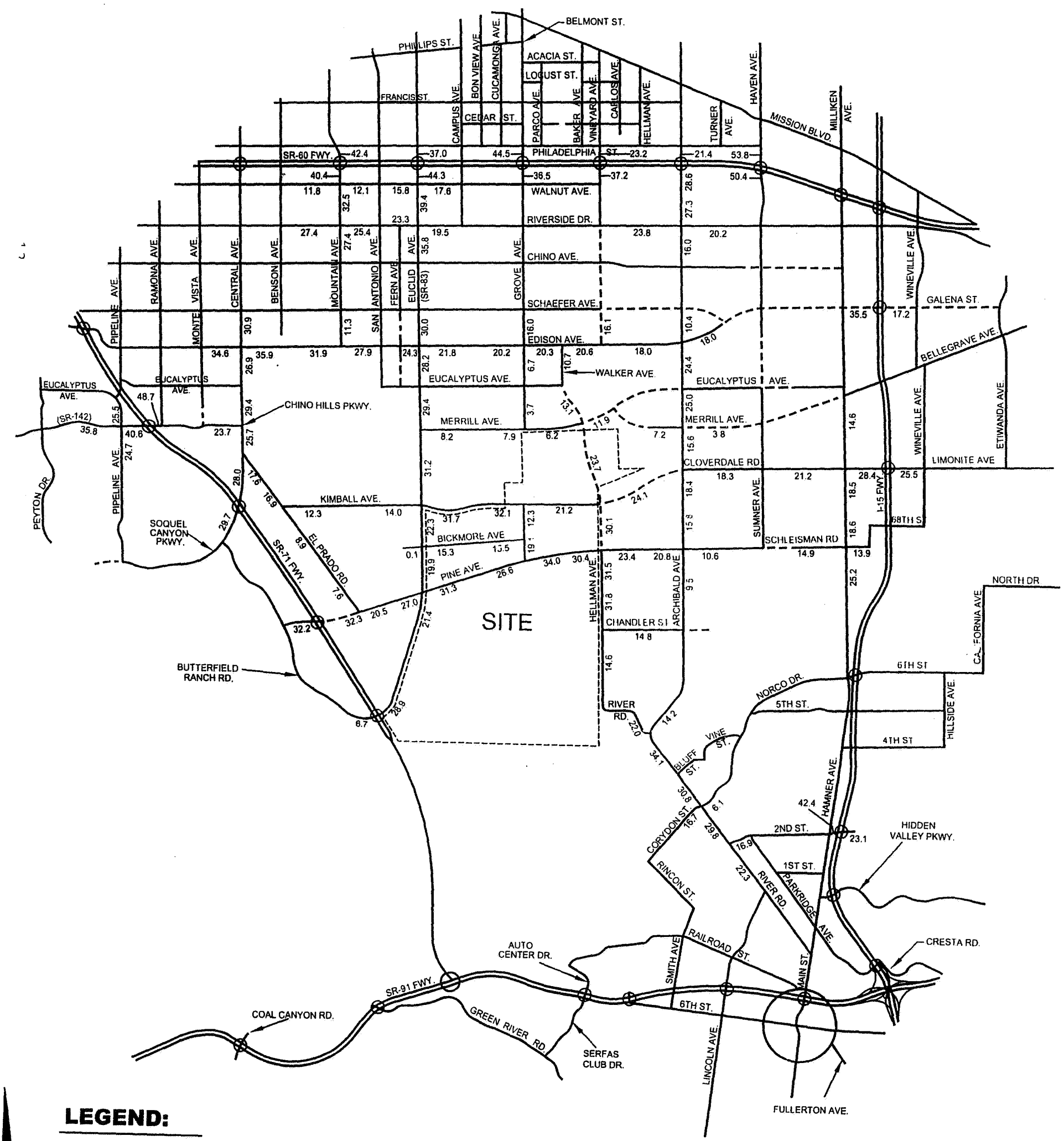
10.0 = VEHICLES PER DAY (1000'S)

CHINO SUBAREA 2, Chino, California - 00020:103

URBAN CROSSROADS

EXHIBIT 4-D

2020 WITH PROJECT AVERAGE DAILY TRAFFIC (ADT)



LEGEND:

8.6 = VEHICLES PER DAY (1000'S)

CHINO SUBAREA 2, Chino, California - 00020:102

URBAN CROSSROADS

from 2010 to 2020 on certain facilities, particularly those near to or within the project site (e.g. Euclid Street, Pine Avenue, etc.). This is a result of the project traffic utilizing most of the planned long range capacity of these roadways.

For 2020 without project traffic conditions, a traffic signal is projected to be warranted at the following additional study area intersection (see Appendix "D"):

Vineyard Avenue (NS) at:

- Edison Avenue (EW)

4.2 Future With Project Traffic Conditions

Project traffic volumes on study area roadway segments (except CMP project only traffic) are determined by generating project trips and manually routing the traffic through the roadway network. The routing patterns follow the trip distributions which were presented in Section 2 on Exhibits 2-B and 2-C. Trips are assigned to each individual roadway link occurring along a specific route.

The accumulation of traffic assigned to each roadway link represents the project traffic volume for that link. Project only ADT volumes for each analysis year were presented in Section 2 on Exhibits 2-D, 2-G and 2-J.

The future year with project traffic volumes are presented in the following sections.

4.2.1 2010 With Project

The ADT for 2010 with project conditions have been determined as described previously using the interpolation process (see Section 1.3.1). 2010 ADT volumes with the project traffic are shown on Exhibit 4-C.

For 2010 with project traffic conditions, traffic signals are projected to be warranted at the following additional study area intersections (see Appendix "D"):

EL Prado Road (NS) at:

- Pine Avenue

Euclid Avenue (NS) at:

- Bickmore Avenue (EW)

Grove Avenue (NS) at:

- Merrill Avenue (EW)
- Kimball Avenue (EW)
- Bickmore Avenue (EW)
- Pine Avenue (EW)

Hellman Avenue (NS) at:

- Merrill Avenue (EW)
- Kimball Avenue (EW)
- Chandler Street (EW)

4.2.2 2020 With Project

The ADTs for 2020 with project have been determined as described previously using the growth increment process (see Section 1.3.1). 2020 ADT volumes with the project traffic are shown on Exhibit 4-D.

5. FUTURE TRAFFIC OPERATIONS ANALYSIS

This section of the report presents the operations analysis for the traffic volume forecasts for future baseline traffic conditions without the project and for future baseline traffic conditions with the project. The analysis procedures conform to the requirements of the County of San Bernardino CMP. The operations analysis for each analysis year is presented in a separate subsection.

5.1 2010 Traffic Operations

5.1.1 2010 Without Project Conditions

The intersection operations analysis for 2010 without project traffic conditions with existing geometrics are summarized in Table 5-1. 2010 without project AM and PM peak hour intersection turning movement volumes are shown on Exhibits 5-A and 5-B, respectively. The operations analysis worksheets for 2010 without project conditions are included in Appendix "E". As shown in Table 5-1, the following study area intersections are projected to experience Level of Service "E or "F" operations during the peak hours and are, therefore, deficient per the City of Chino criteria:

Pipeline Avenue (NS) at:

- Chino Hills Parkway (EW)

Central Avenue (NS) at:

- El Prado Road (EW)

Mountain Avenue (NS) at:

- SR-60 Freeway Eastbound Ramps (EW)
- Walnut Avenue (EW)

TABLE 5-1

2010 WITHOUT PROJECT CONDITIONS INTERSECTION ANALYSIS

INTERSECTION	TRAFFIC CONTROL[3]	INTERSECTION APPROACH LANES[1]												DELAY[2] (SECS.)		LEVEL OF SERVICE	
		NORTH-BOUND			SOUTH-BOUND			EAST-BOUND			WEST-BOUND						
		L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
Pipeline Ave. (NS) at:																	
• Chino Hills Pkwy. (EW)	TS	1	2	0	1	2	0	1	3	1	1	2	1	50.9	--[4]	D	F
SR-71 Fwy. SB Ramps (NS) at:																	
• Chino Hills Pkwy. (EW)	TS	0	0	0	1.5	0.5	1>>	0	4	1	1	2	0	28.0	14.6	C	B
• Soquel Canyon Pkwy. (EW)	TS	0	0	0	1.5	0	0.5	0	3	1>>	0	3	1>>	6.1	13.4	A	B
• Pine Ave. (EW)	TS	0	0	0	1.5	0	0.5	0	1	1	1	2	0	19.8	24.1	B	C
• Euclid Ave. (EW)	TS	1	0	1	1.5	0.5	1	0	2	1	1	2	0	18.3	17.5	B	B
SR-71 Fwy. NB Ramps (NS) at:																	
• Chino Hills Pkwy. (EW)	TS	1.5	1.5	0	0	0	0	2	2	0	0	2	1	15.5	14.1	B	B
• Soquel Canyon Pkwy. (EW)	TS	1.5	0	0.5	0	0	0	0	3	1>>	0	3	1>>	10.9	9.2	B	A
• Pine Ave. (EW)	AWS	1	0	1	0	0	0	1	1	0	0	1	1	12.3	11.3	B	B
• Euclid Ave. (EW)	TS	2	0	1>>	0	0	0	0	2	1>>	1	2	0	12.6	20.5	B	C
Central Ave. (NS) at:																	
• Edison Ave. (EW)	TS	1	2	1	1	2	1	1	2	0	1	2	1	43.6	49.1	D	D
• Chino Hills Pkwy. (EW)	TS	1	2	1	1	2	1	1.5	0.5	1	1	2	1	24.3	25.0	C	C
• El Prado Rd. (EW)	CSS	0	1	1	1	2	0	0	0	0	1	0	1	50.2	--	F	F
El Prado Rd. (NS) at:																	
• Kimball Ave. (EW)	CSS	1	1	0	1	1	1	1	1	0	1	1	0	18.8	28.7	C	D
• Pine Ave. (EW)	CSS	0	0	0	0	1	0	0	1	0	0	1	0	12.6	17.2	B	C
Mountain Ave. (NS) at:																	
• SR-60 Fwy. WB Ramps (EW)	TS	1	2	0	0	2	1	0	0	0	1	0	1	42.9	35.4	D	D
• SR-60 Fwy. EB Ramps (EW)	TS	0	2	1	1	2	0	1.5	0	0.5	0	0	0	36.2	--	D	F
• Walnut Ave. (EW)	TS	1	2	1	1	2	1	1	1	1	1	1	1	--	29.2	F	C
• Riverside Dr. (EW)	TS	1	2	0	1	2	1	1	2	1	1	2	1	47.5	47.2	D	D
• Edison St. (EW)	TS	0	0	0	1	0	1	1	2	0	0	2	1	18.2	14.0	B	B
Euclid Ave. (NS) at:																	
• SR-60 Fwy. WB Ramps (EW)	TS	1	2	0	0	2	1	0	0	0	1.5	0	0.5	41.5	40.9	D	D
• SR-60 Fwy. EB Ramps (EW)	TS	0	2	1	1	2	0	1.5	0	0.5	0	0	0	33.7	--	C	F
• Walnut Ave. (EW)	TS	1	3	1	2	3	1	1	2	0	1	2	0	22.9	25.2	C	C
• Riverside Dr. (EW)	TS	1	2	1	1	2	1	0	2	0	0	2	0	35.2	38.7	D	D
• Edison St. (EW)	TS	1	2	1	1	2	1	1	1	1	1	1	0	35.7	32.2	D	C
• Merrill Ave. (EW)	TS	0	2	1	1	2	0	0	0	0	0	1	0	21.7	14.8	C	B
• Kimball Ave. (EW)	TS	1	2	1	1	2	1	0	1	0	0	1	0	25.7	26.4	C	C
• Bickmore Ave. (EW)	CSS	1	1	0	1	1	0	0	1	0	0	1	0	--	--	F	F
• Pine Ave. (EW)	TS	1	2	1	1	2	1	0	1	1	0	1	1	40.3	30.2	D	C

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.
L = Left; T = Through; R = Right; >> = Free Right Turn

[2] Delay and level of service calculated using the following analysis software: Traffix, Version 7.1.0607 (1999). Per the 1997 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[3] TS = Traffic Signal
AWS = All Way Stop
CSS = Cross Street Stop

[4] -- = Delay High, Intersection Unstable, Level of Service "F".

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TABLE 5-1 (CONTINUED)

2010 WITHOUT PROJECT CONDITIONS INTERSECTION ANALYSIS

INTERSECTION	TRAFFIC CONTROL[3]	INTERSECTION APPROACH LANES[1] NORTH-BOUND			SOUTH-BOUND			EAST-BOUND			WEST-BOUND			DELAY[2] (SECS.)		LEVEL OF SERVICE	
		L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
Grove Ave. (NS) at:																	
• SR-60 Fwy. WB Ramps (EW)	TS	1	2	0	0	2	1	0	0	0	1	0	1	40.6	28.5	D	C
• SR-60 Fwy. EB Ramps (EW)	TS	0	2	1	1	2	0	1	0	1	0	0	0	41.5	51.0	D	D
• Edison St. (EW)	AWS	0	1	0	0	1	0	0	1	0	0	1	0	--[4]	--	F	F
• Merrill Ave. (EW)	AWS	0	0	0	0	1	0	0	1	0	0	1	0	16.4	26.4	C	D
• Kimball Ave. (EW)	AWS	0	1	0	0	0	0	0	1	0	0	1	0	10.5	13.8	B	B
• Bickmore Ave. (EW)	CSS	0	1	0	0	1	0	0	1	0	0	1	0	33.4	--	D	F
• Pine Ave. (EW)	CSS	0	0	0	0	1	0	1	1	0	0	1	0	15.6	20.5	C	C
Walker Ave. (NS) at:																	
• Edison Ave. (EW)	CSS	0	1	0	0	1	0	0	1	0	0	1	0	37.8	--	E	F
Hellman Ave. (NS) at:																	
• Merrill Ave. (EW)	TS	1	0	1	0	0	0	0	1	0	1	1	0	32.8	36.4	C	C
• Kimball Ave. (EW)	TS	1	1	0	0	1	0	1	0	1	0	0	0	46.6	53.8	D	D
• Pine Ave. (EW)	CSS	0	1	0	0	1	0	0	1	0	0	1	0	--	--	F	F
• Chandler St. (EW)	CSS	0	1	0	0	1	0	0	1	0	0	1	0	28.6	28.0	D	D
Vineyard Ave. (NS) at:																	
• SR-60 Fwy. WB Ramps (EW)	TS	1	1	0	0	2	0	0	0	0	1	0	1	31.4	30.6	C	C
• SR-60 Fwy. EB Ramps (EW)	TS	0	2	0	1	2	0	1	0	1	0	0	0	27.7	40.6	C	D
Archibald Ave. (NS) at:																	
• SR-60 Fwy. WB Ramps (EW)	TS	1	3	0	0	4	0	0	0	0	1	0	1	25.3	15.9	C	B
• SR-60 Fwy. EB Ramps (EW)	TS	0	4	0	1	3	0	1	0	1	0	0	0	17.3	22.9	B	C
• Riverside Dr. (EW)	TS	1	3	0	1	3	0	1	2	1	1	1	1	45.4	51.5	D	D
• Edison Ave. (EW)	TS	1	2	1	1	2	1	1	2	0	1	2	0	39.3	32.5	D	C
• Merrill Ave. (EW)	CSS	1	1	0	0	1	0	0	1	0	0	0	0	54.9	--	F	F
• Cloverdale Rd. (EW)	TS	0	1	0	1	1	0	0	0	0	1	0	1	28.5	31.2	C	C
• Pine Ave. (EW)	TS	1	1	0	1	1	0	1	1	0	1	1	0	46.4	45.1	D	D
• River Rd. (EW)	CSS	1	1	0	0	1	1	1	0	1	0	0	0	--	--	F	F
River Rd. (NS) at:																	
• Corydon St. (EW)	TS	1	1	1	1	2	0	1	1	1	1	1	1	45.8	42.5	D	D
• Second St. (EW)	TS	1	2	1	1	2	1	1	1	1	1	1	0	32.1	31.8	C	C
Haven Ave. (NS) at:																	
• SR-60 Fwy. WB Ramps (EW)	TS	2	3	0	0	3	1	0	0	0	1	0	1>>	12.4	11.3	B	B
• SR-60 Fwy. EB Ramps (EW)	TS	0	3	0	2	3	0	2	0	1	0	0	0	30.7	33.1	C	C
Hamner Ave. (NS) at:																	
• Cloverdale Rd. (EW)	TS	1	1	1	1	1	1	0	1	1	0	1	1	43.0	54.3	D	D
• Schleisman Rd. (EW)	CSS	1	1	0	1	1	0	0	1	0	0	1	0	--	--	F	F
I-15 Fwy. SB Ramps (NS) at:																	
• Galena St. (EW)	TS	0	0	0	1	0	1	0	2	1	1	2	0	37.5	18.7	D	B
• Limonite Ave. (EW)	TS	0	0	0	1	0	1	0	2	1	1	2	0	32.1	38.0	C	D
• Second St. (EW)	TS	0	0	0	1	0	1	0	2	0	1	2	0	35.5	--	D	F
I-15 Fwy. NB Ramps (NS) at:																	
• Galena St. (EW)	TS	1	0	1	0	0	0	1	2	0	0	2	1	15.3	12.6	B	B
• Limonite Ave. (EW)	TS	0.5	0	1.5	0	0	0	1	2	0	0	2	1	18.0	18.7	B	B
• Second St. (EW)	TS	1	0	1	0	0	0	1	1	0	0	1	0	--	50.3	F	D

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.
L = Left; T = Through; R = Right; >> = Free Right Turn

[2] Delay and level of service calculated using the following analysis software: Traffix, Version 7.1.0607 (1999). Per the 1997 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[3] TS = Traffic Signal
AWS = All Way Stop
CSS = Cross Street Stop

[4] -- = Delay High, Intersection Unstable, Level of Service "F".

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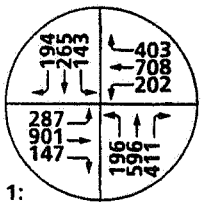
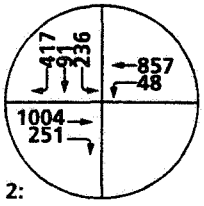
EXHIBIT 5-A

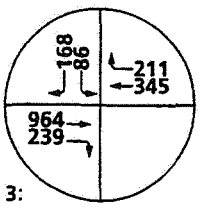
INTERIM (2010) WITHOUT PROJECT AM PEAK HOUR INTERSECTION VOLUMES (PART 1/2)



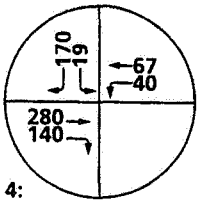
1: PIPELINE AVE. / CHINO HILLS PKWY.



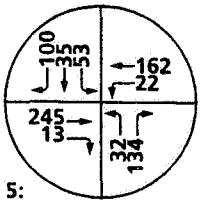
2: SR-71 SB RAMPS / CHINO HILLS PKWY.



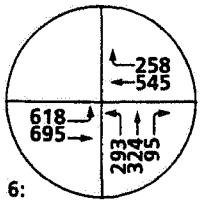
3: SR-71 SB RAMPS / SOQUEL CANYON PKWY.



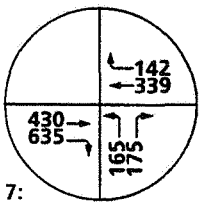
4: SR-71 SB RAMPS / PINE AVE.



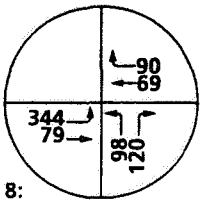
5: SR-71 SB RAMPS / EUCLID AVE.



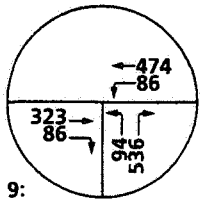
6: SR-71 NB RAMPS / CHINO HILLS PKWY.



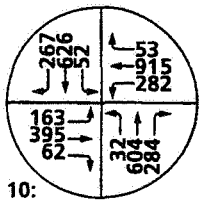
7: SR-71 NB RAMPS / SOQUEL CANYON PKWY.



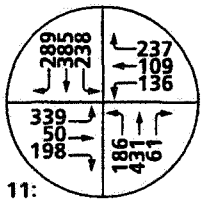
8: SR-71 NB RAMPS / PINE AVE.



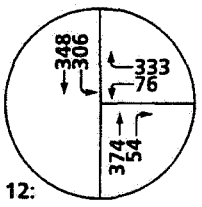
9: SR-71 NB RAMPS / EUCLID AVE.



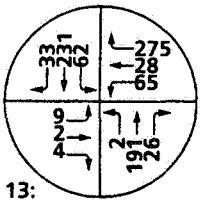
10: CENTRAL AVE. / EDISON AVE.



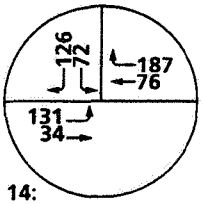
11: CENTRAL AVE. / CHINO HILLS PKWY.



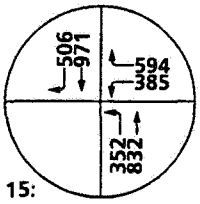
12: CENTRAL AVE. / EL PRADO RD.



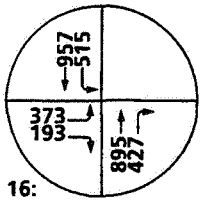
13: EL PRADO RD. / KIMBALL AVE.



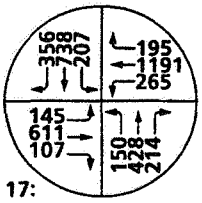
14: EL PRADO RD. / PINE AVE.



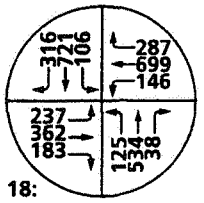
15: MOUNTAIN AVE. / SR-60 WB RAMPS



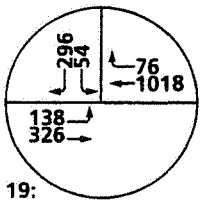
16: MOUNTAIN AVE. / SR-60 EB RAMPS



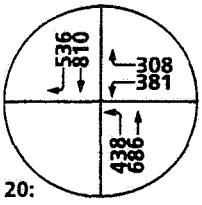
17: MOUNTAIN AVE. / WALNUT AVE.



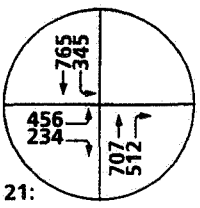
18: MOUNTAIN AVE. / RIVERSIDE DR.



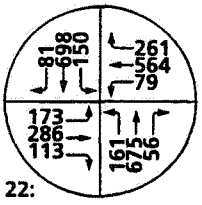
19: MOUNTAIN AVE. / EDISON AVE.



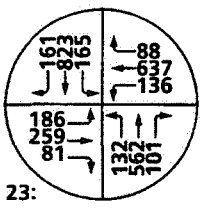
20: EUCLID AVE. / SR-60 WB RAMPS



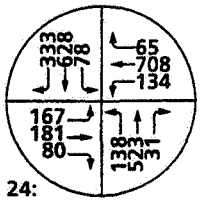
21: EUCLID AVE. / SR-60 EB RAMPS



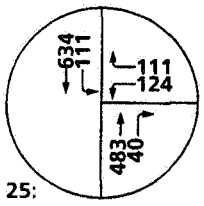
22: EUCLID AVE. / WALNUT AVE.



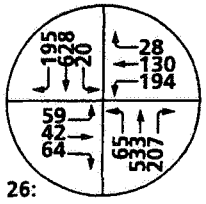
23: EUCLID AVE. / RIVERSIDE DR.



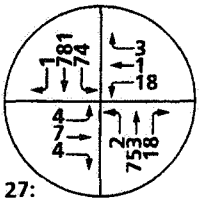
24: EUCLID AVE. / EDISON AVE.



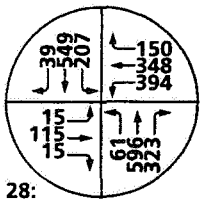
25: EUCLID AVE. / MERRILL AVE.



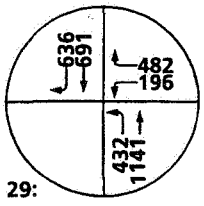
26: EUCLID AVE. / KIMBALL AVE.



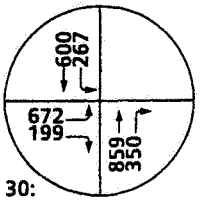
27: EUCLID AVE. / BICKMORE AVE.



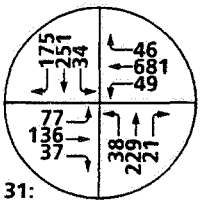
28: EUCLID AVE. / PINE AVE.



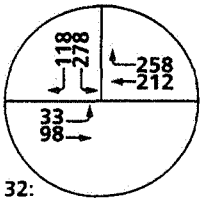
29: GROVE AVE. / SR-60 WB RAMPS



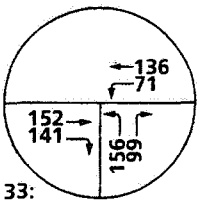
30: GROVE AVE. / SR-60 EB RAMPS



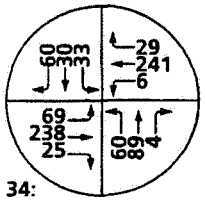
31: GROVE AVE. / EDISON AVE.



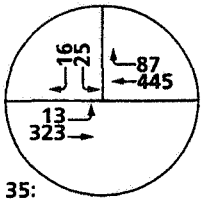
32: GROVE AVE. / MERRILL AVE.



33: GROVE AVE. / KIMBALL AVE.



34: GROVE AVE. / BICKMORE AVE.



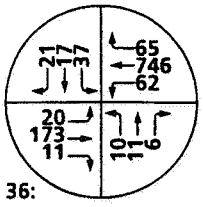
35: GROVE AVE. / PINE AVE.

N

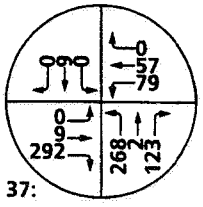
URBAN CROSSROADS

EXHIBIT 5-A

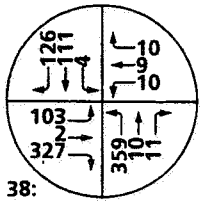
INTERIM (2010) WITHOUT PROJECT AM PEAK HOUR INTERSECTION VOLUMES (PART 2/2)



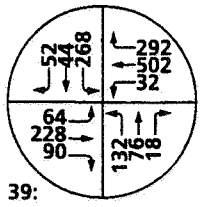
36: WALKER AVE. / EDISON AVE.



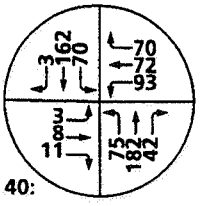
37: HELLMAN AVE. / MERRILL AVE.



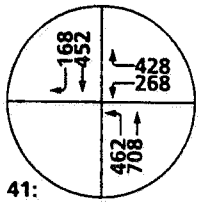
38: HELLMAN AVE. / KIMBALL AVE.



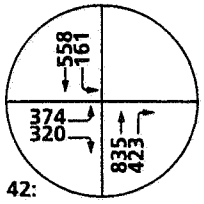
39: HELLMAN AVE. / PINE AVE.



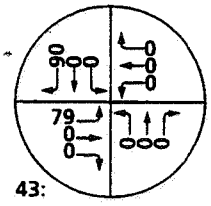
40: HELLMAN AVE. / CHANDLER ST.



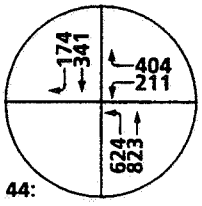
41: VINEYARD AVE. / SR-60 WB RAMPS



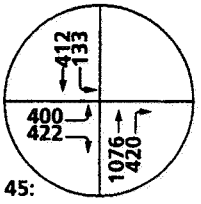
42: VINEYARD AVE. / SR-60 EB RAMPS



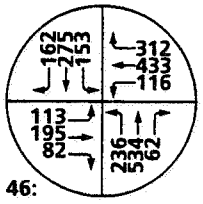
43: VINEYARD AVE. EDISON AVE.



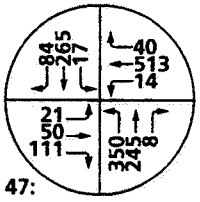
44: ARCHIBALD AVE. / SR-60 WB RAMPS



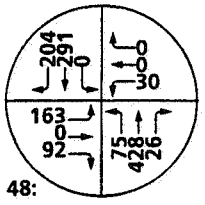
45: ARCHIBALD AVE. / SR-60 EB RAMPS



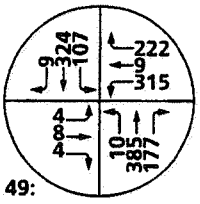
46: ARCHIBALD AVE. / RIVERSIDE DR.



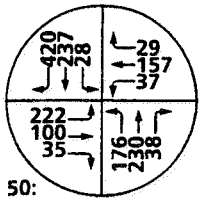
47: ARCHIBALD AVE. / EDISON AVE.



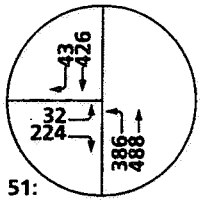
48: ARCHIBALD AVE. / MERRILL AVE.



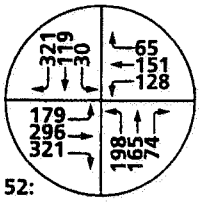
49: ARCHIBALD AVE. / CLOVERDALE RD.



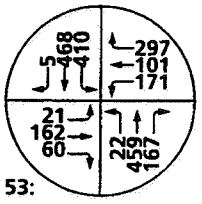
50: ARCHIBALD AVE. / PINE AVE.



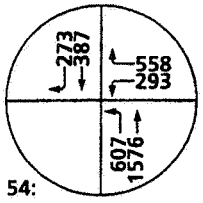
51: ARCHIBALD AVE. / RIVER RD.



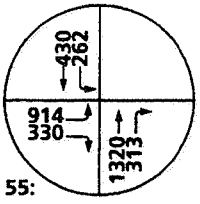
52: RIVER RD. / CORYDON ST.



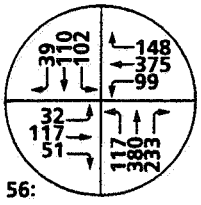
53: RIVER RD. / SECOND ST.



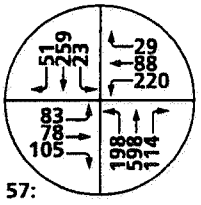
54: HAVEN AVE. / SR-60 WB RAMPS



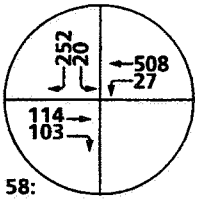
55: HAVEN AVE. / SR-60 EB RAMPS



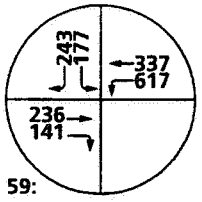
56: HAMNER AVE. / CLOVERDALE RD.



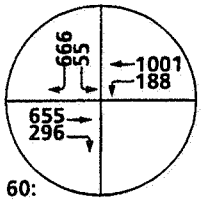
57: HAMNER AVE. / SCHLEISMAN RD.



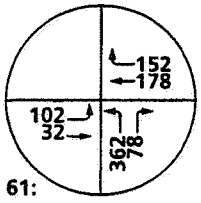
58: I-15 SB RAMPS / GALENA ST.



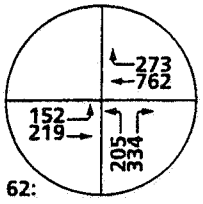
59: I-15 SB RAMPS / LIMONITE AVE.



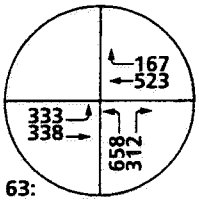
60: I-15 SB RAMPS / SECOND ST.



61: I-15 NB RAMPS / GALENA ST.



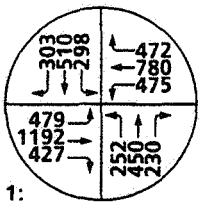
62: I-15 NB RAMPS / LIMONITE AVE.



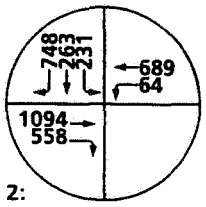
63: I-15 NB RAMPS / SECOND ST.

EXHIBIT 5-B

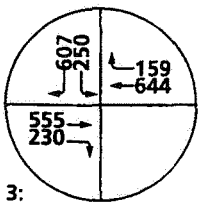
INTERIM (2010) WITHOUT PROJECT PM PEAK HOUR INTERSECTION VOLUMES (PART 1/2)



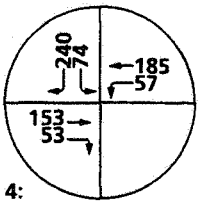
1: PIPELINE AVE. / CHINO HILLS PKWY.



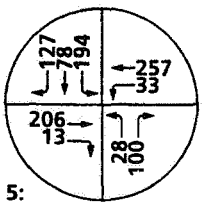
2: SR-71 SB RAMPS / CHINO HILLS PKWY.



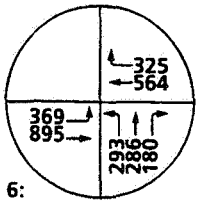
3: SR-71 SB RAMPS / SOQUEL CANYON PKWY.



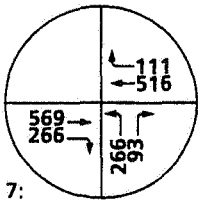
4: SR-71 SB RAMPS / PINE AVE.



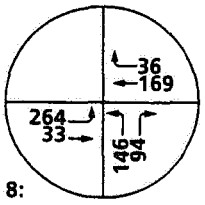
5: SR-71 SB RAMPS / EUCLID AVE.



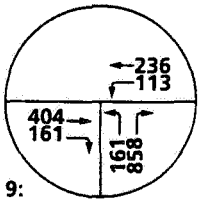
6: SR-71 NB RAMPS / CHINO HILLS PKWY.



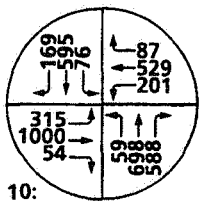
7: SR-71 NB RAMPS / SOQUEL CANYON PKWY.



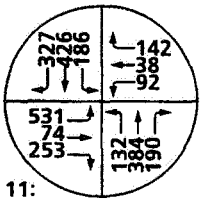
8: SR-71 NB RAMPS / PINE AVE.



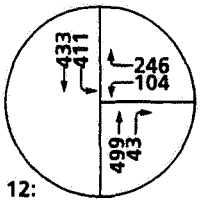
9: SR-71 NB RAMPS / EUCLID AVE.



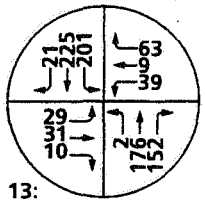
10: CENTRAL AVE. / EDISON AVE.



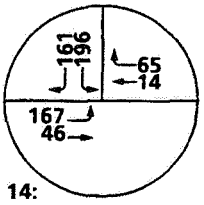
11: CENTRAL AVE. / CHINO HILLS PKWY.



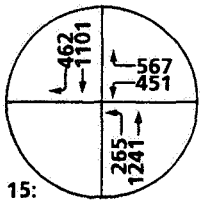
12: CENTRAL AVE. / EL PRADO RD.



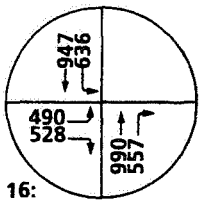
13: EL PRADO RD. / KIMBALL AVE.



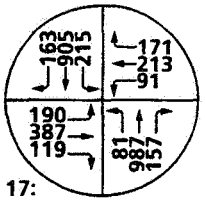
14: EL PRADO RD. / PINE AVE.



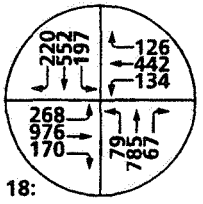
15: MOUNTAIN AVE. / SR-60 WB RAMPS



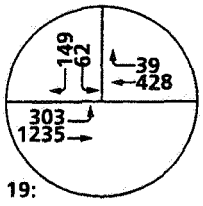
16: MOUNTAIN AVE. / SR-60 EB RAMPS



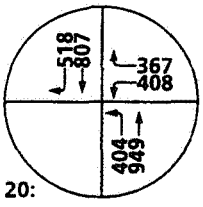
17: MOUNTAIN AVE. / WALNUT AVE.



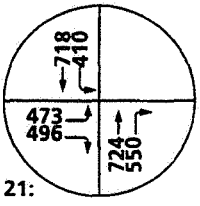
18: MOUNTAIN AVE. / RIVERSIDE DR.



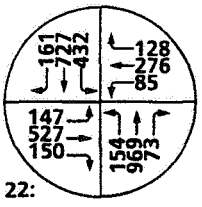
19: MOUNTAIN AVE. / EDISON AVE.



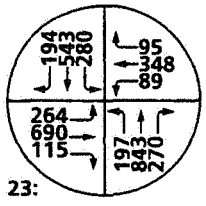
20: EUCLID AVE. / SR-60 WB RAMPS



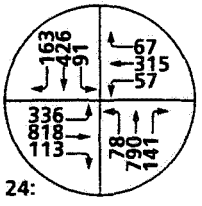
21: EUCLID AVE. / SR-60 EB RAMPS



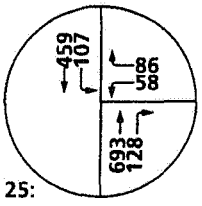
22: EUCLID AVE. / WALNUT AVE.



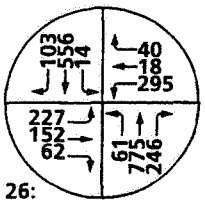
23: EUCLID AVE. / RIVERSIDE DR.



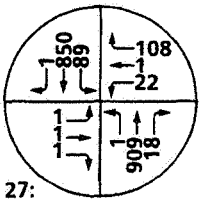
24: EUCLID AVE. / EDISON AVE.



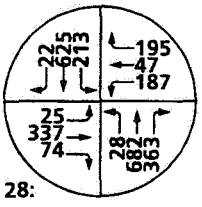
25: EUCLID AVE. / MERRILL AVE.



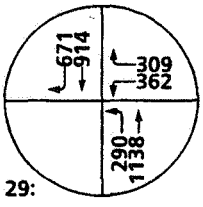
26: EUCLID AVE. / KIMBALL AVE.



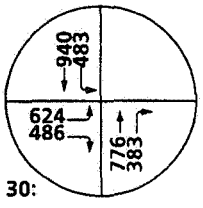
27: EUCLID AVE. / BICKMORE AVE.



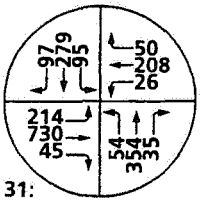
28: EUCLID AVE. / PINE AVE.



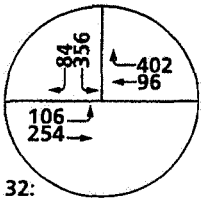
29: GROVE AVE. / SR-60 WB RAMPS



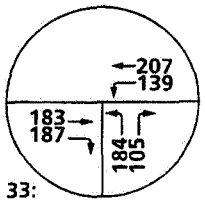
30: GROVE AVE. / SR-60 EB RAMPS



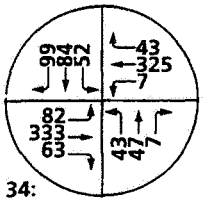
31: GROVE AVE. / EDISON AVE.



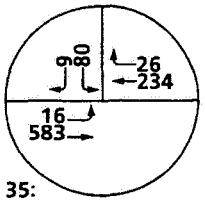
32: GROVE AVE. / MERRILL AVE.



33: GROVE AVE. / KIMBALL AVE.



34: GROVE AVE. / BICKMORE AVE.



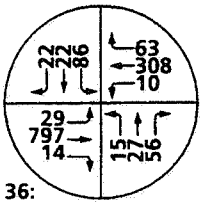
35: GROVE AVE. / PINE AVE.

N

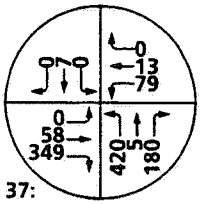
URBAN CROSSROADS

EXHIBIT 5-B

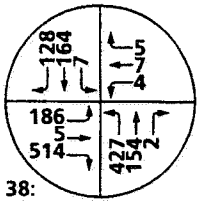
INTERIM (2010) WITHOUT PROJECT PM PEAK HOUR INTERSECTION VOLUMES (PART 2/2)



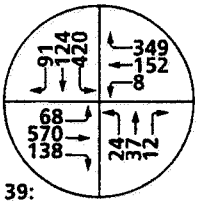
36: WALKER AVE. / EDISON AVE.



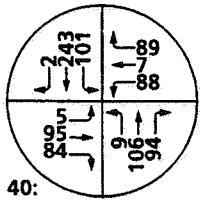
37: HELLMAN AVE. / MERRILL AVE.



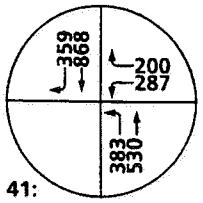
38: HELLMAN AVE. / KIMBALL AVE.



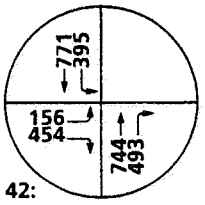
39: HELLMAN AVE. / PINE AVE.



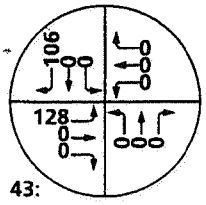
40: HELLMAN AVE. / CHANDLER ST.



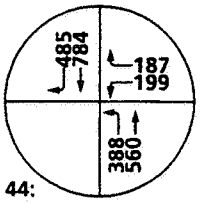
41: VINEYARD AVE. / SR-60 WB RAMPS



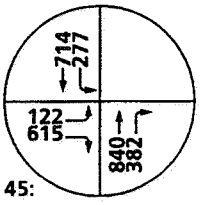
42: VINEYARD AVE. / SR-60 EB RAMPS



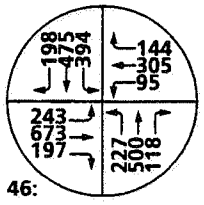
43: VINEYARD AVE. EDISON AVE.



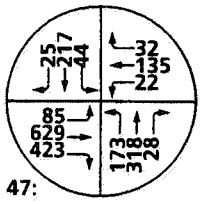
44: ARCHIBALD AVE. / SR-60 WB RAMPS



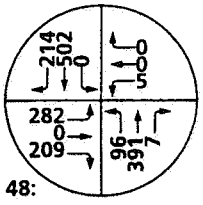
45: ARCHIBALD AVE. / SR-60 EB RAMPS



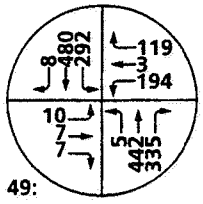
46: ARCHIBALD AVE. / RIVERSIDE DR.



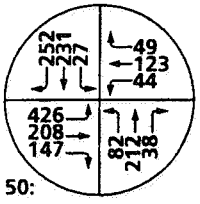
47: ARCHIBALD AVE. / EDISON AVE.



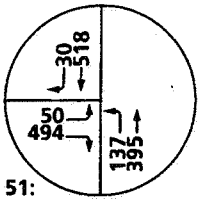
48: ARCHIBALD AVE. / MERRILL AVE.



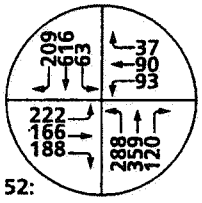
49: ARCHIBALD AVE. / CLOVERDALE RD.



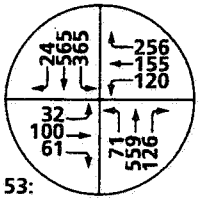
50: ARCHIBALD AVE. / PINE AVE.



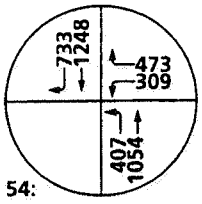
51: ARCHIBALD AVE. / RIVER RD.



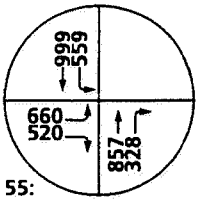
52: RIVER RD. / CORYDON ST.



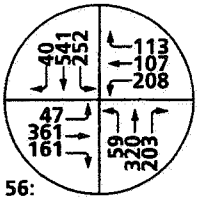
53: RIVER RD. / SECOND ST.



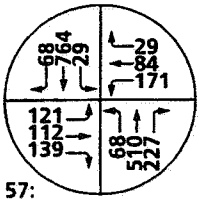
54: HAVEN AVE. / SR-60 WB RAMPS



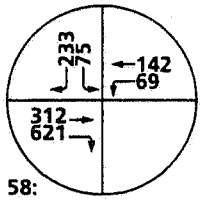
55: HAVEN AVE. / SR-60 EB RAMPS



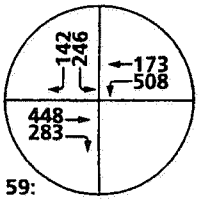
56: HAMNER AVE. / CLOVERDALE RD.



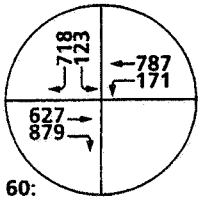
57: HAMNER AVE. / SCHLEISMAN RD.



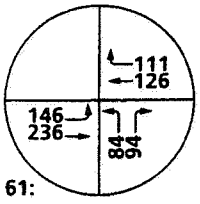
58: I-15 SB RAMPS / GALENA ST.



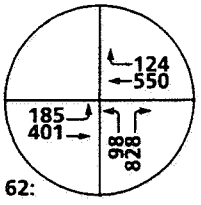
59: I-15 SB RAMPS / LIMONITE AVE.



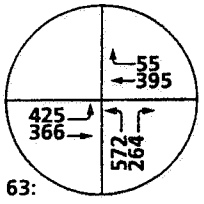
60: I-15 SB RAMPS / SECOND ST.



61: I-15 NB RAMPS / GALENA ST.



62: I-15 NB RAMPS / LIMONITE AVE.



63: I-15 NB RAMPS / SECOND ST.

N

URBAN CROSSROADS

Euclid Avenue (NS) at:

- SR-60 Freeway Eastbound Ramps (EW)
- Bickmore Avenue (EW)

Grove Avenue (NS) at:

- Edison Street (EW)
- Bickmore Avenue (EW)

Walker Avenue (NS) at:

- Edison Avenue (EW)

Hellman Avenue (NS) at:

- Pine Avenue (EW)

Archibald Avenue (NS) at:

- River Road (EW)
- Merrill Avenue (EW)

Hamner Avenue (NS) at:

- Schleisman Road (EW)

I-15 Freeway Southbound Ramps (NS) at:

- Second Street (EW)

I-15 Freeway Northbound Ramps (NS) at:

- Second Street (EW)

5.1.2 2010 With Project Conditions

The intersection operations analysis for 2010 with project traffic conditions with existing geometrics are summarized in Table 5-2. 2010 with project AM and PM peak hour intersection turning movement volumes are shown on Exhibits 5-C and 5-D, respectively. The operations analysis worksheets for 2010 with project conditions are included in Appendix "F". As shown in Table 5-2, the following study area intersections are projected to experience Level of Service "E" or "F" during peak hours and are, therefore, deficient per the City of Chino criteria:

Pipeline Avenue (NS) at:

- Chino Hills Parkway (EW)

Central Avenue (NS) at:

- El Prado Road (EW)

El Prado Road (NS) at:

- Kimball Avenue (EW)
- Pine Avenue (EW)

Mountain Avenue (NS) at:

- SR-60 Freeway Eastbound Ramps (EW)
- Walnut Avenue (EW)

Euclid Avenue (NS) at:

- SR-60 Freeway Eastbound Ramps (EW)
- Kimball Avenue (EW)
- Bickmore Avenue (EW)

TABLE 5-2

2010 WITH PROJECT CONDITIONS INTERSECTION ANALYSIS

INTERSECTION	TRAFFIC CONTROL[3]	INTERSECTION APPROACH LANES[1] NORTH-BOUND L	NORTH-BOUND T	NORTH-BOUND R	SOUTH-BOUND L	SOUTH-BOUND T	SOUTH-BOUND R	EAST-BOUND L	EAST-BOUND T	EAST-BOUND R	WEST-BOUND L	WEST-BOUND T	WEST-BOUND R	DELAY[2] (SECS.) AM	DELAY[2] (SECS.) PM	LEVEL OF SERVICE AM	LEVEL OF SERVICE PM
Pipeline Ave. (NS) at:																	
• Chino Hills Pkwy. (EW)	TS	1	2	0	1	2	0	1	3	1	1	2	1	51.1	82.4	D	F
SR-71 Fwy. SB Ramps (NS) at:																	
• Chino Hills Pkwy. (EW)	TS	0	0	0	1.5	0.5	1>>	0	4	1	1	2	0	27.9	14.4	C	B
• Soquel Canyon Pkwy. (EW)	TS	0	0	0	1.5	0	0.5	0	3	1>>	0	3	1>>	6.5	13.5	A	B
• Pine Ave. (EW)	TS	0	0	0	1.5	0	0.5	0	1	1	1	2	0	21.8	23.1	C	C
• Euclid Ave. (EW)	TS	1	0	1	1.5	0.5	1	0	2	1	1	2	0	18.3	17.3	B	B
SR-71 Fwy. NB Ramps (NS) at:																	
• Chino Hills Pkwy. (EW)	TS	1.5	1.5	0	0	0	0	2	2	0	0	2	1	15.4	13.9	B	B
• Soquel Canyon Pkwy. (EW)	TS	1.5	0	0.5	0	0	0	0	3	1>>	0	3	1>>	11.4	10.4	B	B
• Pine Ave. (EW)	AWS	1	0	1	0	0	0	1	1	0	0	1	1	14.1	12.9	B	B
• Euclid Ave. (EW)	TS	2	0	1>>	0	0	0	0	2	1>>	1	2	0	12.1	18.1	B	B
Central Ave. (NS) at:																	
• Edison Ave. (EW)	TS	1	2	1	1	2	1	1	2	0	1	2	1	44.1	50.8	D	D
• Chino Hills Pkwy. (EW)	TS	1	2	1	1	2	1	1.5	0.5	1	1	2	1	17.2	25.4	B	C
• El Prado Rd. (EW)	CSS	0	1	1	1	2	0	0	0	0	1	0	1	--[4]	--[4]	F	F
El Prado Rd. (NS) at:																	
• Kimball Ave. (EW)	CSS	1	1	0	1	1	1	1	1	0	1	1	0	32.2	67.0	D	F
• Pine Ave. (EW)	CSS	0	0	0	0	1	0	0	1	0	0	1	0	21.1	80.5	C	F
Mountain Ave. (NS) at:																	
• SR-60 Fwy. WB Ramps (EW)	TS	1	2	0	0	2	1	0	0	0	1	0	1	44.7	37.5	D	D
• SR-60 Fwy. EB Ramps (EW)	TS	0	2	1	1	2	0	1.5	0	0.5	0	0	.0	37.8	--[4]	D	F
• Walnut Ave. (EW)	TS	1	2	1	1	2	1	1	1	1	1	1	1	--[4]	29.1	F	C
• Riverside Dr. (EW)	TS	1	2	0	1	2	1	1	2	1	1	2	1	47.4	46.1	D	D
• Edison St. (EW)	TS	0	0	0	1	0	1	1	2	0	0	2	1	16.3	15.4	B	B
Euclid Ave. (NS) at:																	
• SR-60 Fwy. WB Ramps (EW)	TS	1	2	0	0	2	1	0	0	0	1.5	0	0.5	46.1	47.6	D	D
• SR-60 Fwy. EB Ramps (EW)	TS	0	2	1	1	2	0	1.5	0	0.5	0	0	0	34.9	--[4]	C	F
• Walnut Ave. (EW)	TS	1	3	1	2	3	1	1	2	0	1	2	0	21.6	23.5	C	C
• Riverside Dr. (EW)	TS	1	2	1	1	2	1	0	2	0	0	2	0	32.1	42.7	C	D
• Edison St. (EW)	TS	1	2	1	1	2	1	1	1	1	1	1	0	39.5	40.1	D	D
• Merrill Ave. (EW)	TS	0	2	1	1	2	0	0	0	0	0	1	0	19.2	12.1	B	B
• Kimball Ave. (EW)	TS	1	2	1	1	2	1	0	1	0	0	1	0	41.9	--[4]	D	F
• Bickmore Ave. (EW)	CSS	1	1	0	1	1	0	0	1	0	0	1	0	--[4]	--[4]	F	F
• Pine Ave. (EW)	TS	1	2	1	1	2	1	0	1	1	0	1	1	51.3	37.6	D	D

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.
L = Left; T = Through; R = Right; >> = Free Right Turn

[2] Delay and level of service calculated using the following analysis software: Traffix, Version 7.5.1015 (2000). Per the 1997 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[3] TS = Traffic Signal
AWS = All Way Stop
CSS = Cross Street Stop

[4] -- = Delay High, Intersection Unstable, Level of Service "F".

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TABLE 5-2 (CONTINUED)

2010 WITH PROJECT CONDITIONS INTERSECTION ANALYSIS

INTERSECTION	TRAFFIC CONTROL[3]	INTERSECTION APPROACH LANES[1] NORTH-BOUND			SOUTH-BOUND			EAST-BOUND			WEST-BOUND			DELAY[2] (SECS.)		LEVEL OF SERVICE	
		L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
Grove Ave. (NS) at:																	
• SR-60 Fwy. WB Ramps (EW)	TS	1	2	0	0	2	1	0	0	0	1	0	1	42.4	30.3	D	C
• SR-60 Fwy. EB Ramps (EW)	TS	0	2	1	1	2	0	1	0	1	0	0	0	41.5	52.5	D	D
• Edison St. (EW)	AWS	0	1	0	0	1	0	0	1	0	0	1	0	--[4]	--[4]	F	F
• Merrill Ave. (EW)	AWS	0	0	0	0	1	0	0	1	0	0	1	0	18.9	36.3	C	E
• Kimball Ave. (EW)	AWS	0	1	0	0	0	0	0	1	0	0	1	0	--[4]	--[4]	F	F
• Bickmore Ave. (EW)	CSS	0	1	0	0	1	0	0	1	0	0	1	0	72.5	--[4]	F	F
• Pine Ave. (EW)	CSS	0	0	0	0	1	0	1	1	0	0	1	0	76.4	--[4]	F	F
Walker Ave. (NS) at:																	
• Edison Ave. (EW)	CSS	0	1	0	0	1	0	0	1	0	0	1	0	77.9	--[4]	F	F
Hellman Ave. (NS) at:																	
• Merrill Ave. (EW)	TS	1	0	1	0	0	0	0	1	0	1	1	0	35.7	40.6	D	D
• Kimball Ave. (EW)	TS	1	1	0	0	1	0	1	0	1	0	0	0	48.5	--[4]	D	F
• Pine Ave. (EW)	CSS	0	1	0	0	1	0	0	1	0	0	1	0	--[4]	--[4]	F	F
• Chandler St. (EW)	CSS	0	1	0	0	1	0	0	1	0	0	1	0	--[4]	--[4]	F	F
Vineyard Ave. (NS) at:																	
• SR-60 Fwy. WB Ramps (EW)	TS	1	1	0	0	2	0	0	0	0	1	0	1	31.6	32.3	C	C
• SR-60 Fwy. EB Ramps (EW)	TS	0	2	0	1	2	0	1	0	1	0	0	0	27.5	41.3	C	D
Archibald Ave. (NS) at:																	
• SR-60 Fwy. WB Ramps (EW)	TS	1	3	0	0	4	0	0	0	0	1	0	1	25.0	15.6	C	B
• SR-60 Fwy. EB Ramps (EW)	TS	0	4	0	1	3	0	1	0	1	0	0	0	17.3	22.9	B	C
• Riverside Dr. (EW)	TS	1	3	0	1	3	0	1	2	1	1	1	1	45.9	52.3	D	D
• Edison Ave. (EW)	TS	1	2	1	1	2	1	1	2	0	1	2	0	40.7	35.5	D	D
• Merrill Ave. (EW)	CSS	1	1	0	0	1	0	0	1	0	0	0	0	--[4]	--[4]	F	F
• Cloverdale Rd. (EW)	TS	0	1	0	1	1	0	0	0	0	1	0	1	28.5	30.6	C	C
• Pine Ave. (EW)	TS	1	1	0	1	1	0	1	1	0	1	1	0	67.8	69.5	E	E
• River Rd. (EW)	CSS	1	1	0	0	1	1	1	0	1	0	0	0	--[4]	--[4]	F	F
River Rd. (NS) at:																	
• Corydon St. (EW)	TS	1	1	1	1	2	0	1	1	1	1	1	1	44.4	43.9	D	D
• Second St. (EW)	TS	1	2	1	1	2	1	1	1	1	1	1	0	33.0	31.3	C	C
Haven Ave. (NS) at:																	
• SR-60 Fwy. WB Ramps (EW)	TS	2	3	0	0	3	1	0	0	0	1	0	1>>	13.0	11.7	B	B
• SR-60 Fwy. EB Ramps (EW)	TS	0	3	0	2	3	0	2	0	1	0	0	0	30.5	33.1	C	C
Hamner Ave. (NS) at:																	
• Cloverdale Rd. (EW)	TS	1	1	1	1	1	1	0	1	1	0	1	1	58.7	--[4]	E	F
• Schleisman Rd. (EW)	CSS	1	1	0	1	1	0	0	1	0	0	1	0	--[4]	--[4]	F	F
I-15 Fwy. SB Ramps (NS) at:																	
• Galena St. (EW)	TS	0	0	0	1	0	1	0	2	1	1	2	0	35.8	19.8	D	B
• Limonite Ave. (EW)	TS	0	0	0	1	0	1	0	2	1	1	2	0	36.8	38.4	D	D
• Second St. (EW)	TS	0	0	0	1	0	1	0	2	0	1	2	0	35.6	--[4]	D	F
I-15 Fwy. NB Ramps (NS) at:																	
• Galena St. (EW)	TS	1	0	1	0	0	0	1	2	0	0	2	1	16.0	12.6	B	B
• Limonite Ave. (EW)	TS	0.5	0	1.5	0	0	0	1	2	0	0	2	1	20.4	21.1	C	C
• Second St. (EW)	TS	1	0	1	0	0	0	1	1	0	0	1	0	--[4]	53.2	F	D

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.
L = Left; T = Through; R = Right; >> = Free Right Turn

[2] Delay and level of service calculated using the following analysis software: Traffix, Version 7.5.1015 (2000). Per the 1997 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[3] TS = Traffic Signal
AWS = All Way Stop
CSS = Cross Street Stop

[4] -- = Delay High, Intersection Unstable, Level of Service "F".

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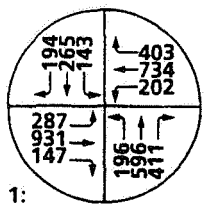
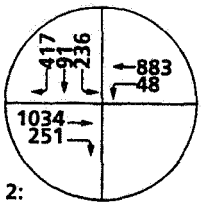
EXHIBIT 5-C

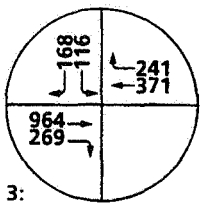
INTERIM 2010 WITH PROJECT AM PEAK HOUR INTERSECTION VOLUMES (PART 1/2)



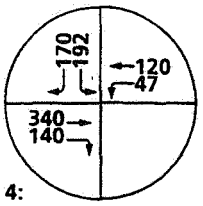
1: PIPELINE AVE. / CHINO HILLS PKWY.



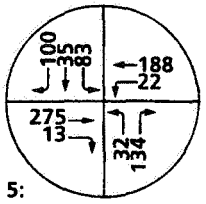
2: SR-71 SB RAMPS / CHINO HILLS PKWY.



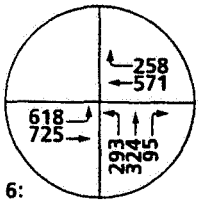
3: SR-71 SB RAMPS / SOQUEL CANYON PKWY.



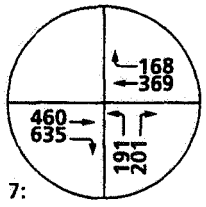
4: SR-71 SB RAMPS / PINE AVE.



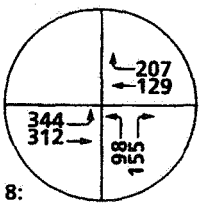
5: SR-71 SB RAMPS / EUCLID AVE.



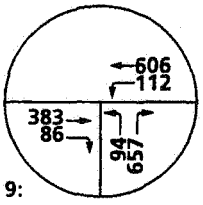
6: SR-71 NB RAMPS / CHINO HILLS PKWY.



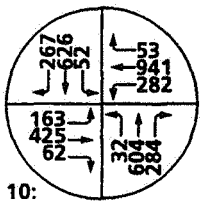
7: SR-71 NB RAMPS / SOQUEL CANYON PKWY.



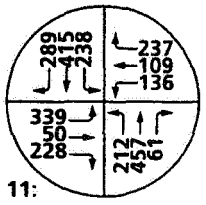
8: SR-71 NB RAMPS / PINE AVE.



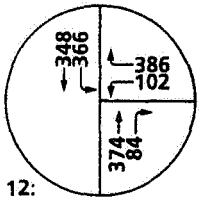
9: SR-71 NB RAMPS / EUCLID AVE.



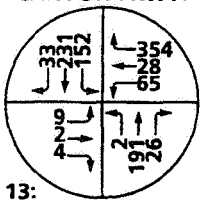
10: CENTRAL AVE. / EDISON AVE.



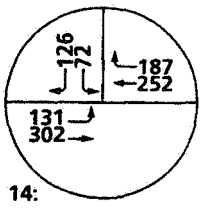
11: CENTRAL AVE. / CHINO HILLS PKWY.



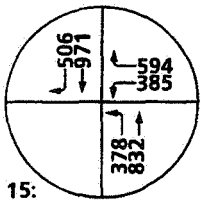
12: CENTRAL AVE. / EL PRADO RD.



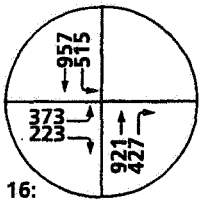
13: EL PRADO RD. / KIMBALL AVE.



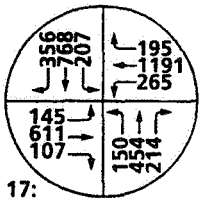
14: EL PRADO RD. / PINE AVE.



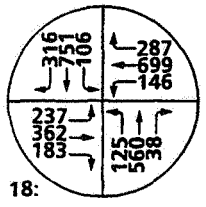
15: MOUNTAIN AVE. / SR-60 WB RAMPS



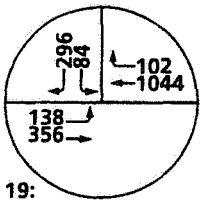
16: MOUNTAIN AVE. / SR-60 EB RAMPS



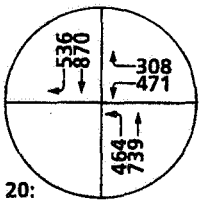
17: MOUNTAIN AVE. / WALNUT AVE.



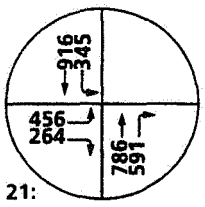
18: MOUNTAIN AVE. / RIVERSIDE DR.



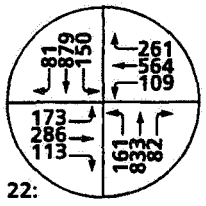
19: MOUNTAIN AVE. / EDISON AVE.



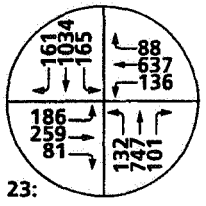
20: EUCLID AVE. / SR-60 WB RAMPS



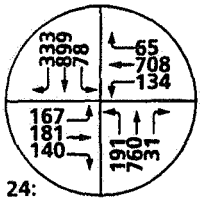
21: EUCLID AVE. / SR-60 EB RAMPS



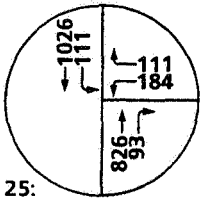
22: EUCLID AVE. / WALNUT AVE.



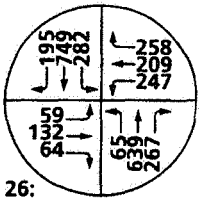
23: EUCLID AVE. / RIVERSIDE DR.



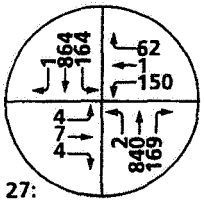
24: EUCLID AVE. / EDISON AVE.



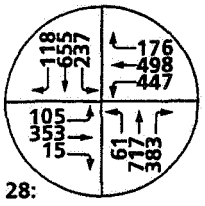
25: EUCLID AVE. / MERRILL AVE.



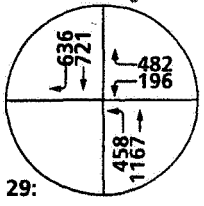
26: EUCLID AVE. / KIMBALL AVE.



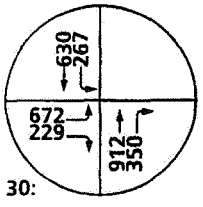
27: EUCLID AVE. / BICKMORE AVE.



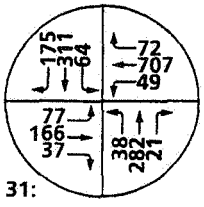
28: EUCLID AVE. / PINE AVE.



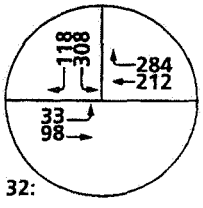
29: GROVE AVE. / SR-60 WB RAMPS



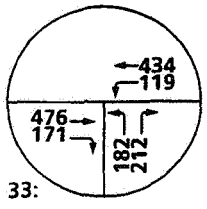
30: GROVE AVE. / SR-60 EB RAMPS



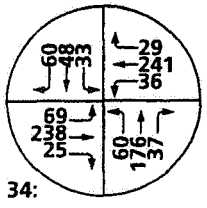
31: GROVE AVE. / EDISON AVE.



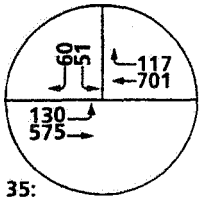
32: GROVE AVE. / MERRILL AVE.



33: GROVE AVE. / KIMBALL AVE.



34: GROVE AVE. / BICKMORE AVE.



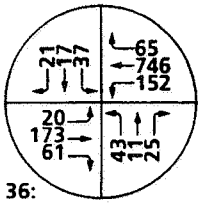
35: GROVE AVE. / PINE AVE.

N

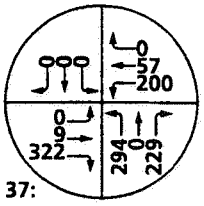
URBAN CROSSROADS

EXHIBIT 5-C

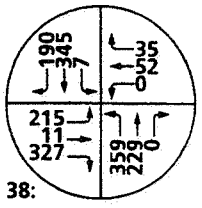
INTERIM 2010 WITH PROJECT AM PEAK HOUR INTERSECTION VOLUMES (PART 2/2)



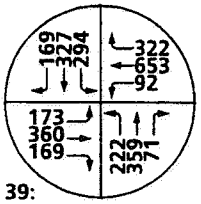
36: WALKER AVE. / EDISON AVE.



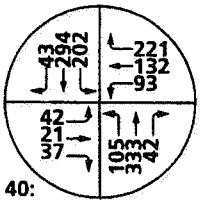
37: HELLMAN AVE. / MERRILL AVE.



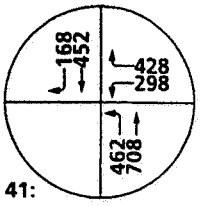
38: HELLMAN AVE. / KIMBALL AVE.



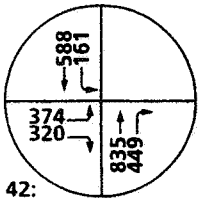
39: HELLMAN AVE. / PINE AVE.



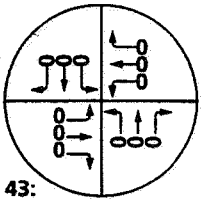
40: HELLMAN AVE. / CHANDLER ST.



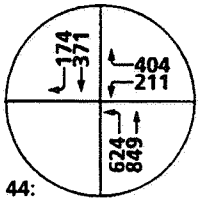
41: VINEYARD AVE. / SR-60 WB RAMPS



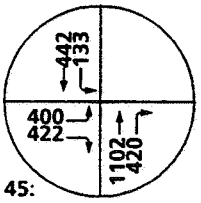
42: VINEYARD AVE. / SR-60 EB RAMPS



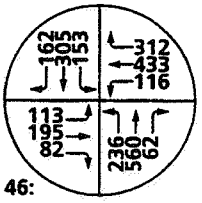
43: VINEYARD AVE. EDISON AVE.



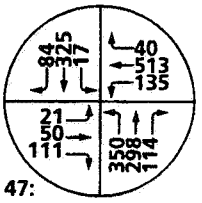
44: ARCHIBALD AVE. / SR-60 WB RAMPS



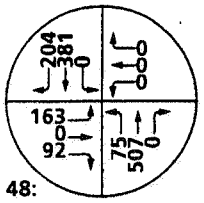
45: ARCHIBALD AVE. / SR-60 EB RAMPS



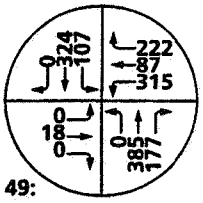
46: ARCHIBALD AVE. / RIVERSIDE DR.



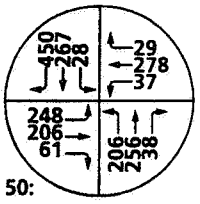
47: ARCHIBALD AVE. / EDISON AVE.



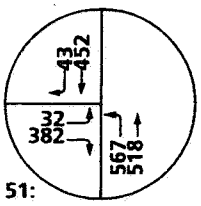
48: ARCHIBALD AVE. / MERRILL AVE.



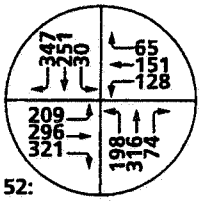
49: ARCHIBALD AVE. / CLOVERDALE RD.



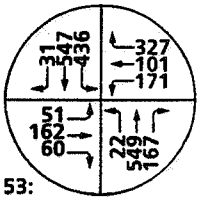
50: ARCHIBALD AVE. / PINE AVE.



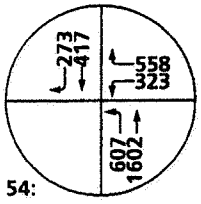
51: ARCHIBALD AVE. / RIVER RD.



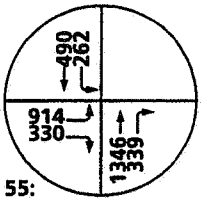
52: RIVER RD. / CORYDON ST.



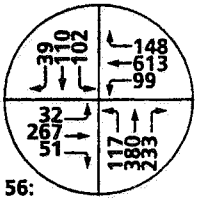
53: RIVER RD. / SECOND ST.



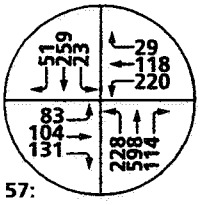
54: HAVEN AVE. / SR-60 WB RAMPS



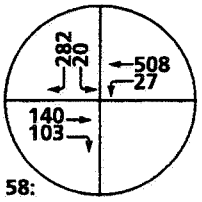
55: HAVEN AVE. / SR-60 EB RAMPS



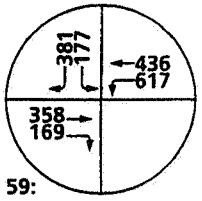
56: HAMNER AVE. / CLOVERDALE RD.



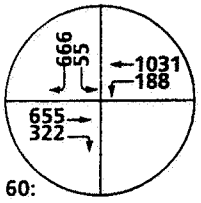
57: HAMNER AVE. / SCHLEISMAN RD.



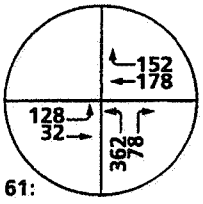
58: I-15 SB RAMPS / GALENA ST.



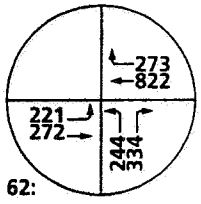
59: I-15 SB RAMPS / LIMONITE AVE.



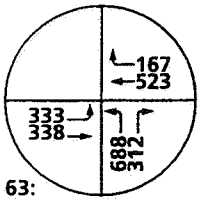
60: I-15 SB RAMPS / SECOND ST.



61: I-15 NB RAMPS / GALENA ST.



62: I-15 NB RAMPS / LIMONITE AVE.



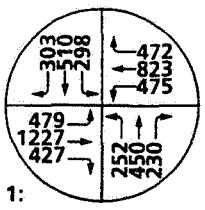
63: I-15 NB RAMPS / SECOND ST.

N

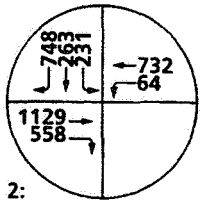
URBAN CROSSROADS

EXHIBIT 5-D

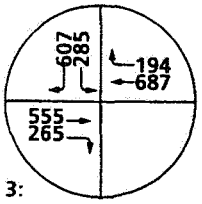
INTERIM (2010) WITH PROJECT PM PEAK HOUR INTERSECTION VOLUMES (PART 1/2)



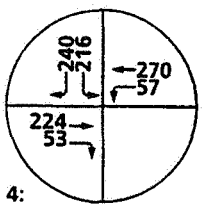
1: PIPELINE AVE. / CHINO HILLS PKWY.



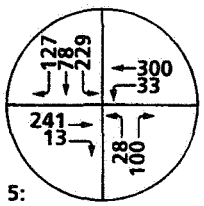
2: SR-71 SB RAMPS / CHINO HILLS PKWY.



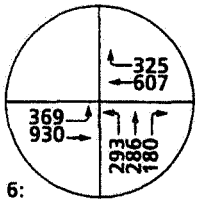
3: SR-71 SB RAMPS / SOQUEL CANYON PKWY.



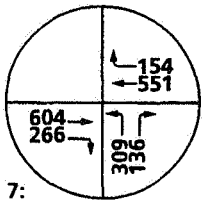
4: SR-71 SB RAMPS / PINE AVE.



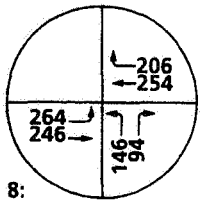
5: SR-71 SB RAMPS / EUCLID AVE.



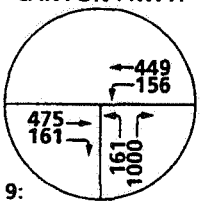
6: SR-71 NB RAMPS / CHINO HILLS PKWY.



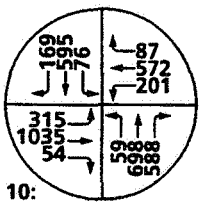
7: SR-71 NB RAMPS / SOQUEL CANYON PKWY.



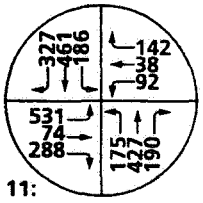
8: SR-71 NB RAMPS / PINE AVE.



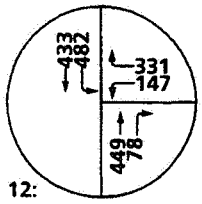
9: SR-71 NB RAMPS / EUCLID AVE.



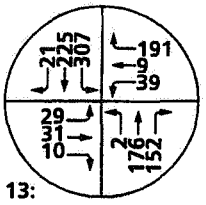
10: CENTRAL AVE. / EDISON AVE.



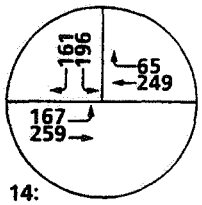
11: CENTRAL AVE. / CHINO HILLS PKWY.



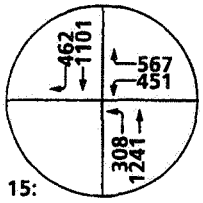
12: CENTRAL AVE. / EL PRADO RD.



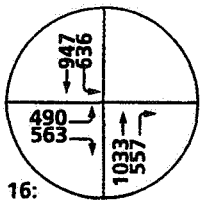
13: EL PRADO RD. / KIMBALL AVE.



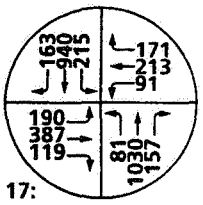
14: EL PRADO RD. / PINE AVE.



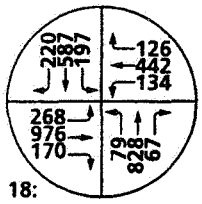
15: MOUNTAIN AVE. / SR-60 WB RAMPS



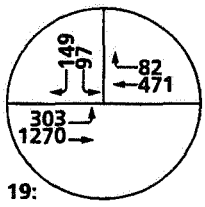
16: MOUNTAIN AVE. / SR-60 EB RAMPS



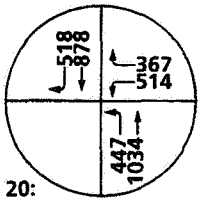
17: MOUNTAIN AVE. / WALNUT AVE.



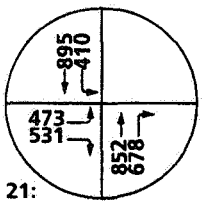
18: MOUNTAIN AVE. / RIVERSIDE DR.



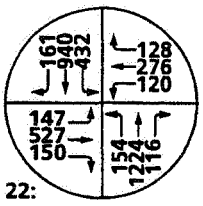
19: MOUNTAIN AVE. / EDISON AVE.



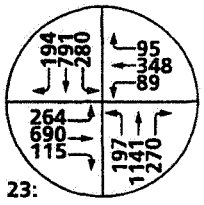
20: EUCLID AVE. / SR-60 WB RAMPS



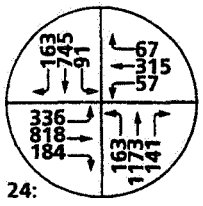
21: EUCLID AVE. / SR-60 EB RAMPS



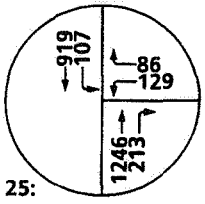
22: EUCLID AVE. / WALNUT AVE.



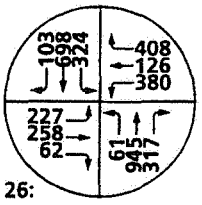
23: EUCLID AVE. / RIVERSIDE DR.



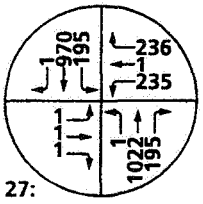
24: EUCLID AVE. / EDISON AVE.



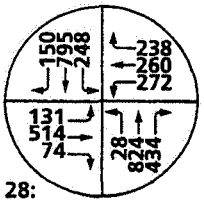
25: EUCLID AVE. / MERRILL AVE.



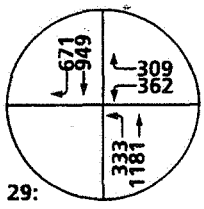
26: EUCLID AVE. / KIMBALL AVE.



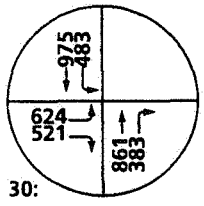
27: EUCLID AVE. / BICKMORE AVE.



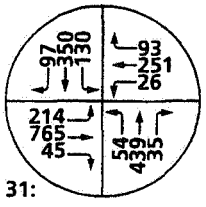
28: EUCLID AVE. / PINE AVE.



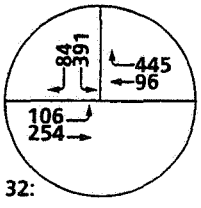
29: GROVE AVE. / SR-60 WB RAMPS



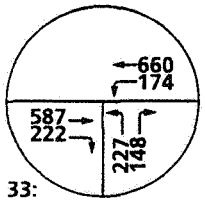
30: GROVE AVE. / SR-60 EB RAMPS



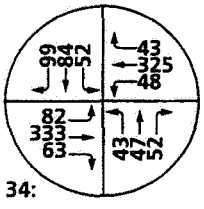
31: GROVE AVE. / EDISON AVE.



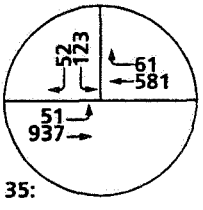
32: GROVE AVE. / MERRILL AVE.



33: GROVE AVE. / KIMBALL AVE.



34: GROVE AVE. / BICKMORE AVE.



35: GROVE AVE. / PINE AVE.

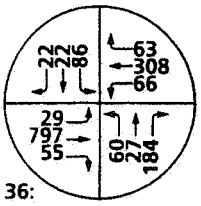
N

CHINO SUBAREA 2, Chino, California - 00020:82

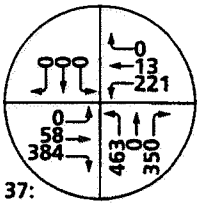
URBAN CROSSROADS

EXHIBIT 5-D

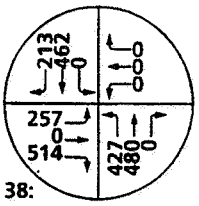
INTERIM (2010) WITH PROJECT PM PEAK HOUR INTERSECTION VOLUMES (PART 2/2)



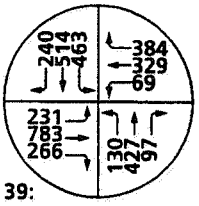
36: WALKER AVE. / EDISON AVE.



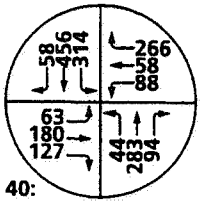
37: HELLMAN AVE. / MERRILL AVE.



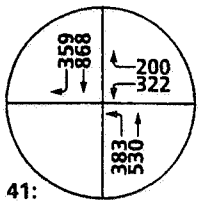
38: HELLMAN AVE. / KIMBALL AVE.



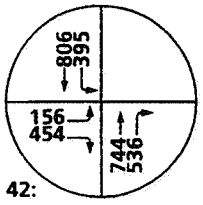
39: HELLMAN AVE. / PINE AVE.



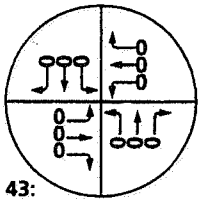
40: HELLMAN AVE. / CHANDLER ST.



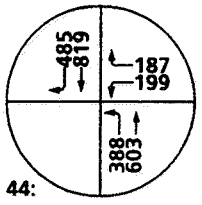
41: VINEYARD AVE. / SR-60 WB RAMPS



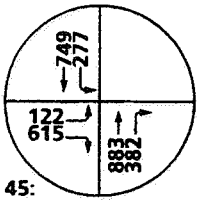
42: VINEYARD AVE. / SR-60 EB RAMPS



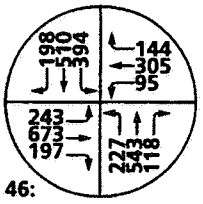
43: VINEYARD AVE. EDISON AVE.



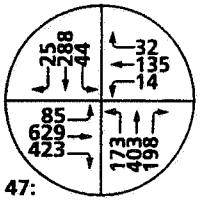
44: ARCHIBALD AVE. / SR-60 WB RAMPS



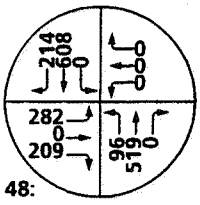
45: ARCHIBALD AVE. / SR-60 EB RAMPS



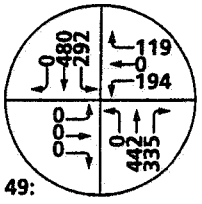
46: ARCHIBALD AVE. / RIVERSIDE DR.



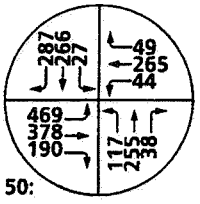
47: ARCHIBALD AVE. / EDISON AVE.



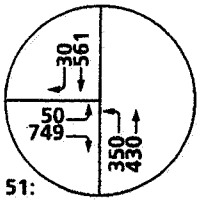
48: ARCHIBALD AVE. / MERRILL AVE.



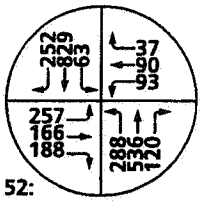
49: ARCHIBALD AVE. / CLOVERDALE RD.



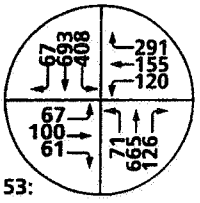
50: ARCHIBALD AVE. / PINE AVE.



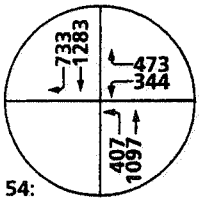
51: ARCHIBALD AVE. / RIVER RD.



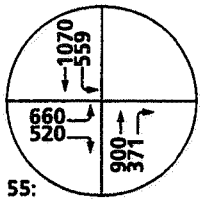
52: RIVER RD. / CORYDON ST.



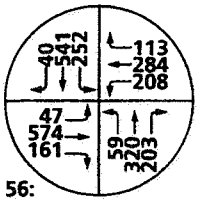
53: RIVER RD. / SECOND ST.



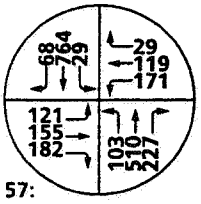
54: HAVEN AVE. / SR-60 WB RAMPS



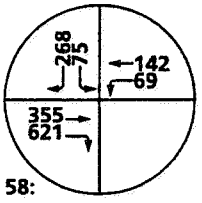
55: HAVEN AVE. / SR-60 EB RAMPS



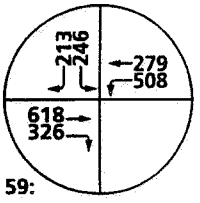
56: HAMNER AVE. / CLOVERDALE RD.



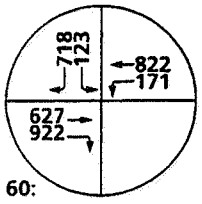
57: HAMNER AVE. / SCHLEISMAN RD.



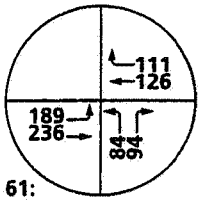
58: I-15 SB RAMPS / GALENA ST.



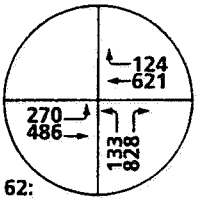
59: I-15 SB RAMPS / LIMONITE AVE.



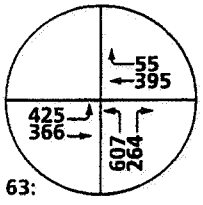
60: I-15 SB RAMPS / SECOND ST.



61: I-15 NB RAMPS / GALENA ST.



62: I-15 NB RAMPS / LIMONITE AVE.



63: I-15 NB RAMPS / SECOND ST.

Grove Avenue (NS) at:

- Edison Street (EW)
- Merrill Avenue (EW)
- Kimball Avenue (EW)
- Bickmore Avenue (EW)
- Pine Avenue (EW)

Walker Avenue (NS) at:

- Edison Avenue (EW)

Hellman Avenue (NS) at:

- Kimball Avenue (EW)
- Pine Avenue (EW)
- Chandler Street (EW)

Archibald Avenue (NS) at:

- Merrill Avenue (EW)
- Pine Avenue (EW)
- River Road (EW)

Hamner Avenue (NS) at;

- Cloverdale Road (EW)
- Schleisman Road (EW)

I-15 Freeway Southbound Ramps (NS) at:

- Second Street (EW)

I-15 Freeway Northbound Ramps (NS) at:

- Second Street (EW)

The intersection operations analysis for Interim 2010 with project traffic conditions with improvements are summarized in Table 5-3. Improvements presented in Table 5-3 include both funded improvements (see Section 3.4.1) and any additional improvements needed to achieve acceptable levels of service during the peak hours.

The following intersection improvements are needed for 2010 with project conditions:

Pipeline Avenue (NS) at:

- Chino Hills Parkway (EW)
  - Second eastbound left turn lane
  - Second westbound left turn lane

Central Avenue (NS) at:

- El Prado Road (EW)
  - Traffic signal

El Prado Road (NS) at:

- Kimball Road (EW)
  - Traffic signal
- Pine Avenue (EW)
  - Traffic signal
  - Eastbound left turn lane

Mountain Avenue (NS) at:

- SR-60 Freeway Eastbound Ramps (EW)
  - Second southbound left turn lane
  - Eastbound all-way lane

TABLE 5-3

2010 WITH PROJECT CONDITIONS INTERSECTION ANALYSIS WITH IMPROVEMENTS

INTERSECTION	TRAFFIC CONTROL[3]	INTERSECTION APPROACH LANES[1] NORTH-BOUND			SOUTH-BOUND			EAST-BOUND			WEST-BOUND			DELAY[2] (SECS.)		LEVEL OF SERVICE	
		L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
Pipeline Ave. (NS) at:																	
• Chino Hills Pkwy. (EW)	TS	1	2	0	1	2	0	**2**	3	1	**2**	2	1	36.7	53.2	D	D
SR-71 Fwy. SB Ramps (NS) at:																	
• Chino Hills Pkwy. (EW)	TS	0	0	0	1.5	0.5	1>>	0	4	1	1	2	0	27.9	14.4	C	B
• Soquel Canyon Pkwy. (EW)	TS	0	0	0	1.5	0	0.5	0	3	1>>	0	3	1>>	6.5	13.5	A	B
• Pine Ave. (EW)	TS	0	0	0	1.5	0	0.5	0	1	1	1	2	0	21.8	23.1	C	C
• Euclid Ave. (EW)	TS	1	0	1	1.5	0.5	1	0	2	1	1	2	0	18.3	17.3	B	B
SR-71 Fwy. NB Ramps (NS) at:																	
• Chino Hills Pkwy. (EW)	TS	1.5	1.5	0	0	0	0	2	2	0	0	2	1	15.4	13.9	B	B
• Soquel Canyon Pkwy. (EW)	TS	1.5	0	0.5	0	0	0	0	3	1>>	0	3	1>>	11.4	10.4	B	B
• Pine Ave. (EW)	AWS	1	0	1	0	0	0	1	1	0	0	1	1	14.1	12.9	B	B
• Euclid Ave. (EW)	TS	2	0	1>>	0	0	0	0	2	1>>	1	2	0	12.1	18.1	B	B
Central Ave. (NS) at:																	
• Edison Ave. (EW)	TS	1	2	1	1	2	1	1	2	0	1	2	1	44.1	50.8	D	D
• Chino Hills Pkwy. (EW)	TS	1	2	1	1	2	1	1.5	0.5	1	1	2	1	17.2	25.4	B	C
• El Prado Rd. (EW)	**TS**	0	1	1	1	2	0	0	0	0	1	0	1	37.3	43.3	D	D
El Prado Rd. (NS) at:																	
• Kimball Ave. (EW)	**TS**	1	1	0	1	1	1	1	1	0	1	1	0	21.0	21.9	C	C
• Pine Ave. (EW)	**TS**	0	0	0	0	1	0	**1**	1	0	0	1	0	16.2	25.9	B	C
Mountain Ave. (NS) at:																	
• SR-60 Fwy. WB Ramps (EW)	TS	1	2	0	0	2	1	0	0	0	1	0	1	44.7	37.5	D	D
• SR-60 Fwy. EB Ramps (EW)	TS	0	2	1	**2**	2	0	1.5	0	**1.5**	0	0	0	14.1	20.2	B	C
• Walnut Ave. (EW)	TS	1	2	1	1	2	1	1	1	1	1	**2**	1	50.4	37.2	D	D
• Riverside Dr. (EW)	TS	1	2	0	1	2	1	1	2	1	1	2	1	47.4	46.1	D	D
• Edison St. (EW)	TS	0	0	0	1	0	1	1	2	0	0	2	1	16.3	15.4	B	B
Euclid Ave. (NS) at:																	
• SR-60 Fwy. WB Ramps (EW)	TS	1	2	0	0	2	1	0	0	0	1.5	0	0.5	46.1	47.6	D	D
• SR-60 Fwy. EB Ramps (EW)	TS	0	2	**2**	1	2	0	**1**	**1**	0	0	0	0	34.0	40.1	C	D
• Walnut Ave. (EW)	TS	1	3	1	2	3	1	1	2	0	1	2	0	21.6	23.5	C	C
• Riverside Dr. (EW)	TS	1	2	1	1	2	1	0	2	0	0	2	0	32.1	42.7	C	D
• Edison St. (EW)	TS	1	2	1	1	2	1	1	1	1	1	1	0	39.5	40.1	D	D
• Merrill Ave. (EW)	TS	0	2	1	1	2	0	0	0	0	0	1	0	19.2	12.1	B	B
• Kimball Ave. (EW)	TS	1	2	1	1	2	1	**1**	1	0	**2**	1	**1**	38.5	54.6	D	D
• Bickmore Ave. (EW)	**TS**	1	**2**	0	1	**2**	0	0	1	0	0	1	0	24.0	46.4	C	D
• Pine Ave. (EW)	TS	1	2	1	1	2	1	0	1	1	0	1	1	51.3	37.6	D	D

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.
L = Left; T = Through; R = Right; >> = Free Right Turn; 1 = Improvement

[2] Delay and level of service calculated using the following analysis software: Traffix, Version 7.5.1015 (2000). Per the 1997 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[3] TS = Traffic Signal

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TABLE 5-3 (CONTINUED)

2010 WITH PROJECT CONDITIONS INTERSECTION ANALYSIS WITH IMPROVEMENTS

INTERSECTION	TRAFFIC CONTROL[3]	INTERSECTION APPROACH LANES[1] NORTH-BOUND			SOUTH-BOUND			EAST-BOUND			WEST-BOUND			DELAY[2] (SECS.)		LEVEL OF SERVICE	
		L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
Grove Ave. (NS) at:																	
• SR-60 Fwy. WB Ramps (EW)	TS	1	2	0	0	2	1	0	0	0	1	0	1	42.4	30.3	D	C
• SR-60 Fwy. EB Ramps (EW)	TS	0	2	1	1	2	0	1	0	1	0	0	0	41.5	52.5	D	D
• Edison St. (EW)	**TS**	**1**	1	0	**1**	1	0	**1**	**2**	0	**1**	**2**	0	37.0	41.1	D	D
• Merrill Ave. (EW)	AWS	0	0	0	0	1	0	**1**	1	0	0	1	0	19.7	34.3	C	D
• Kimball Ave. (EW)	**TS**	**1**	0	**1**	0	0	0	0	1	0	**1**	1	0	27.2	34.5	C	C
• Bickmore Ave. (EW)	**TS**	**1**	1	0	**1**	1	0	**1**	1	0	**1**	1	0	9.6	8.6	A	A
• Pine Ave. (EW)	**TS**	0	0	0	0	1	0	1	**2**	0	0	1	0	22.1	13.0	C	B
Walker Ave. (NS) at:																	
• Edison Ave. (EW)	**TS**	0	1	0	0	1	0	0	1	0	0	1	0	15.9	27.8	B	C
Hellman Ave. (NS) at:																	
• Merrill Ave. (EW)	TS	1	1	0	1	1	0	1	1	0	1	1	0	35.7	40.6	D	D
• Kimball Ave. (EW)	TS	1	1	0	1	**2**	0	1	1	0	1	1	0	36.0	39.5	D	D
• Pine Ave. (EW)	**TS**	**1**	**2**	0	**1**	**2**	0	**1**	**2**	0	**1**	**2**	0	51.9	54.6	D	D
• Chandler St. (EW)	**TS**	**1**	1	0	**1**	1	0	**1**	1	0	**1**	1	0	19.3	24.4	B	C
Vineyard Ave. (NS) at:																	
• SR-60 Fwy. WB Ramps (EW)	TS	1	1	0	0	2	0	0	0	0	1	0	1	31.6	32.3	C	C
• SR-60 Fwy. EB Ramps (EW)	TS	0	2	0	1	2	0	1	0	1	0	0	0	27.5	41.3	C	D
Archibald Ave. (NS) at:																	
• SR-60 Fwy. WB Ramps (EW)	TS	1	3	0	0	4	0	0	0	0	1	0	1	25.0	15.6	C	B
• SR-60 Fwy. EB Ramps (EW)	TS	0	4	0	1	3	0	1	0	1	0	0	0	17.3	22.9	B	C
• Riverside Dr. (EW)	TS	1	3	0	1	3	0	1	2	1	1	1	1	45.9	52.3	D	D
• Edison Ave. (EW)	TS	1	2	1	1	2	1	1	2	0	1	2	0	40.7	35.5	D	D
• Merrill Ave. (EW)	**TS**	1	1	0	**1**	1	0	**1**	1	0	0	1	0	20.5	32.9	C	C
• Cloverdale Rd. (EW)	TS	0	1	0	1	1	0	0	1	0	1	1	0	28.5	30.6	C	C
• Pine Ave. (EW)	TS	1	1	0	1	**2**	0	1	**2**	0	1	1	0	48.5	48.2	D	D
• River Rd. (EW)	**TS**	1	1	0	0	1	1	1	0	**1>>**	0	0	0	28.4	25.2	C	C
River Rd. (NS) at:																	
• Corydon St. (EW)	TS	1	1	1	1	2	0	1	1	1	1	1	1	44.4	43.9	D	D
• Second St. (EW)	TS	1	2	1	1	2	1	1	1	1	1	1	0	33.0	31.3	C	C
Haven Ave. (NS) at:																	
• SR-60 Fwy. WB Ramps (EW)	TS	2	3	0	0	3	1	0	0	0	1	0	1>>	13.0	11.7	B	B
• SR-60 Fwy. EB Ramps (EW)	TS	0	3	0	2	3	0	2	0	1	0	0	0	30.5	33.1	C	C
Hamner Ave. (NS) at:																	
• Cloverdale Rd. (EW)	TS	1	1	1	1	1	1	0	**2**	1	**1**	1	1	48.7	50.6	D	D
• Schleisman Rd. (EW)	**TS**	1	1	0	1	1	0	**1**	1	0	**1**	1	0	37.1	44.9	D	D
I-15 Fwy. SB Ramps (NS) at:																	
• Galena St. (EW)	TS	0	0	0	1	0	1	0	2	1	1	2	0	35.8	19.8	D	B
• Limonite Ave. (EW)	TS	0	0	0	1	0	1	0	2	1	1	2	0	36.8	38.4	D	D
• Second St. (EW)	TS	0	0	0	1	0	1	0	2	**2**	1	2	0	30.1	31.1	C	C
I-15 Fwy. NB Ramps (NS) at:																	
• Galena St. (EW)	TS	1	0	1	0	0	0	1	2	0	0	2	1	16.0	12.6	B	B
• Limonite Ave. (EW)	TS	0.5	0	1.5	0	0	0	1	2	0	0	2	1	20.4	21.1	C	C
• Second St. (EW)	TS	1	0	1	0	0	0	1	1	0	0	1	**1**	53.2	44.5	D	D

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.
L = Left; T = Through; R = Right; >> = Free Right Turn; ‡ Improvement

[2] Delay and level of service calculated using the following analysis software: Traffix, Version 7.5.1015 (2000). Per the 1997 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[3] TS = Traffic Signal

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- Walnut Avenue (EW)
  - Second westbound through lane

Euclid Avenue (NS) at:

- SR-60 Freeway Westbound Ramps (EW)
  - Westbound all-way lane
- SR-60 Freeway Eastbound Ramps (EW)
  - Second northbound right turn lane
  - Restripe eastbound all-way lane to a shared through and right turn lane
- Kimball Avenue (EW)
  - Northbound right-turn overlap phasing
  - Eastbound left turn lane
  - First and second westbound left turn lanes
  - Westbound right turn lane
- Bickmore Avenue (EW)
  - Traffic signal
  - Second northbound through lane
  - Second southbound through lane

Grove Avenue (NS) at:

- Edison Street (EW)
  - Traffic signal
  - Northbound left turn lane
  - Southbound left turn lane
  - Eastbound left turn lane
  - Second eastbound through lane
  - Westbound left turn lane
  - Second westbound through lane
- Merrill Avenue (EW)
  - Eastbound left turn lane

- Kimball Avenue (EW)
  - Traffic signal
  - Northbound left turn lane
  - Westbound left turn lane
- Bickmore Avenue (EW)
  - Traffic signal
  - Northbound left turn lane
  - Southbound left turn lane
  - Eastbound left turn lane
  - Westbound left turn lane
- Pine Avenue (EW)
  - Traffic signal
  - Second eastbound through lane

Walker Avenue (NS) at:

- Edison Street (EW)
  - Traffic signal

Hellman Avenue (NS) at:

- Kimball Avenue (EW)
  - Second southbound through lane
- Pine Avenue (EW)
  - Traffic signal
  - Northbound left turn lane
  - Second northbound through lane
  - Southbound left turn lane
  - Second southbound through lane
  - Eastbound left turn lane
  - Second eastbound through lane
  - Westbound left turn lane
  - Second westbound through lane

- Chandler Street (EW)
  - Traffic signal
  - Northbound left turn lane
  - Southbound left turn lane
  - Eastbound left turn lane
  - Westbound left turn lane

Archibald Avenue (NS) at:

- Merrill Avenue (EW)
  - Traffic signal
  - Southbound left turn lane
  - Eastbound left turn lane
- Cloverdale Road (EW)
  - Northbound left turn lane
- Pine Avenue (EW)
  - Second southbound through lane
  - Second eastbound through lane
- River Road (EW)
  - Traffic signal
  - Eastbound free-right turn lane

Hamner Avenue (NS) at:

- Cloverdale Road (EW)
  - Second eastbound through lane
  - Westbound left turn lane
- Schleisman Road (EW)
  - Traffic signal
  - Eastbound left turn lane
  - Westbound left turn lane

I-15 Freeway Southbound Ramps (NS) at:

- Second Street (EW)
  - First and second eastbound right turn lanes

I-15 Freeway Northbound Ramps (NS) at:

- Second Street (EW)
  - Westbound right turn lane

The operations analysis worksheets for Interim 2010 with project conditions (with improvements) are included in Appendix "G". As shown in Table 5-3, the study area intersections are projected to operate at Level of Service "D" or better during the peak hours, with improvements.

5.2 Future CMP Horizon 2020 Traffic Operations

5.2.1 CMP Horizon 2020 Without Project Conditions

The intersection operations analysis for 2020 without project traffic conditions with existing geometrics are summarized in Table 5-4. 2020 without project AM and PM peak hour intersection turning movement volumes are shown on Exhibits 5-E and 5-F, respectively. The operations analysis worksheets for 2020 without project conditions are included in Appendix "H". As shown in Table 5-4, the following study area intersections are projected to experience Level of Service "E" or "F" during the peak hours and are, therefore, deficient per the City of Chino criteria:

Pipeline Avenue (NS) at:

- Chino Hills Parkway (EW)

TABLE 5-4

2020 WITHOUT PROJECT CONDITIONS INTERSECTION ANALYSIS

INTERSECTION	TRAFFIC CONTROL[3]	INTERSECTION APPROACH LANES[1] NORTH-BOUND			SOUTH-BOUND			EAST-BOUND			WEST-BOUND			DELAY[2] (SECS.)		LEVEL OF SERVICE	
		L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
Pipeline Ave. (NS) at:																	
• Chino Hills Pkwy. (EW)	TS	1	2	0	1	2	0	1	3	1	1	2	1	56.6	--[4]	E	F
SR-71 Fwy. SB Ramps (NS) at:																	
• Chino Hills Pkwy. (EW)	TS	0	0	0	1.5	0.5	1>>	0	4	1	1	2	0	30.4	18.4	C	B
• Soquel Canyon Pkwy. (EW)	TS	0	0	0	1.5	0	0.5	0	3	1>>	0	3	1>>	4.7	17.3	A	B
• Pine Ave. (EW)	TS	0	0	0	1.5	0	0.5	0	1	1	1	2	0	28.7	27.4	C	C
• Euclid Ave. (EW)	TS	1	0	1	1.5	0.5	1	0	2	1	1	2	0	19.3	17.2	B	B
SR-71 Fwy. NB Ramps (NS) at:																	
• Chino Hills Pkwy. (EW)	TS	1.5	1.5	0	0	0	0	2	2	0	0	2	1	17.3	15.2	B	B
• Soquel Canyon Pkwy. (EW)	TS	1.5	0	0.5	0	0	0	0	3	1>>	0	3	1>>	10.8	10.0	B	A
• Pine Ave. (EW)	AWS	1	0	1	0	0	0	1	1	0	0	1	1	12.0	16.6	B	C
• Euclid Ave. (EW)	TS	2	0	1>>	0	0	0	0	2	1>>	1	2	0	15.9	16.7	B	B
Central Ave. (NS) at:																	
• Edison Ave. (EW)	TS	1	2	1	1	2	1	1	2	0	1	2	1	52.7	--	D	F
• Chino Hills Pkwy. (EW)	TS	1	2	1	1	2	1	1.5	0.5	1	1	2	1	27.4	30.4	C	C
• El Prado Rd. (EW)	CSS	0	1	1	1	2	0	0	0	0	1	0	1	--	--	F	F
El Prado Rd. (NS) at:																	
• Kimball Ave. (EW)	CSS	1	1	0	1	1	1	1	1	0	1	1	0	--	--	F	F
• Pine Ave. (EW)	CSS	0	0	0	0	1	0	0	1	0	0	1	0	23.0	--	C	F
Mountain Ave. (NS) at:																	
• SR-60 Fwy. WB Ramps (EW)	TS	1	2	0	0	2	1	0	0	0	1	0	1	46.9	38.3	D	D
• SR-60 Fwy. EB Ramps (EW)	TS	0	2	1	1	2	0	1.5	0	0.5	0	0	0	35.9	--	D	F
• Walnut Ave. (EW)	TS	1	2	1	1	2	1	1	1	1	1	1	1	--	29.2	F	C
• Riverside Dr. (EW)	TS	1	2	0	1	2	1	1	2	1	1	2	1	51.8	59.0	D	E
• Edison St. (EW)	TS	0	0	0	1	0	1	1	2	0	0	2	1	23.6	17.5	C	B
Euclid Ave. (NS) at:																	
• SR-60 Fwy. WB Ramps (EW)	TS	1	2	0	0	2	1	0	0	0	1.5	0	0.5	--	45.8	F	D
• SR-60 Fwy. EB Ramps (EW)	TS	0	2	1	1	2	0	1.5	0	0.5	0	0	0	35.9	--	D	F
• Walnut Ave. (EW)	TS	1	3	1	2	3	1	1	2	0	1	2	0	35.9	31.9	D	C
• Riverside Dr. (EW)	TS	1	2	1	1	2	1	0	2	0	0	2	0	36.9	--	D	F
• Edison St. (EW)	TS	1	2	1	1	2	1	1	1	1	1	1	0	--	--	F	F
• Merrill Ave. (EW)	TS	0	2	1	1	2	0	0	0	0	0	1	0	21.3	13.5	C	B
• Kimball Ave. (EW)	TS	1	2	1	1	2	1	0	1	0	0	1	0	25.5	55.8	C	E
• Bickmore Ave. (EW)	CSS	1	1	0	1	1	0	0	1	0	0	1	0	--	--	F	F
• Pine Ave. (EW)	TS	1	2	1	1	2	1	0	1	1	0	1	1	--	--	F	F

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.
L = Left; T = Through; R = Right; >> = Free Right Turn

[2] Delay and level of service calculated using the following analysis software: Traffix, Version 7.1.0607 (1999). Per the 1997 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[3] TS = Traffic Signal
AWS = All Way Stop
CSS = Cross Street Stop

[4] -- = Delay High, Intersection Unstable, Level of Service "F".

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TABLE 5-4 (CONT'D)

2020 WITHOUT PROJECT CONDITIONS INTERSECTION ANALYSIS

INTERSECTION	TRAFFIC CONTROL[3]	INTERSECTION APPROACH LANES[1]												DELAY[2] (SECS.)		LEVEL OF SERVICE	
		NORTH-BOUND			SOUTH-BOUND			EAST-BOUND			WEST-BOUND						
		L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
Grove Ave. (NS) at:																	
• SR-60 Fwy. WB Ramps (EW)	TS	1	2	0	0	2	1	0	0	0	1	0	1	--	37.1	F	D
• SR-60 Fwy. EB Ramps (EW)	TS	0	2	1	1	2	0	1	0	1	0	0	0	48.0	--[4]	D	F
• Edison St. (EW)	AWS	0	1	0	0	1	0	0	1	0	0	1	0	--	--	F	F
• Merrill Ave. (EW)	AWS	0	0	0	0	1	0	0	1	0	0	1	0	12.9	21.6	B	C
• Kimball Ave. (EW)	AWS	0	1	0	0	0	0	0	1	0	0	1	0	9.1	13.5	A	B
• Bickmore Ave. (EW)	CSS	0	1	0	0	1	0	0	1	0	0	1	0	--	--	F	F
• Pine Ave. (EW)	CSS	0	0	0	0	1	0	1	1	0	0	1	0	62.2	--	F	F
Walker Ave. (NS) at:																	
• Edison Ave. (EW)	CSS	0	1	0	0	1	0	0	1	0	0	1	0	--	--	F	F
Hellman Ave. (NS) at:																	
• Merrill Ave. (EW)	TS	1	1	0	1	1	0	1	1	0	1	1	0	31.1	40.0	C	D
• Kimball Ave. (EW)	TS	1	1	0	1	1	0	1	1	0	1	1	0	49.7	--	D	F
• Pine Ave. (EW)	CSS	0	1	0	0	1	0	0	1	0	0	1	0	--	--	F	F
• Chandler St. (EW)	CSS	0	1	0	0	1	0	0	1	0	0	1	0	--	--	F	F
Vineyard Ave. (NS) at:																	
• SR-60 Fwy. WB Ramps (EW)	TS	1	1	0	0	2	0	0	0	0	1	0	1	37.4	36.7	D	D
• SR-60 Fwy. EB Ramps (EW)	TS	0	2	0	1	2	0	1	0	1	0	0	0	28.6	--	C	F
• Edison Ave. (EW)	TS	1	1	0	1	1	0	1	2	1	1	2	1	15.3	18.5	B	B
Archibald Ave. (NS) at:																	
• SR-60 Fwy. WB Ramps (EW)	TS	1	3	0	0	4	0	0	0	0	1	0	1	24.9	14.6	C	B
• SR-60 Fwy. EB Ramps (EW)	TS	0	4	0	1	3	0	1	0	1	0	0	0	17.5	27.1	B	C
• Riverside Dr. (EW)	TS	1	3	0	1	3	0	1	2	1	1	1	1	49.6	56.2	D	E
• Edison Ave. (EW)	TS	1	2	1	1	2	1	1	2	0	1	2	0	54.9	56.3	D	E
• Merrill Ave. (EW)	CSS	1	1	0	0	1	0	0	1	0	0	1	0	--	--	F	F
• Cloverdale Rd. (EW)	TS	0	1	0	1	1	0	0	1	0	1	1	0	31.0	41.5	C	D
• Pine Ave. (EW)	TS	1	1	0	1	1	0	1	1	0	1	1	0	53.3	44.2	D	D
• River Rd. (EW)	CSS	1	1	0	0	1	1	1	0	1	0	0	0	--	--	F	F
River Rd. (NS) at:																	
• Corydon St. (EW)	TS	1	1	1	1	2	0	1	1	1	1	1	1	50.9	51.1	D	D
• Second St. (EW)	TS	1	2	1	1	2	1	1	1	1	1	1	0	34.9	31.0	C	C
Haven Ave. (NS) at:																	
• SR-60 Fwy. WB Ramps (EW)	TS	2	3	0	0	3	1	0	0	0	1	0	1>>	17.1	16.1	B	B
• SR-60 Fwy. EB Ramps (EW)	TS	0	3	0	2	3	0	2	0	1	0	0	0	36.1	--	D	F
Hamner Ave. (NS) at:																	
• Cloverdale Rd. (EW)	TS	1	1	1	1	1	1	0	1	1	0	1	1	47.0	--	D	F
• Schleisman Rd. (EW)	CSS	1	1	0	1	1	0	0	1	0	0	1	0	--	--	F	F
I-15 Fwy. SB Ramps (NS) at:																	
• Galena St. (EW)	TS	0	0	0	1	0	1	0	2	1	1	2	0	46.8	--	D	F
• Limonite Ave. (EW)	TS	0	0	0	1	0	1	0	2	1	1	2	0	36.2	41.6	D	D
• Second St. (EW)	TS	0	0	0	1	0	1	0	2	0	1	2	0	--	--	F	F
I-15 Fwy. NB Ramps (NS) at:																	
• Galena St. (EW)	TS	1	0	1	0	0	0	1	2	0	0	2	1	28.5	14.7	C	B
• Limonite Ave. (EW)	TS	0.5	0	1.5	0	0	0	1	2	0	0	2	1	17.8	19.4	B	B
• Second St. (EW)	TS	1	0	1	0	0	0	1	1	0	0	1	0	--	58.3	F	E

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.
L = Left; T = Through; R = Right; >> = Free Right Turn

[2] Delay and level of service calculated using the following analysis software: Traffix, Version 7.1.0607 (1999). Per the 1997 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

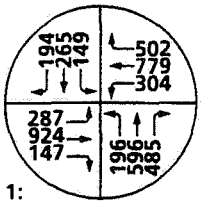
[3] TS = Traffic Signal
AWS = All Way Stop
CSS = Cross Street Stop

[4] -- = Delay High, Intersection Unstable, Level of Service "F".

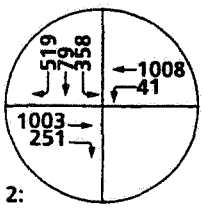
U:\UcJobs\00020\Excel\[00020-05.xls] T 5-4 CONT'D

EXHIBIT 5-E

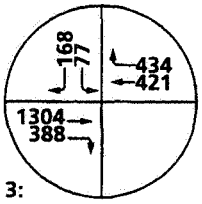
2020 WITHOUT PROJECT AM PEAK HOUR INTERSECTION VOLUMES (PART 1/2)



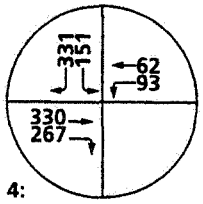
1: PIPELINE AVE. / CHINO HILLS PKWY.



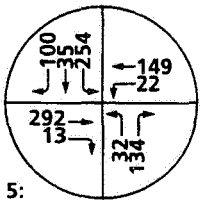
2: SR-71 SB RAMPS / CHINO HILLS PKWY.



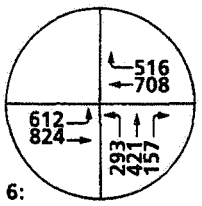
3: SR-71 SB RAMPS / SOQUEL CANYON PKWY.



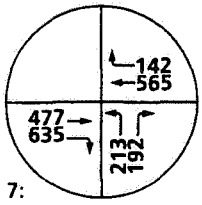
4: SR-71 SB RAMPS / PINE AVE.



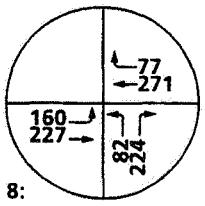
5: SR-71 SB RAMPS / EUCLID AVE.



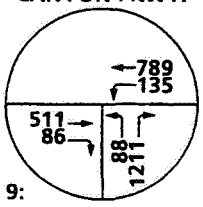
6: SR-71 NB RAMPS / CHINO HILLS PKWY.



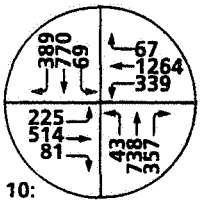
7: SR-71 NB RAMPS / SOQUEL CANYON PKWY.



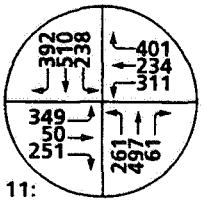
8: SR-71 NB RAMPS / PINE AVE.



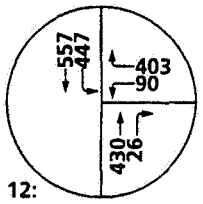
9: SR-71 NB RAMPS / EUCLID AVE.



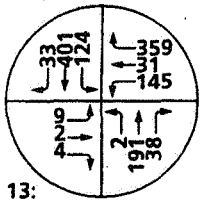
10: CENTRAL AVE. / EDISON AVE.



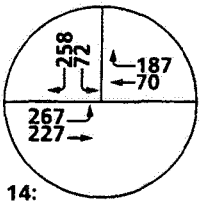
11: CENTRAL AVE. / CHINO HILLS PKWY.



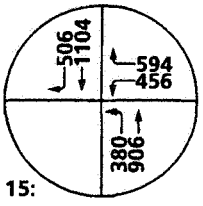
12: CENTRAL AVE. / EL PRADO RD.



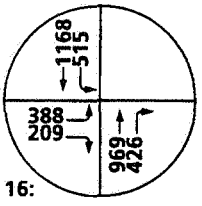
13: EL PRADO RD. / KIMBALL AVE.



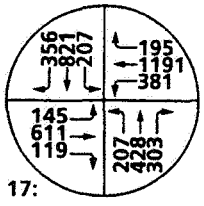
14: EL PRADO RD. / PINE AVE.



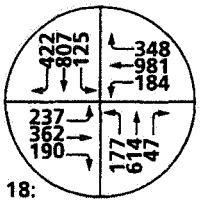
15: MOUNTAIN AVE. / SR-60 WB RAMPS



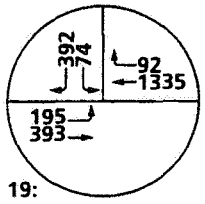
16: MOUNTAIN AVE. / SR-60 EB RAMPS



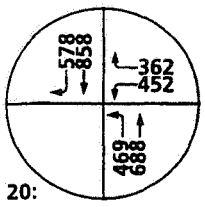
17: MOUNTAIN AVE. / WALNUT AVE.



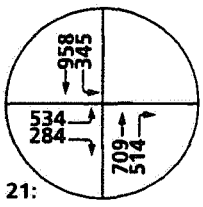
18: MOUNTAIN AVE. / RIVERSIDE DR.



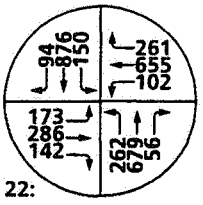
19: MOUNTAIN AVE. / EDISON AVE.



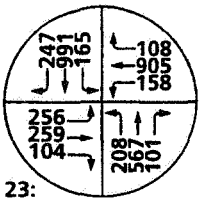
20: EUCLID AVE. / SR-60 WB RAMPS



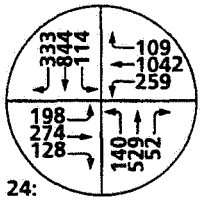
21: EUCLID AVE. / SR-60 EB RAMPS



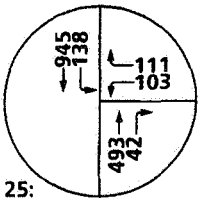
22: EUCLID AVE. / WALNUT AVE.



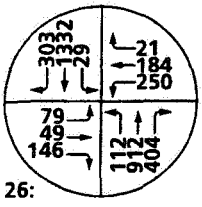
23: EUCLID AVE. / RIVERSIDE DR.



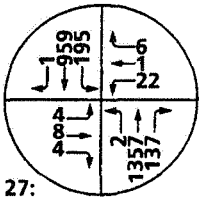
24: EUCLID AVE. / EDISON AVE.



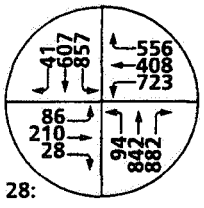
25: EUCLID AVE. / MERRILL AVE.



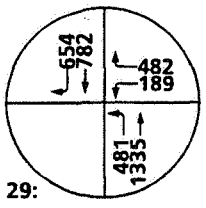
26: EUCLID AVE. / KIMBALL AVE.



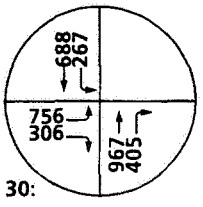
27: EUCLID AVE. / BICKMORE AVE.



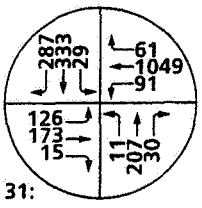
28: EUCLID AVE. / PINE AVE.



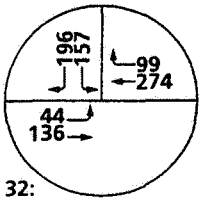
29: GROVE AVE. / SR-60 WB RAMPS



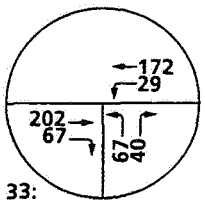
30: GROVE AVE. / SR-60 EB RAMPS



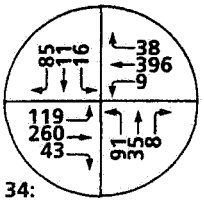
31: GROVE AVE. / EDISON AVE.



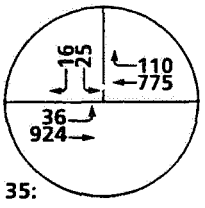
32: GROVE AVE. / MERRILL AVE.



33: GROVE AVE. / KIMBALL AVE.



34: GROVE AVE. / BICKMORE AVE.



35: GROVE AVE. / PINE AVE.

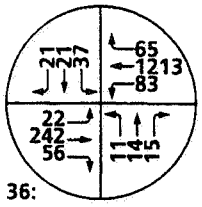
N

URBAN CROSSROADS

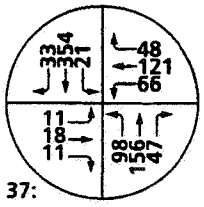
CHINO SUBAREA 2, Chino, California - 00020:204

EXHIBIT 5-E

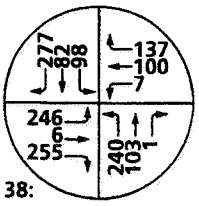
2020 WITHOUT PROJECT AM PEAK HOUR INTERSECTION VOLUMES (PART 2/2)



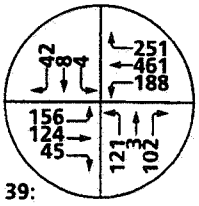
36: WALKER AVE. / EDISON AVE.



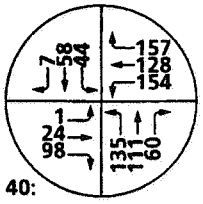
37: HELLMAN AVE. / MERRILL AVE.



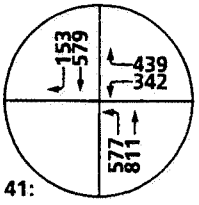
38: HELLMAN AVE. / KIMBALL AVE.



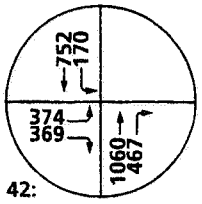
39: HELLMAN AVE. / PINE AVE.



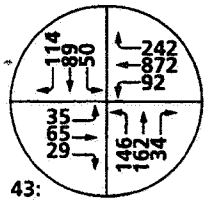
40: HELLMAN AVE. / CHANDLER ST.



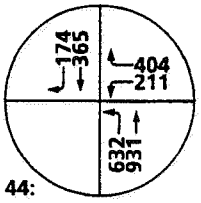
41: VINEYARD AVE. / SR-60 WB RAMPS



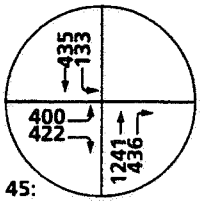
42: VINEYARD AVE. / SR-60 EB RAMPS



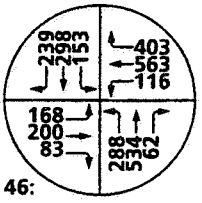
43: VINEYARD AVE. EDISON AVE.



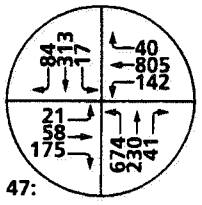
44: ARCHIBALD AVE. / SR-60 WB RAMPS



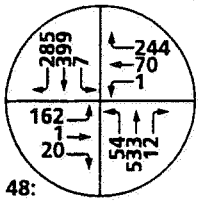
45: ARCHIBALD AVE. / SR-60 EB RAMPS



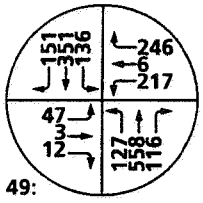
46: ARCHIBALD AVE. / RIVERSIDE DR.



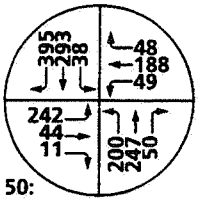
47: ARCHIBALD AVE. / EDISON AVE.



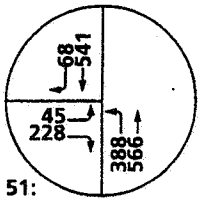
48: ARCHIBALD AVE. / MERRILL AVE.



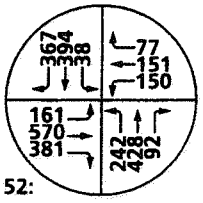
49: ARCHIBALD AVE. / CLOVERDALE RD.



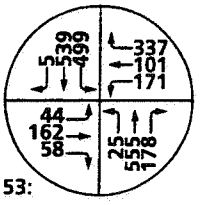
50: ARCHIBALD AVE. / PINE AVE.



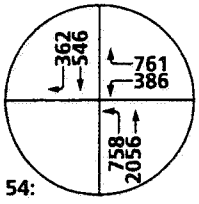
51: ARCHIBALD AVE. / RIVER RD.



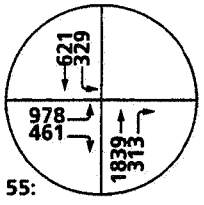
52: RIVER RD. / CORYDON ST.



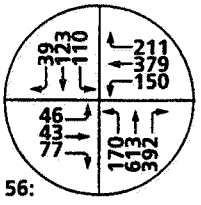
53: RIVER RD. / SECOND ST.



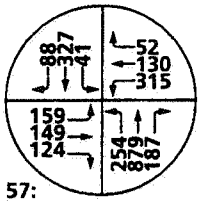
54: HAVEN AVE. / SR-60 WB RAMPS



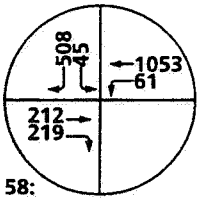
55: HAVEN AVE. / SR-60 EB RAMPS



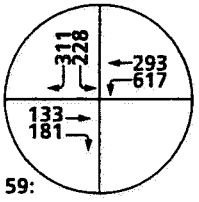
56: HAMNER AVE. / CLOVERDALE RD.



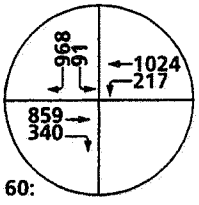
57: HAMNER AVE. / SCHLEISMAN RD.



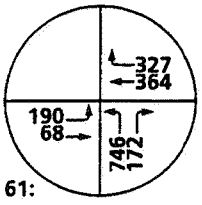
58: I-15 SB RAMPS / GALENA ST.



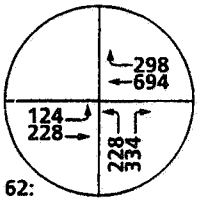
59: I-15 SB RAMPS / LIMONITE AVE.



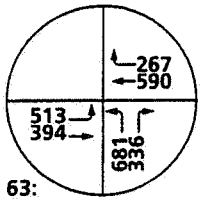
60: I-15 SB RAMPS / SECOND ST.



61: I-15 NB RAMPS / GALENA ST.



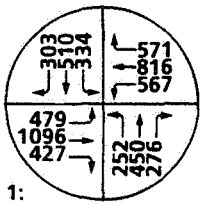
62: I-15 NB RAMPS / LIMONITE AVE.



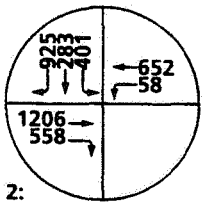
63: I-15 NB RAMPS / SECOND ST.

EXHIBIT 5-F

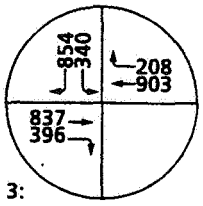
2020 WITHOUT PROJECT
PM PEAK HOUR INTERSECTION VOLUMES (PART 1/2)



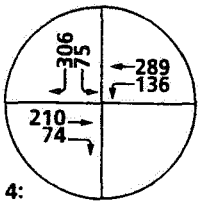
1: PIPELINE AVE. / CHINO HILLS PKWY.



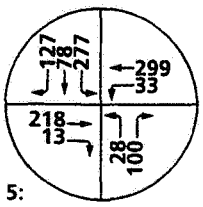
2: SR-71 SB RAMPS / CHINO HILLS PKWY.



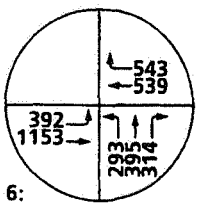
3: SR-71 SB RAMPS / SOQUEL CANYON PKWY.



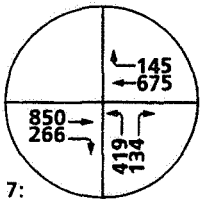
4: SR-71 SB RAMPS / PINE AVE.



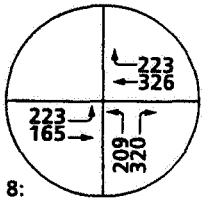
5: SR-71 SB RAMPS / EUCLID AVE.



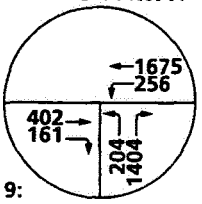
6: SR-71 NB RAMPS / CHINO HILLS PKWY.



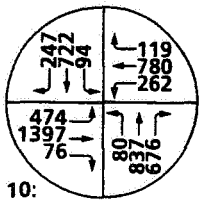
7: SR-71 NB RAMPS / SOQUEL CANYON PKWY.



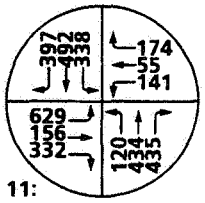
8: SR-71 NB RAMPS / PINE AVE.



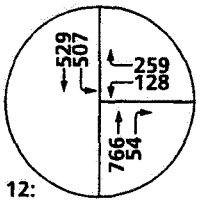
9: SR-71 NB RAMPS / EUCLID AVE.



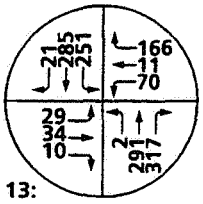
10: CENTRAL AVE. / EDISON AVE.



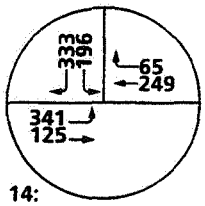
11: CENTRAL AVE. / CHINO HILLS PKWY.



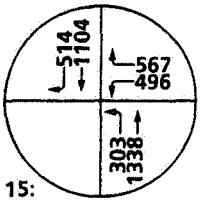
12: CENTRAL AVE. / EL PRADO RD.



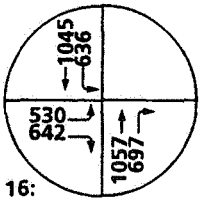
13: EL PRADO RD. / KIMBALL AVE.



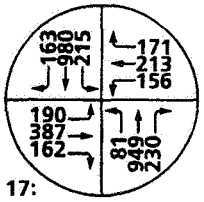
14: EL PRADO RD. / PINE AVE.



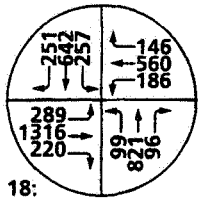
15: MOUNTAIN AVE. / SR-60 WB RAMPS



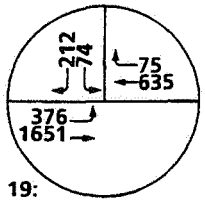
16: MOUNTAIN AVE. / SR-60 EB RAMPS



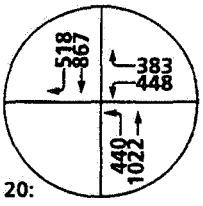
17: MOUNTAIN AVE. / WALNUT AVE.



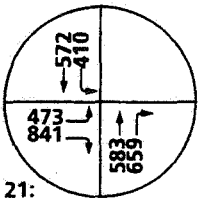
18: MOUNTAIN AVE. / RIVERSIDE DR.



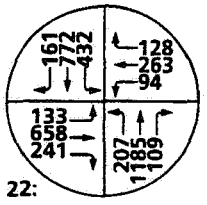
19: MOUNTAIN AVE. / EDISON AVE.



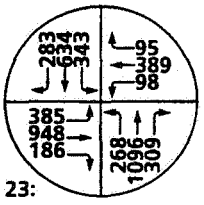
20: EUCLID AVE. / SR-60 WB RAMPS



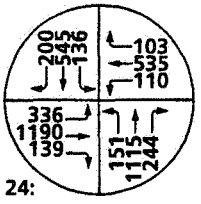
21: EUCLID AVE. / SR-60 EB RAMPS



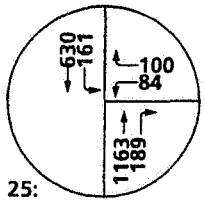
22: EUCLID AVE. / WALNUT AVE.



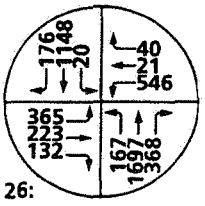
23: EUCLID AVE. / RIVERSIDE DR.



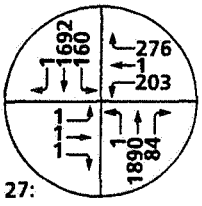
24: EUCLID AVE. / EDISON AVE.



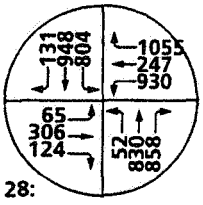
25: EUCLID AVE. / MERRILL AVE.



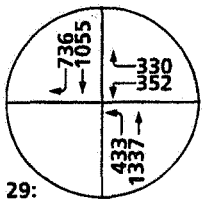
26: EUCLID AVE. / KIMBALL AVE.



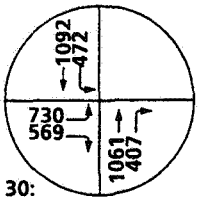
27: EUCLID AVE. / BICKMORE AVE.



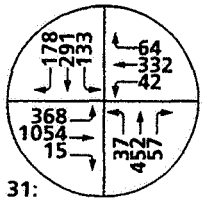
28: EUCLID AVE. / PINE AVE.



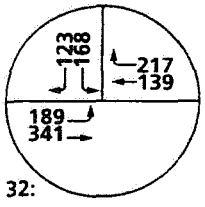
29: GROVE AVE. / SR-60 WB RAMPS



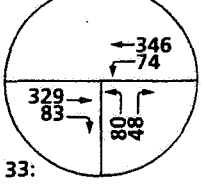
30: GROVE AVE. / SR-60 EB RAMPS



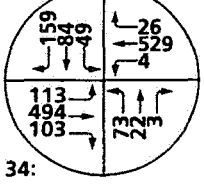
31: GROVE AVE. / EDISON AVE.



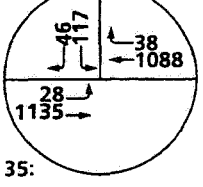
32: GROVE AVE. / MERRILL AVE.



33: GROVE AVE. / KIMBALL AVE.



34: GROVE AVE. / BICKMORE AVE.



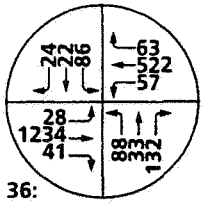
35: GROVE AVE. / PINE AVE.

N

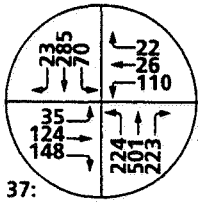
URBAN CROSSROADS

EXHIBIT 5-F

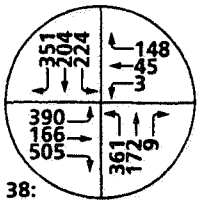
2020 WITHOUT PROJECT
PM PEAK HOUR INTERSECTION VOLUMES (PART 2/2)



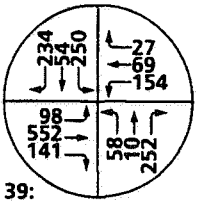
36: WALKER AVE. / EDISON AVE.



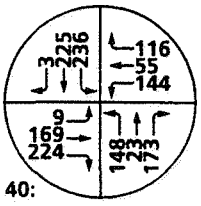
37: HELLMAN AVE. / MERRILL AVE.



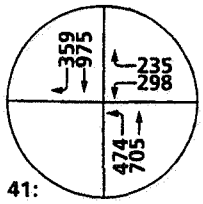
38: HELLMAN AVE. / KIMBALL AVE.



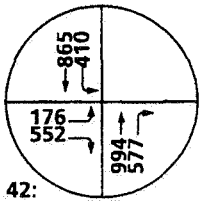
39: HELLMAN AVE. / PINE AVE.



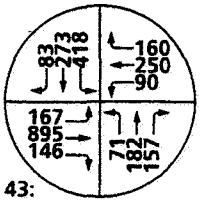
40: HELLMAN AVE. / CHANDLER ST.



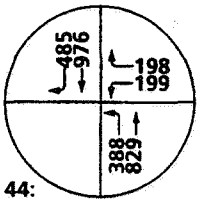
41: VINEYARD AVE. / SR-60 WB RAMPS



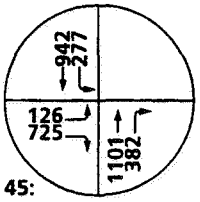
42: VINEYARD AVE. / SR-60 EB RAMPS



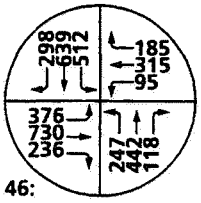
43: VINEYARD AVE. EDISON AVE.



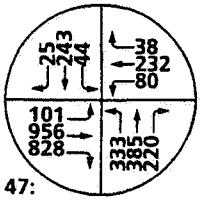
44: ARCHIBALD AVE. / SR-60 WB RAMPS



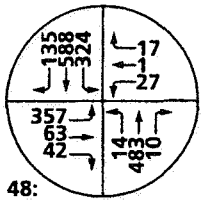
45: ARCHIBALD AVE. / SR-60 EB RAMPS



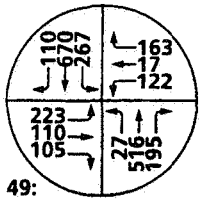
46: ARCHIBALD AVE. / RIVERSIDE DR.



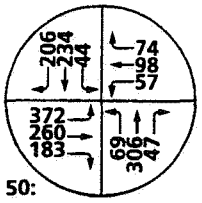
47: ARCHIBALD AVE. / EDISON AVE.



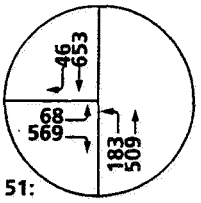
48: ARCHIBALD AVE. / MERRILL AVE.



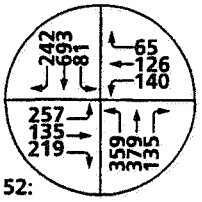
49: ARCHIBALD AVE. / CLOVERDALE RD.



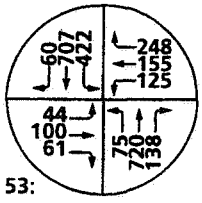
50: ARCHIBALD AVE. / PINE AVE.



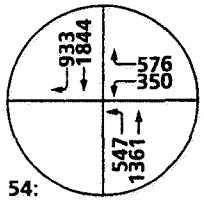
51: ARCHIBALD AVE. / RIVER RD.



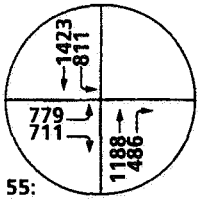
52: RIVER RD. / CORYDON ST.



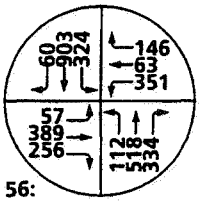
53: RIVER RD. / SECOND ST.



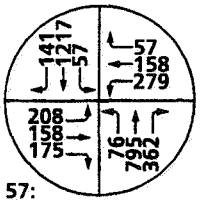
54: HAVEN AVE. / SR-60 WB RAMPS



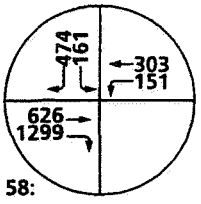
55: HAVEN AVE. / SR-60 EB RAMPS



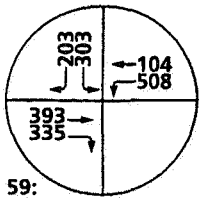
56: HAMNER AVE. / CLOVERDALE RD.



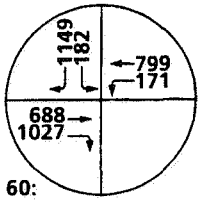
57: HAMNER AVE. / SCHLEISMAN RD.



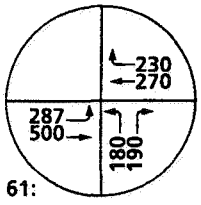
58: I-15 SB RAMPS / GALENA ST.



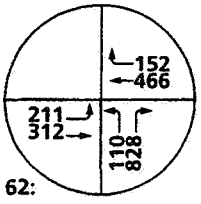
59: I-15 SB RAMPS / LIMONITE AVE.



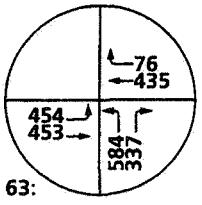
60: I-15 SB RAMPS / SECOND ST.



61: I-15 NB RAMPS / GALENA ST.



62: I-15 NB RAMPS / LIMONITE AVE.



63: I-15 NB RAMPS / SECOND ST.

N

Central Avenue (NS) at:

- Edison Avenue (EW)
- El Prado Road (EW)

El Prado Road (NS) at:

- Kimball Avenue (EW)
- Pine Avenue (EW)

Mountain Avenue (NS) at:

- SR-60 Freeway Eastbound Ramps (EW)
- Walnut Avenue (EW)
- Riverside Drive (EW)

Euclid Avenue (NS) at:

- SR-60 Freeway Westbound Ramps (EW)
- SR-60 Freeway Eastbound Ramps (EW)
- Riverside Drive (EW)
- Edison Street (EW)
- Kimball Avenue (EW)
- Bickmore Avenue (EW)
- Pine Avenue (EW)

Grove Avenue (NS) at:

- SR-60 Freeway Westbound Ramps (EW)
- SR-60 Freeway Eastbound Ramps (EW)
- Edison Street (EW)
- Bickmore Avenue (EW)
- Pine Avenue (EW)

Walker Avenue (NS) at:

- Edison Avenue (EW)

Hellman Avenue (NS) at:

- Kimball Avenue (EW)
- Pine Avenue (EW)
- Chandler Street (EW)

Vineyard Avenue (NS) at:

- SR-60 Freeway Eastbound Ramps (EW)

Archibald Avenue (NS) at:

- Riverside Drive (EW)
- Edison Avenue (EW)
- Merrill Avenue (EW)
- River Road (EW)

Haven Avenue (NS) at:

- SR-60 Freeway Eastbound Ramps (EW)

Hamner Avenue (NS) at:

- Cloverdale Road (EW)
- Schleisman Road (EW)

I-15 Freeway Southbound Ramps (NS) at:

- Galena Street (EW)
- Second Street (EW)

I-15 Freeway Northbound Ramps (NS) at:

- Second Street (EW)

5.2.2 CMP 2020 With Project Conditions

The intersection operations analysis for 2020 with project traffic conditions with existing geometrics are summarized in Table 5-5. 2020 with project AM and PM peak hour intersection turning movement volumes are shown on Exhibits 5-G and 5-H, respectively. The operations analysis worksheets for 2020 with project conditions are included in Appendix "I". As shown in Table 5-5, the following study area intersections are projected to experience Level of Service "E" or "F" during the peak hours and are, therefore, deficient per the City of Chino criteria:

Pipeline Avenue (NS) at:

- Chino Hills Parkway (EW)

SR-71 Freeway Northbound Ramps (NS) at:

- Pine Avenue (EW)

Central Avenue (NS) at:

- Edison Avenue (EW)
- El Prado Road (EW)

El Prado Road (NS) at:

- Kimball Avenue (EW)
- Pine Avenue (EW)

Mountain Avenue (NS) at:

- SR-60 Freeway Eastbound Ramps (EW)
- Walnut Avenue (EW)
- Riverside Drive (EW)

TABLE 5-5

2020 WITH PROJECT CONDITIONS INTERSECTION ANALYSIS

INTERSECTION	TRAFFIC CONTROL[3]	INTERSECTION APPROACH LANES[1] NORTH-BOUND			SOUTH-BOUND			EAST-BOUND			WEST-BOUND			DELAY[2] (SECS.)		LEVEL OF SERVICE	
		L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
Pipeline Ave. (NS) at:																	
• Chino Hills Pkwy. (EW)	TS	1	2	0	1	2	0	1	3	1	1	2	1	56.9	--[4]	E	F
SR-71 Fwy. SB Ramps (NS) at:																	
• Chino Hills Pkwy. (EW)	TS	0	0	0	1.5	0.5	1>>	0	4	1	1	2	0	30.2	18.0	C	B
• Soquel Canyon Pkwy. (EW)	TS	0	0	0	1.5	0	0.5	0	3	1>>	0	3	1>>	4.6	18.7	A	B
• Pine Ave. (EW)	TS	0	0	0	1.5	0	0.5	0	1	1	1	2	0	31.4	27.7	C	C
• Euclid Ave. (EW)	TS	1	0	1	1.5	0.5	1	0	2	1	1	2	0	19.2	17.1	B	B
SR-71 Fwy. NB Ramps (NS) at:																	
• Chino Hills Pkwy. (EW)	TS	1.5	1.5	0	0	0	0	2	2	0	0	2	1	17.0	15.0	B	B
• Soquel Canyon Pkwy. (EW)	TS	1.5	0	0.5	0	0	0	0	3	1>>	0	3	1>>	12.0	12.1	B	B
• Pine Ave. (EW)	AWS	1	0	1	0	0	0	1	1	0	0	1	1	--[4]	--[4]	F	F
• Euclid Ave. (EW)	TS	2	0	1>>	0	0	0	0	2	1>>	1	2	0	16.2	21.6	B	C
Central Ave. (NS) at:																	
• Edison Ave. (EW)	TS	1	2	1	1	2	1	1	2	0	1	2	1	50.9	--[4]	D	F
• Chino Hills Pkwy. (EW)	TS	1	2	1	1	2	1	1.5	0.5	1	1	2	1	19.4	31.2	B	C
• El Prado Rd. (EW)	CSS	0	1	1	1	2	0	0	0	0	1	0	1	--[4]	--[4]	F	F
El Prado Rd. (NS) at:																	
• Kimball Ave. (EW)	CSS	1	1	0	1	1	1	1	1	0	1	1	0	--[4]	--[4]	F	F
• Pine Ave. (EW)	CSS	0	0	0	0	1	0	0	1	0	0	1	0	--[4]	--[4]	F	F
Mountain Ave. (NS) at:																	
• SR-60 Fwy. WB Ramps (EW)	TS	1	2	0	0	2	1	0	0	0	1	0	1	54.7	46.2	D	D
• SR-60 Fwy. EB Ramps (EW)	TS	0	2	1	1	2	0	1.5	0	0.5	0	0	0	42.9	--[4]	D	F
• Walnut Ave. (EW)	TS	1	2	1	1	2	1	1	1	1	1	1	1	--[4]	28.9	F	C
• Riverside Dr. (EW)	TS	1	2	0	1	2	1	1	2	1	1	2	1	52.2	--[4]	D	F
• Edison St. (EW)	TS	0	0	0	1	0	1	1	2	0	0	2	1	20.7	20.8	C	C
Euclid Ave. (NS) at:																	
• SR-60 Fwy. WB Ramps (EW)	TS	1	2	0	0	2	1	0	0	0	1.5	0	0.5	--[4]	--[4]	F	F
• SR-60 Fwy. EB Ramps (EW)	TS	0	2	1	1	2	0	1.5	0	0.5	0	0	0	--[4]	--[4]	F	F
• Walnut Ave. (EW)	TS	1	3	1	2	3	1	1	2	0	1	2	0	30.4	27.6	C	C
• Riverside Dr. (EW)	TS	1	2	1	1	2	1	0	2	0	0	2	0	46.4	--[4]	D	F
• Edison St. (EW)	TS	1	2	1	1	2	1	1	1	1	1	1	0	--[4]	--[4]	F	F
• Merrill Ave. (EW)	TS	0	2	1	1	2	0	0	0	0	0	1	0	92.7	--[4]	F	F
• Kimball Ave. (EW)	TS	1	2	1	1	2	1	0	1	0	0	1	0	--[4]	--[4]	F	F
• Bickmore Ave. (EW)	CSS	1	1	0	1	1	0	0	1	0	0	1	0	--[4]	--[4]	F	F
• Pine Ave. (EW)	TS	1	2	1	1	2	1	0	1	1	0	1	1	--[4]	--[4]	F	F

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.
L = Left; T = Through; R = Right; >> = Free Right Turn

[2] Delay and level of service calculated using the following analysis software: Traffix, Version 7.5.1015 (2000). Per the 1997 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[3] TS = Traffic Signal
AWS = All Way Stop
CSS = Cross Street Stop

[4] -- = Delay High, Intersection Unstable, Level of Service "F".

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TABLE 5-5 (CONTINUED)

2020 WITH PROJECT CONDITIONS INTERSECTION ANALYSIS

INTERSECTION	TRAFFIC CONTROL[3]	INTERSECTION APPROACH LANES[1] NORTH-BOUND			SOUTH-BOUND			EAST-BOUND			WEST-BOUND			DELAY[2] (SECS.)		LEVEL OF SERVICE	
		L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
Grove Ave. (NS) at:																	
• SR-60 Fwy. WB Ramps (EW)	TS	1	2	0	0	2	1	0	0	0	1	0	1	--[4]	--[4]	F	F
• SR-60 Fwy. EB Ramps (EW)	TS	0	2	1	1	2	0	1	0	1	0	0	0	--[4]	--[4]	D	F
• Edison St. (EW)	AWS	0	1	0	0	1	0	0	1	0	0	1	0	--[4]	--[4]	F	F
• Merrill Ave. (EW)	AWS	0	0	0	0	1	0	0	1	0	0	1	0	18.0	34.7	C	D
• Kimball Ave. (EW)	AWS	0	1	0	0	0	0	0	1	0	0	1	0	--[4]	--[4]	F	F
• Bickmore Ave. (EW)	CSS	0	1	0	0	1	0	0	1	0	0	1	0	--[4]	--[4]	F	F
• Pine Ave. (EW)	CSS	0	0	0	0	1	0	1	1	0	0	1	0	--[4]	--[4]	F	F
Walker Ave. (NS) at:																	
• Edison Ave. (EW)	CSS	0	1	0	0	1	0	0	1	0	0	1	0	--[4]	--[4]	F	F
Hellman Ave. (NS) at:																	
• Merrill Ave. (EW)	TS	1	1	0	1	1	0	1	1	0	1	1	0	--[4]	--[4]	F	F
• Kimball Ave. (EW)	TS	1	1	0	1	1	0	1	1	0	1	1	0	--[4]	--[4]	F	F
• Pine Ave. (EW)	CSS	0	1	0	0	1	0	0	1	0	0	1	0	--[4]	--[4]	F	F
• Chandler St. (EW)	CSS	0	1	0	0	1	0	0	1	0	0	1	0	--[4]	--[4]	F	F
Vineyard Ave. (NS) at:																	
• SR-60 Fwy. WB Ramps (EW)	TS	1	1	0	0	2	0	0	0	0	1	0	1	39.7	45.7	D	D
• SR-60 Fwy. EB Ramps (EW)	TS	0	2	0	1	2	0	1	0	1	0	0	0	28.5	--[4]	C	F
• Edison Ave. (EW)	TS	1	1	0	1	1	0	1	2	1	1	2	1	21.9	35.9	C	D
Archibald Ave. (NS) at:																	
• SR-60 Fwy. WB Ramps (EW)	TS	1	3	0	0	4	0	0	0	0	1	0	1	24.2	14.2	C	B
• SR-60 Fwy. EB Ramps (EW)	TS	0	4	0	1	3	0	1	0	1	0	0	0	17.3	28.1	B	C
• Riverside Dr. (EW)	TS	1	3	0	1	3	0	1	2	1	1	1	1	50.8	56.8	D	E
• Edison Ave. (EW)	TS	1	2	1	1	2	1	1	2	0	1	2	0	--[4]	--[4]	F	F
• Merrill Ave. (EW)	CSS	1	1	0	0	1	0	0	1	0	0	1	0	--[4]	--[4]	F	F
• Cloverdale Rd. (EW)	TS	0	1	0	1	1	0	0	1	0	1	1	0	--[4]	--[4]	F	F
• Pine Ave. (EW)	TS	1	1	0	1	1	0	1	1	0	1	1	0	--[4]	--[4]	F	F
• River Rd. (EW)	CSS	1	1	0	0	1	1	1	0	1	0	0	0	--[4]	--[4]	F	F
River Rd. (NS) at:																	
• Corydon St. (EW)	TS	1	1	1	1	2	0	1	1	1	1	1	1	63.1	--[4]	E	F
• Second St. (EW)	TS	1	2	1	1	2	1	1	1	1	1	1	0	42.7	41.2	D	D
Haven Ave. (NS) at:																	
• SR-60 Fwy. WB Ramps (EW)	TS	2	3	0	0	3	1	0	0	0	1	0	1>>	17.7	18.7	B	B
• SR-60 Fwy. EB Ramps (EW)	TS	0	3	0	2	3	0	2	0	1	0	0	0	36.7	--[4]	D	F
Hamner Ave. (NS) at:																	
• Cloverdale Rd. (EW)	TS	1	1	1	1	1	1	0	1	1	0	1	1	--[4]	--[4]	F	F
• Schleisman Rd. (EW)	CSS	1	1	0	1	1	0	0	1	0	0	1	0	--[4]	--[4]	F	F
I-15 Fwy. SB Ramps (NS) at:																	
• Galena St. (EW)	TS	0	0	0	1	0	1	0	2	1	1	2	0	51.0	--[4]	D	F
• Limonite Ave. (EW)	TS	0	0	0	1	0	1	0	2	1	1	2	0	47.8	35.5	D	D
• Second St. (EW)	TS	0	0	0	1	0	1	0	2	0	1	2	0	--[4]	--[4]	F	F
I-15 Fwy. NB Ramps (NS) at:																	
• Galena St. (EW)	TS	1	0	1	0	0	0	1	2	0	0	2	1	33.6	15.4	C	B
• Limonite Ave. (EW)	TS	0.5	0	1.5	0	0	0	1	2	0	0	2	1	25.2	28.4	C	C
• Second St. (EW)	TS	1	0	1	0	0	0	1	1	0	0	1	0	--[4]	--[4]	F	F

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.
L = Left; T = Through; R = Right; >> = Free Right Turn

[2] Delay and level of service calculated using the following analysis software: Traffix, Version 7.5.1015 (2000). Per the 1997 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

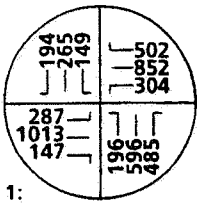
[3] TS = Traffic Signal
AWS = All Way Stop
CSS = Cross Street Stop

[4] -- = Delay High, Intersection Unstable, Level of Service "F".

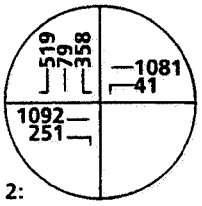
U:\UcJobs\00020\Excel\[00020-05.xls]T 5-5 CONT'D

EXHIBIT 5-G

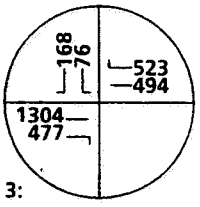
2020 WITH PROJECT AM PEAK HOUR INTERSECTION VOLUMES (PART 1/2)



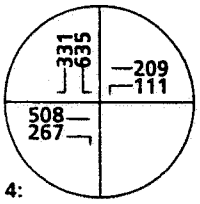
1: PIPELINE AVE. / CHINO HILLS PKWY.



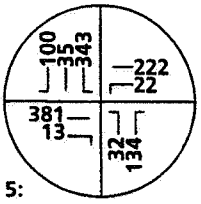
2: SR-71 SB RAMPS / CHINO HILLS PKWY.



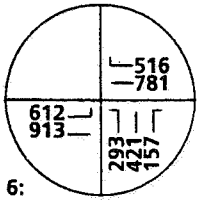
3: SR-71 SB RAMPS / SOQUEL CANYON PKWY.



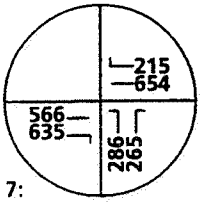
4: SR-71 SB RAMPS / PINE AVE.



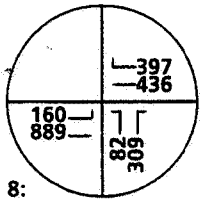
5: SR-71 SB RAMPS / EUCLID AVE.



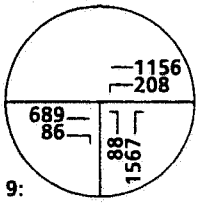
6: SR-71 NB RAMPS / CHINO HILLS PKWY.



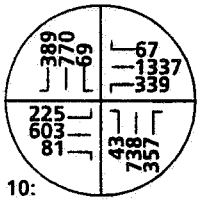
7: SR-71 NB RAMPS / SOQUEL CANYON PKWY.



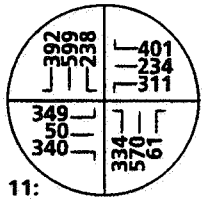
8: SR-71 NB RAMPS / PINE AVE.



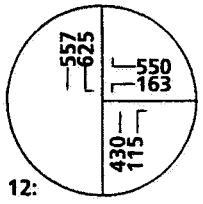
9: SR-71 NB RAMPS / EUCLID AVE.



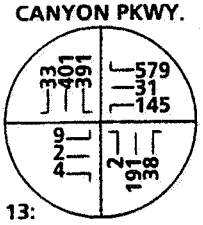
10: CENTRAL AVE. / EDISON AVE.



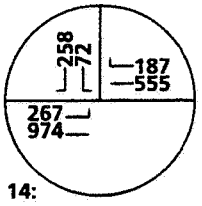
11: CENTRAL AVE. / CHINO HILLS PKWY.



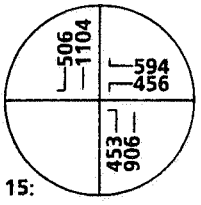
12: CENTRAL AVE. / EL PRADO RD.



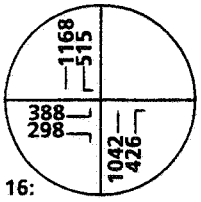
13: EL PRADO RD. / KIMBALL AVE.



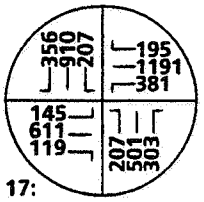
14: EL PRADO RD. / PINE AVE.



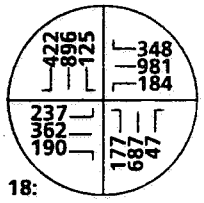
15: MOUNTAIN AVE. / SR-60 WB RAMPS



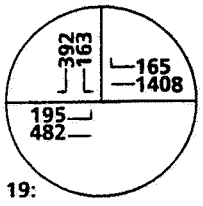
16: MOUNTAIN AVE. / SR-60 EB RAMPS



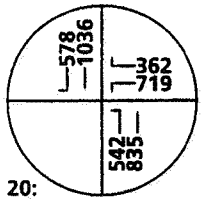
17: MOUNTAIN AVE. / WALNUT AVE.



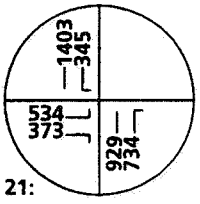
18: MOUNTAIN AVE. / RIVERSIDE DR.



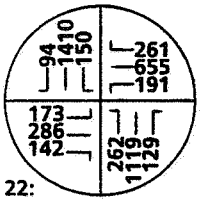
19: MOUNTAIN AVE. / EDISON AVE.



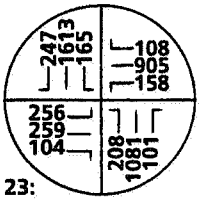
20: EUCLID AVE. / SR-60 WB RAMPS



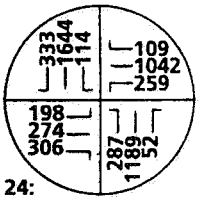
21: EUCLID AVE. / SR-60 EB RAMPS



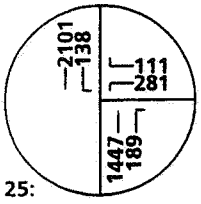
22: EUCLID AVE. / WALNUT AVE.



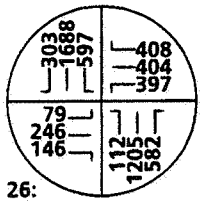
23: EUCLID AVE. / RIVERSIDE DR.



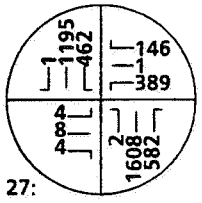
24: EUCLID AVE. / EDISON AVE.



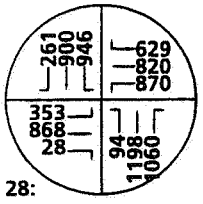
25: EUCLID AVE. / MERRILL AVE.



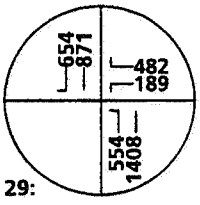
26: EUCLID AVE. / KIMBALL AVE.



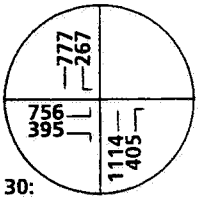
27: EUCLID AVE. / BICKMORE AVE.



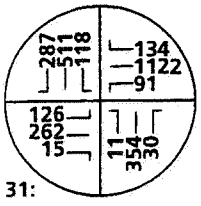
28: EUCLID AVE. / PINE AVE.



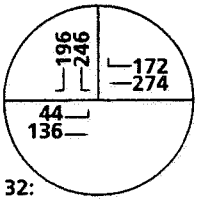
29: GROVE AVE. / SR-60 WB RAMPS



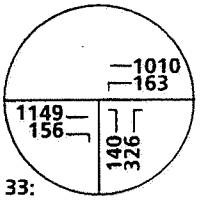
30: GROVE AVE. / SR-60 EB RAMPS



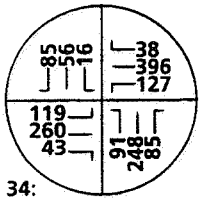
31: GROVE AVE. / EDISON AVE.



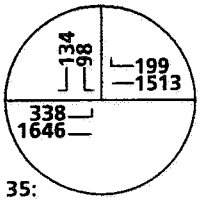
32: GROVE AVE. / MERRILL AVE.



33: GROVE AVE. / KIMBALL AVE.



34: GROVE AVE. / BICKMORE AVE.



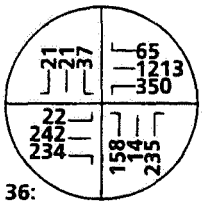
35: GROVE AVE. / PINE AVE.

N

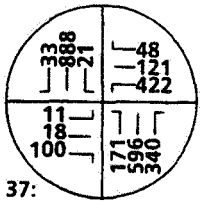
URBAN CROSSROADS

EXHIBIT 5-G

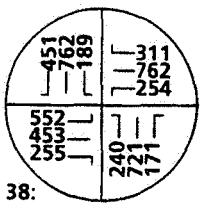
2020 WITH PROJECT
AM PEAK HOUR INTERSECTION VOLUMES (PART 2/2)



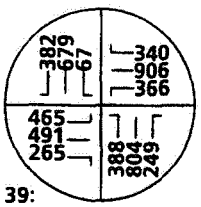
36: WALKER AVE. / EDISON AVE.



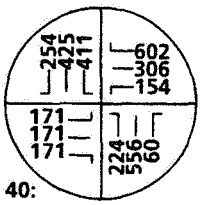
37: HELLMAN AVE. / MERRILL AVE.



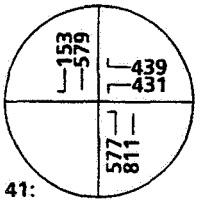
38: HELLMAN AVE. / KIMBALL AVE.



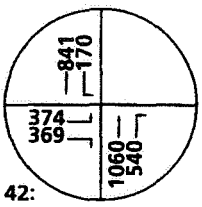
39: HELLMAN AVE. / PINE AVE.



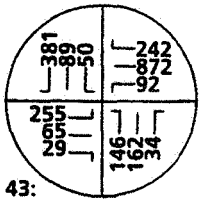
40: HELLMAN AVE. / CHANDLER ST.



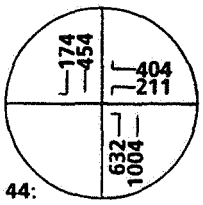
41: VINEYARD AVE. / SR-60 WB RAMPS



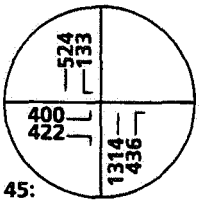
42: VINEYARD AVE. / SR-60 EB RAMPS



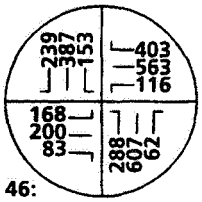
43: VINEYARD AVE. EDISON AVE.



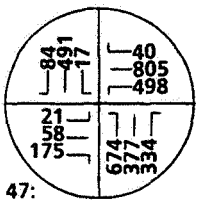
44: ARCHIBALD AVE. / SR-60 WB RAMPS



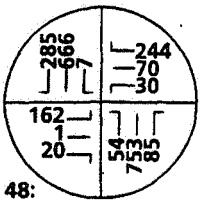
45: ARCHIBALD AVE. / SR-60 EB RAMPS



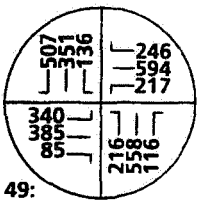
46: ARCHIBALD AVE. / RIVERSIDE DR.



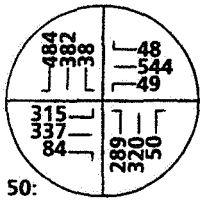
47: ARCHIBALD AVE. / EDISON AVE.



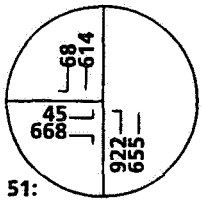
48: ARCHIBALD AVE. / MERRILL AVE.



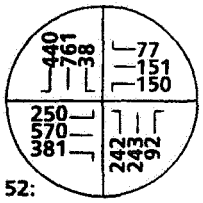
49: ARCHIBALD AVE. / CLOVERDALE RD.



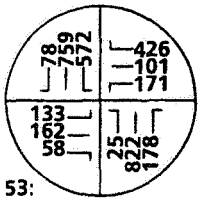
50: ARCHIBALD AVE. / PINE AVE.



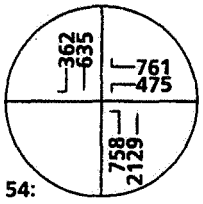
51: ARCHIBALD AVE. / RIVER RD.



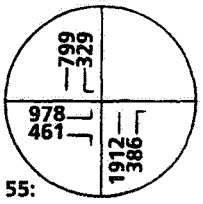
52: RIVER RD. / CORYDON ST.



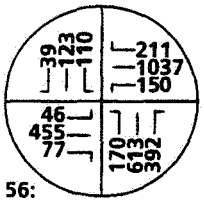
53: RIVER RD. / SECOND ST.



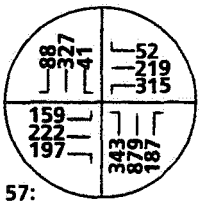
54: HAVEN AVE. / SR-60 WB RAMPS



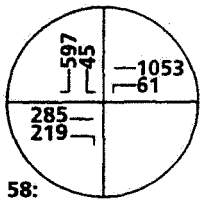
55: HAVEN AVE. / SR-60 EB RAMPS



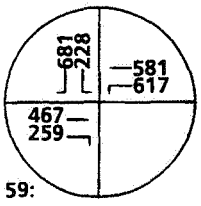
56: HAMNER AVE. / CLOVERDALE RD.



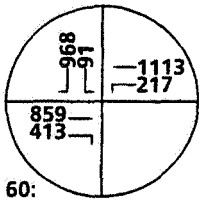
57: HAMNER AVE. / SCHLEISMAN RD.



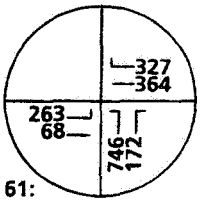
58: I-15 SB RAMPS / GALENA ST.



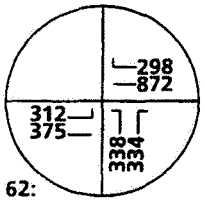
59: I-15 SB RAMPS / LIMONITE AVE.



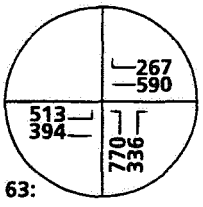
60: I-15 SB RAMPS / SECOND ST.



61: I-15 NB RAMPS / GALENA ST.



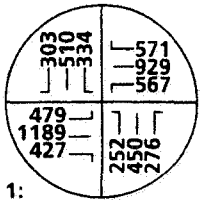
62: I-15 NB RAMPS / LIMONITE AVE.



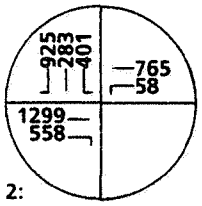
63: I-15 NB RAMPS / SECOND ST.

EXHIBIT 5-H

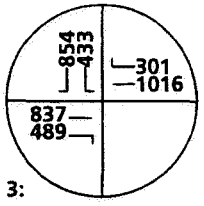
2020 WITH PROJECT
PM PEAK HOUR INTERSECTION VOLUMES (PART 1/2)



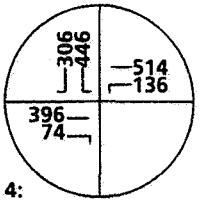
1: PIPELINE AVE. / CHINO HILLS PKWY.



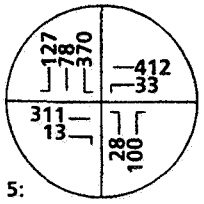
2: SR-71 SB RAMPS / CHINO HILLS PKWY.



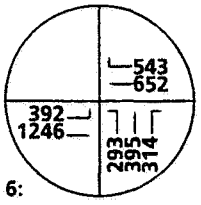
3: SR-71 SB RAMPS / SOQUEL CANYON PKWY.



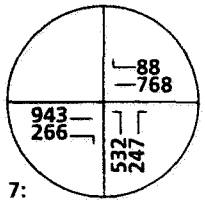
4: SR-71 SB RAMPS / PINE AVE.



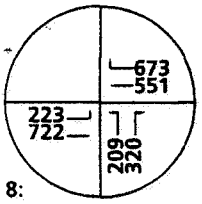
5: SR-71 SB RAMPS / EUCLID AVE.



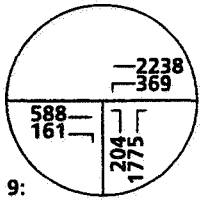
6: SR-71 NB RAMPS / CHINO HILLS PKWY.



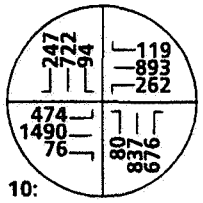
7: SR-71 NB RAMPS / SOQUEL CANYON PKWY.



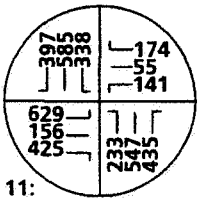
8: SR-71 NB RAMPS / PINE AVE.



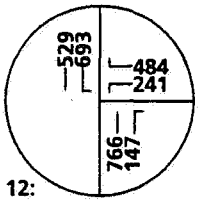
9: SR-71 NB RAMPS / EUCLID AVE.



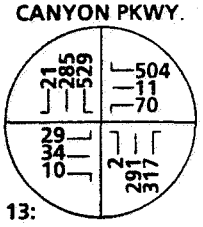
10: CENTRAL AVE. / EDISON AVE.



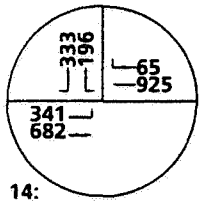
11: CENTRAL AVE. / CHINO HILLS PKWY.



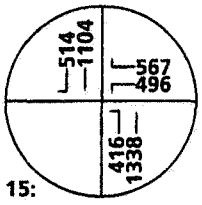
12: CENTRAL AVE. / EL PRADO RD.



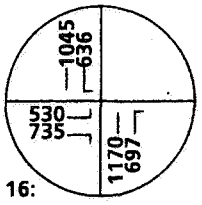
13: EL PRADO RD. / KIMBALL AVE.



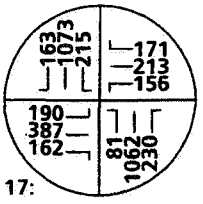
14: EL PRADO RD. / PINE AVE.



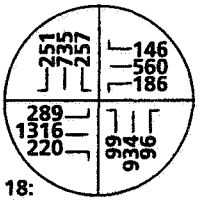
15: MOUNTAIN AVE. / SR-60 WB RAMPS



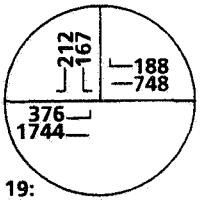
16: MOUNTAIN AVE. / SR-60 EB RAMPS



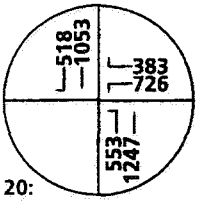
17: MOUNTAIN AVE. / WALNUT AVE.



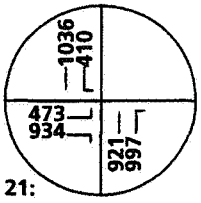
18: MOUNTAIN AVE. / RIVERSIDE DR.



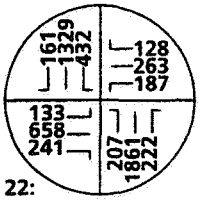
19: MOUNTAIN AVE. / EDISON AVE.



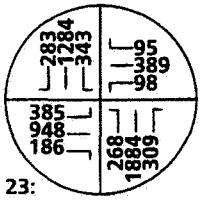
20: EUCLID AVE. / SR-60 WB RAMPS



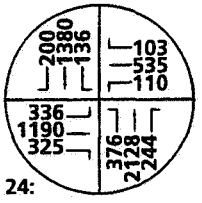
21: EUCLID AVE. / SR-60 EB RAMPS



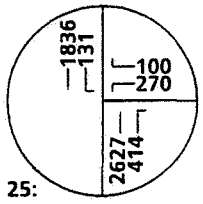
22: EUCLID AVE. / WALNUT AVE.



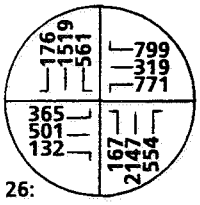
23: EUCLID AVE. / RIVERSIDE DR.



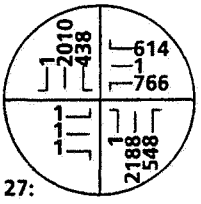
24: EUCLID AVE. / EDISON AVE.



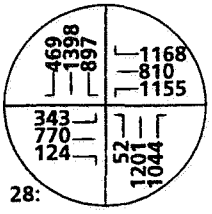
25: EUCLID AVE. / MERRILL AVE.



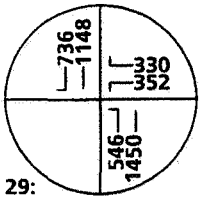
26: EUCLID AVE. / KIMBALL AVE.



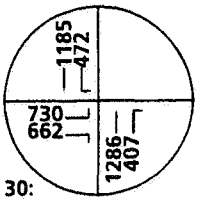
27: EUCLID AVE. / BICKMORE AVE.



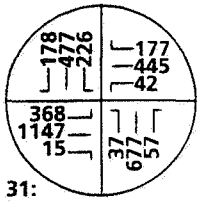
28: EUCLID AVE. / PINE AVE.



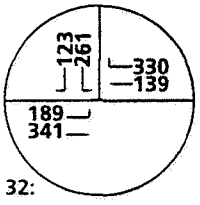
29: GROVE AVE. / SR-60 WB RAMPS



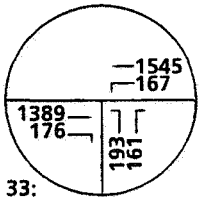
30: GROVE AVE. / SR-60 EB RAMPS



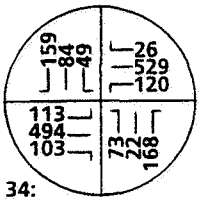
31: GROVE AVE. / EDISON AVE.



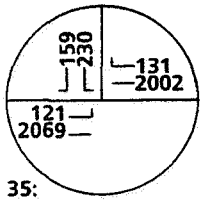
32: GROVE AVE. / MERRILL AVE.



33: GROVE AVE. / KIMBALL AVE.



34: GROVE AVE. / BICKMORE AVE.



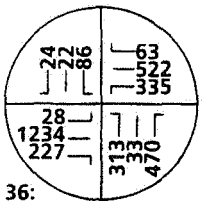
35: GROVE AVE./ PINE AVE.

N

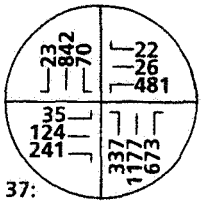
URBAN CROSSROADS

EXHIBIT 5-H

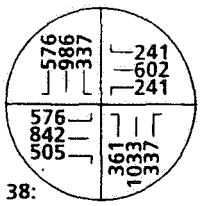
2020 WITH PROJECT
PM PEAK HOUR INTERSECTION VOLUMES (PART 2/2)



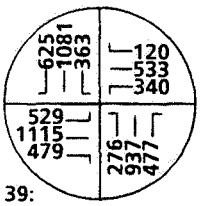
36: WALKER AVE. / EDISON AVE.



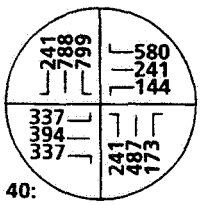
37: HELLMAN AVE. / MERRILL AVE.



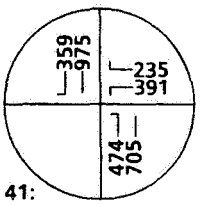
38: HELLMAN AVE. / KIMBALL AVE.



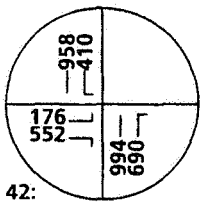
39: HELLMAN AVE. / PINE AVE.



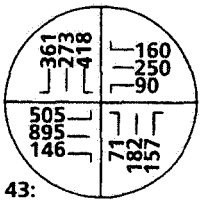
40: HELLMAN AVE. / CHANDLER ST.



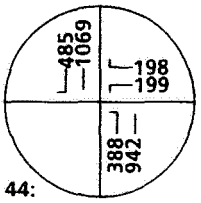
41: VINEYARD AVE. / SR-60 WB RAMPS



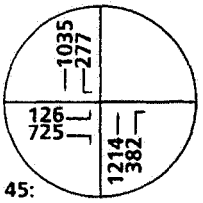
42: VINEYARD AVE. / SR-60 EB RAMPS



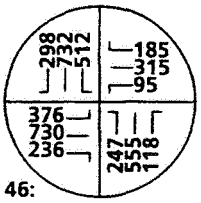
43: VINEYARD AVE. EDISON AVE.



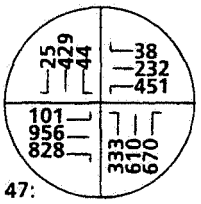
44: ARCHIBALD AVE. / SR-60 WB RAMPS



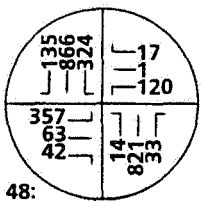
45: ARCHIBALD AVE. / SR-60 EB RAMPS



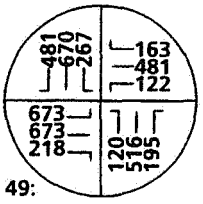
46: ARCHIBALD AVE. / RIVERSIDE DR.



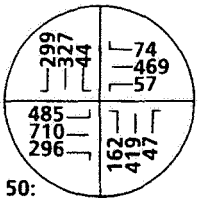
47: ARCHIBALD AVE. / EDISON AVE.



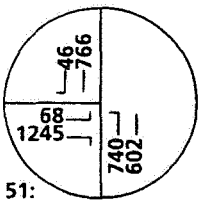
48: ARCHIBALD AVE. / MERRILL AVE.



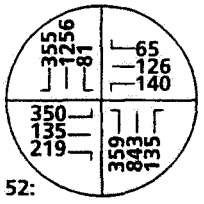
49: ARCHIBALD AVE. / CLOVERDALE RD.



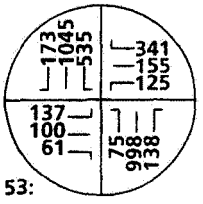
50: ARCHIBALD AVE. / PINE AVE.



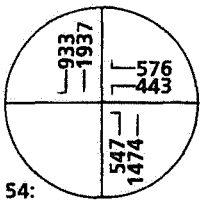
51: ARCHIBALD AVE. / RIVER RD.



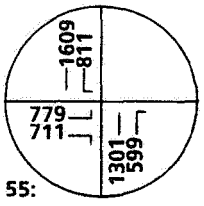
52: RIVER RD. / CORYDON ST.



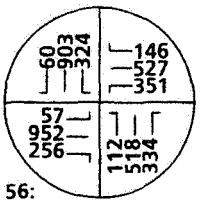
53: RIVER RD. / SECOND ST.



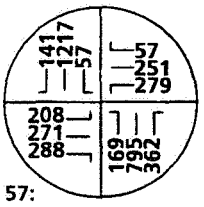
54: HAVEN AVE. / SR-60 WB RAMPS



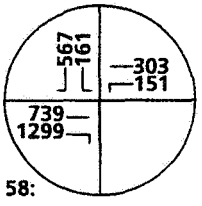
55: HAVEN AVE. / SR-60 EB RAMPS



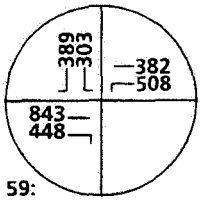
56: HAMNER AVE. / CLOVERDALE RD.



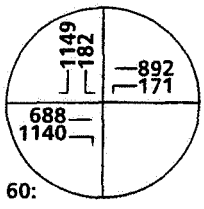
57: HAMNER AVE. / SCHLEISMAN RD.



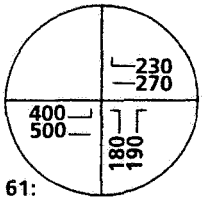
58: I-15 SB RAMPS / GALENA ST.



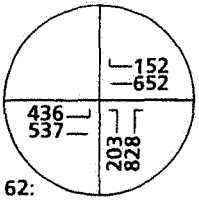
59: I-15 SB RAMPS / LIMONITE AVE.



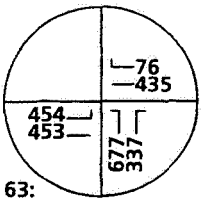
60: I-15 SB RAMPS / SECOND ST.



61: I-15 NB RAMPS / GALENA ST.



62: I-15 NB RAMPS / LIMONITE AVE.



63: I-15 NB RAMPS / SECOND ST.

N

Euclid Avenue (NS) at:

- SR-60 Freeway Westbound Ramps (EW)
- SR-60 Freeway Eastbound Ramps (EW)
- Riverside Drive (EW)
- Edison Street (EW)
- Merrill Avenue (EW)
- Kimball Avenue (EW)
- Bickmore Avenue (EW)
- Pine Avenue (EW)

Grove Avenue (NS) at:

- SR-60 Freeway Westbound Ramps (EW)
- SR-60 Freeway Eastbound Ramps (EW)
- Edison Street (EW)
- Kimball Avenue (EW)
- Bickmore Avenue (EW)
- Pine Avenue (EW)

Walker Avenue (NS) at:

- Edison Avenue (EW)

Hellman Avenue (NS) at:

- Merrill Avenue (EW)
- Kimball Avenue (EW)
- Pine Avenue (EW)
- Chandler Street (EW)

Vineyard Avenue (NS) at:

- SR-60 Freeway Eastbound Ramps (EW)

Archibald Avenue (NS) at:

- Riverside Drive (EW)
- Edison Avenue (EW)
- Merrill Avenue (EW)
- Cloverdale Road (EW)
- Pine Avenue (EW)
- River Road (EW)

River Road (NS) at:

- Corydon Street (EW)

Haven Avenue (NS) at:

- SR-60 Freeway Eastbound Ramps (EW)

Hamner Avenue (NS) at;

- Cloverdale Road (EW)
- Schleisman Road (EW)

I-15 Freeway Southbound Ramps (NS) at:

- Galena Street (EW)
- Second Street (EW)

I-15 Freeway Northbound Ramps (NS) at:

- Second Street (EW)

The intersection operations analysis for 2020 with project traffic conditions with improvements are summarized in Table 5-6. Improvements presented in Table 5-6 include both funded improvements (see Section 3.4.1) and any additional improvements needed to achieve acceptable levels of service during the peak

TABLE 5-6

2020 WITH PROJECT CONDITIONS INTERSECTION ANALYSIS WITH IMPROVEMENTS

INTERSECTION	TRAFFIC CONTROL[3]	INTERSECTION APPROACH LANES[1] NORTH-BOUND			SOUTH-BOUND			EAST-BOUND			WEST-BOUND			DELAY[2] (SECS.)		LEVEL OF SERVICE	
		L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
Pipeline Ave. (NS) at:																	
• Chino Hills Pkwy. (EW)	TS	1	2	0	1	2	0	2	3	1>	2	3	1>	45.1	53.4	D	D
SR-71 Fwy. SB Ramps (NS) at:																	
• Chino Hills Pkwy. (EW)	TS	0	0	0	1.5	0.5	1>>	0	4	1	1	2	0	30.2	18.0	C	B
• Soquel Canyon Pkwy. (EW)	TS	0	0	0	1.5	0	0.5	0	3	1>>	0	3	1>>	4.6	18.7	A	B
• Pine Ave. (EW)	TS	0	0	0	1.5	0	0.5	0	1	1	1	2	0	31.4	27.7	C	C
• Euclid Ave. (EW)	TS	1	0	1	1.5	0.5	1	0	2	1	1	2	0	19.2	17.1	B	B
SR-71 Fwy. NB Ramps (NS) at:																	
• Chino Hills Pkwy. (EW)	TS	1.5	1.5	0	0	0	0	2	2	0	0	2	1	17.0	15.0	B	B
• Soquel Canyon Pkwy. (EW)	TS	1.5	0	0.5	0	0	0	0	3	1>>	0	3	1>>	12.0	12.1	B	B
• Pine Ave. (EW)	TS	1	0	1	0	0	0	1	2	0	0	1	1	12.8	17.2	D	C
• Euclid Ave. (EW)	TS	2	0	1>>	0	0	0	0	2	1>>	1	2	0	16.2	21.6	B	C
Central Ave. (NS) at:																	
• Edison Ave. (EW)	TS	1	2	1>	1	2	1	2	2	0	2	2	1	40.8	52.3	D	D
• Chino Hills Pkwy. (EW)	TS	1	2	1	1	2	1	1.5	0.5	1	1	2	1	19.4	31.2	B	C
• El Prado Rd. (EW)	TS	0	2	1	2	2	0	0	0	0	1	0	1	35.0	37.3	C	D
El Prado Rd. (NS) at:																	
• Kimball Ave. (EW)	TS	1	1	1	1	1	1	1	1	0	1	1	0	26.7	35.8	C	D
• Pine Ave. (EW)	TS	0	0	0	1	0	1	1	2	0	0	1	1	23.6	51.9	C	D
Mountain Ave. (NS) at:																	
• SR-60 Fwy. WB Ramps (EW)	TS	1	2	0	0	2	1	0	0	0	1	0	1	54.7	46.2	D	D
• SR-60 Fwy. EB Ramps (EW)	TS	0	2	1	2	2	0	2	0	2	0	0	0	23.8	35.1	C	D
• Walnut Ave. (EW)	TS	1	2	1	1	2	1	1	2	1	1	2	1	50.3	35.8	D	D
• Riverside Dr. (EW)	TS	1	2	1	2	2	1	1	2	1	1	2	1	50.9	50.1	D	D
• Edison St. (EW)	TS	0	0	0	1	0	1	1	2	0	0	2	1	20.7	20.8	C	C
Euclid Ave. (NS) at:																	
• SR-60 Fwy. WB Ramps (EW)	TS	1	2	0	0	2	1	0	0	0	1.5	0	1.5	49.3	46.1	D	D
• SR-60 Fwy. EB Ramps (EW)	TS	0	2	2	1	2	0	1	0	1>>	0	0	0	36.7	39.1	D	D
• Walnut Ave. (EW)	TS	1	3	1	2	3	1	1	2	0	1	2	0	30.4	27.6	C	C
• Riverside Dr. (EW)	TS	1	3	1	2	3	1>	1	2	0	1	2	0	54.1	52.9	D	D
• Edison St. (EW)	TS	1	3	1	1	3	1	2	3	0	1	2	0	53.7	50.5	D	D
• Merrill Ave. (EW)	TS	0	3	1	1	3	0	0	0	0	0	1	0	33.3	16.6	C	B
• Kimball Ave. (EW)	TS	1	4	1>	2	3	0	2	2	1	2	2	1>	34.9	54.0	C	D
• Bickmore Ave. (EW)	TS	1	3	1	2	3	0	0	1	0	2	1	1	8.6	17.2	A	B
• Pine Ave. (EW)	TS	1	4	1>>	2	3	1	2	3	1	3	3	1>>	53.9	54.3	D	D

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.
L = Left; T = Through; R = Right; >> = Free Right Turn; > = Right Turn Overlap; 1 = Improvement

[2] Delay and level of service calculated using the following analysis software: Traffix, Version 7.5.1015 (2000). Per the 1997 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[3] TS = Traffic Signal

U:\UcJobs\00020\Excel\[00020-05.xls]T 5-6

TABLE 5-6 (CONTINUED)

2020 WITH PROJECT CONDITIONS INTERSECTION ANALYSIS WITH IMPROVEMENTS

INTERSECTION	TRAFFIC CONTROL[3]	INTERSECTION APPROACH LANES[1] NORTH-BOUND L	NORTH-BOUND T	NORTH-BOUND R	SOUTH-BOUND L	SOUTH-BOUND T	SOUTH-BOUND R	EAST-BOUND L	EAST-BOUND T	EAST-BOUND R	WEST-BOUND L	WEST-BOUND T	WEST-BOUND R	DELAY[2] (SECS.) AM	DELAY[2] (SECS.) PM	LEVEL OF SERVICE AM	LEVEL OF SERVICE PM
Grove Ave. (NS) at:																	
• SR-60 Fwy. WB Ramps (EW)	TS	1	2	0	0	2	1	0	0	0	1.5	0	1.5	33.8	34.9	C	C
• SR-60 Fwy. EB Ramps (EW)	TS	0	2	1	1	2	0	2	0	2	0	0	0	30.3	39.3	C	D
• Edison St. (EW)	TS	1	2	0	1	2	0	1	2	0	1	2	0	39.8	45.3	D	D
• Merrill Ave. (EW)	AWS	0	0	0	0	1	0	1	1	0	0	1	0	18.0	34.7	C	D
• Kimball Ave. (EW)	TS	1	0	1	0	0	0	0	2	0	1	2	0	21.0	47.5	C	D
• Bickmore Ave. (EW)	TS	1	1	0	1	1	0	1	1	0	1	1	0	10.1	9.1	B	A
• Pine Ave. (EW)	TS	0	0	0	1	0	1	1	2	0	0	2	0	31.0	31.4	C	C
Walker Ave. (NS) at:																	
• Edison Ave. (EW)	TS	1	1	0	1	1	0	1	2	0	1	2	0	26.5	51.7	C	D
Hellman Ave. (NS) at:																	
• Merrill Ave. (EW)	TS	1	2	1	1	2	0	1	1	0	2	1	0	33.7	51.3	C	D
• Kimball Ave. (EW)	TS	2	2	1	2	2	1	2	2	1	2	2	0	45.1	50.6	D	D
• Pine Ave. (EW)	TS	2	2	1	2	2	1	2	2	1	2	2	1	45.7	54.4	D	D
• Chandler St. (EW)	TS	1	2	0	2	2	0	1	2	0	1	2	0	36.6	41.7	D	D
Vineyard Ave. (NS) at:																	
• SR-60 Fwy. WB Ramps (EW)	TS	1	1	0	0	2	0	0	0	0	1	0	1	39.7	45.7	D	D
• SR-60 Fwy. EB Ramps (EW)	TS	0	2	0	1	2	0	1.5	0	1.5	0	0	0	22.4	41.6	C	D
• Edison Ave. (EW)	TS	1	1	0	1	1	0	1	2	1	1	2	1	21.9	35.9	C	D
Archibald Ave. (NS) at:																	
• SR-60 Fwy. WB Ramps (EW)	TS	1	3	0	0	4	0	0	0	0	1	0	1	24.2	14.2	C	B
• SR-60 Fwy. EB Ramps (EW)	TS	0	4	0	1	3	0	1	0	1	0	0	0	17.3	28.1	B	C
• Riverside Dr. (EW)	TS	1	3	0	1	3	0	2	2	1	1	1	1	48.0	50.7	D	D
• Edison Ave. (EW)	TS	2	2	1>	1	2	1	1	2	1>	2	2	0	38.5	41.2	D	D
• Merrill Ave. (EW)	TS	1	2	0	1	2	0	1	1	0	1	1	0	19.5	30.0	B	C
• Cloverdale Rd. (EW)	TS	1	2	0	1	2	0	2	2	0	1	2	0	50.4	53.3	D	D
• Pine Ave. (EW)	TS	1	2	0	1	2	0	1	2	0	1	2	0	48.0	41.4	D	D
• River Rd. (EW)	TS	1	1	0	0	2	1	1	0	1>>	0	0	0	38.2	32.9	D	C
River Rd. (NS) at:																	
• Corydon St. (EW)	TS	1	1	1	1	2	1	2	2	1	1	1	1	46.0	46.7	D	D
• Second St. (EW)	TS	1	2	1	1	2	1	1	1	1	1	1	0	42.7	41.2	D	D
Haven Ave. (NS) at:																	
• SR-60 Fwy. WB Ramps (EW)	TS	2	3	0	0	3	1	0	0	0	1	0	1>>	17.7	18.7	C	C
• SR-60 Fwy. EB Ramps (EW)	TS	0	3	1>>	2	3	0	2	0	1	0	0	0	33.3	45.8	C	D
Hamner Ave. (NS) at:																	
• Cloverdale Rd. (EW)	TS	1	2	1	1	2	1	1	2	1	1	2	1	40.1	54.5	D	D
• Schleisman Rd. (EW)	TS	1	2	0	1	2	0	1	1	0	1	1	0	32.3	36.6	C	D
I-15 Fwy. SB Ramps (NS) at:																	
• Galena St. (EW)	TS	0	0	0	1	0	1	0	2	2	1	2	0	41.9	32.4	D	C
• Limonite Ave. (EW)	TS	0	0	0	1	0	1	0	2	1	1	2	0	47.8	35.5	D	D
• Second St. (EW)	TS	0	0	0	1	0	2	0	2	2	1	2	0	19.8	21.8	B	C
I-15 Fwy. NB Ramps (NS) at:																	
• Galena St. (EW)	TS	1	0	1	0	0	0	1	2	0	0	2	1	33.6	15.4	C	B
• Limonite Ave. (EW)	TS	0.5	0	1.5	0	0	0	1	2	0	0	2	1	25.2	28.4	C	C
• Second St. (EW)	TS	1.5	0	1.5	0	0	0	1	1	0	0	1	1	51.3	33.9	D	C

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.
L = Left; T = Through; R = Right; >> = Free Right Turn; ⇑ Improvement

[2] Delay and level of service calculated using the following analysis software: Traffix, Version 7.5.1015 (2000). Per the 1997 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[3] TS = Traffic Signal

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hours. All improvements are consistent with the subject roadway's planned long range classification (e.g. number of through lanes and no more than dual turn lanes). The one unusual case is Euclid Avenue (NS) at Pine Avenue (EW), where triple left turn lanes will be required on the westbound approach.

The following additional intersection improvements are needed for 2020 with project conditions:

Pipeline Avenue (NS) at:

- Chino Hills Parkway (EW)
  - Eastbound right-turn overlap phasing
  - Third westbound through lane
  - Westbound right-turn overlap phasing

SR-71 Freeway Northbound Ramps (NS) at:

- Pine Avenue (EW)
  - Traffic signal
  - Second eastbound through lane

Central Avenue (NS) at:

- Edison Avenue (EW)
  - Northbound right-turn overlap phasing
  - Second eastbound left turn lane
  - Second westbound left turn lane
- El Prado Road (EW)
  - Second northbound through lane
  - Second southbound left turn lane

El Prado Road (NS) at:

- Kimball Road (EW)
  - Northbound right turn lane
- Pine Avenue (EW)
  - Southbound left turn lane
  - Second eastbound through lane
  - Westbound right turn lane

Mountain Avenue (NS) at:

- SR-60 Freeway Eastbound Ramps (EW)
  - Restripe eastbound all-way lane to a second eastbound left turn lane
  - Second eastbound right turn lane
- Walnut Avenue (EW)
  - Second eastbound through lane
- Riverside Drive (EW)
  - Northbound right turn lane
  - Second southbound left turn lane

Euclid Avenue (NS) at:

- SR-60 Freeway Eastbound Ramps (EW)
  - Eastbound free-right turn lane
- Riverside Drive (EW)
  - Third northbound through lane
  - Second southbound left turn lane
  - Third southbound through lane
  - Southbound right-turn overlap phasing
  - Eastbound left turn lane
  - Westbound left turn lane

- Edison Street (EW)
  - Third northbound through lane
  - Third southbound through lane
  - Second Eastbound left turn lane
  - Second and third eastbound through lanes
  - Second westbound through lane
- Merrill Avenue (EW)
  - Third northbound through lane
  - Third southbound through lane
- Kimball Avenue (EW)
  - Third and fourth northbound through lanes
  - Second southbound left turn lane
  - Third southbound through lane
  - Second eastbound left turn lane
  - Second eastbound through lane
  - Eastbound right turn lane
  - Second westbound through lane
  - Westbound right-turn overlap phasing
- Bickmore Avenue (EW)
  - Third northbound through lane
  - Northbound right turn lane
  - Second southbound left turn lane
  - Third southbound through lane
  - First and second westbound left turn lanes
  - Westbound right turn lane
- Pine Avenue (EW)
  - Third and fourth northbound through lanes
  - Northbound free-right turn lane
  - Second southbound left turn lane
  - Third southbound through lane

- First and Second Eastbound left turn lanes
- Second and third eastbound through lanes
- First, second and third westbound left turn lanes
- Second and third westbound through lanes
- Westbound free-right turn lane

Grove Avenue (NS) at:

- SR-60 Freeway Eastbound Ramps (EW)
  - Second eastbound left turn lane
  - Second eastbound right turn lane
- Edison Street (EW)
  - Second northbound through lane
  - Second southbound through lane
- Kimball Avenue (EW)
  - Second eastbound through lane
  - Second westbound through lane
- Pine Avenue (EW)
  - Southbound left turn lane
  - Second westbound through lane

Walker Avenue (NS) at:

- Edison Street (EW)
  - Northbound left turn lane
  - Southbound left turn lane
  - Eastbound left turn lane
  - Second eastbound through lane
  - Westbound left turn lane
  - Second westbound through lane

Hellman Avenue (NS) at:

- Merrill Avenue (EW)
  - Second northbound through lane
  - Northbound right turn lane
  - Second southbound through lane
  - Second westbound left turn lane
- Kimball Avenue (EW)
  - Second northbound left turn lane
  - Second northbound through lane
  - Northbound right turn lane
  - Second southbound left turn lane
  - Southbound right turn lane
  - Second eastbound left turn lane
  - Second eastbound through lane
  - Eastbound right turn lane
  - Second westbound left turn lane
  - Second westbound through lane
- Pine Avenue (EW)
  - Second northbound left turn lane
  - Northbound right turn lane
  - Second southbound left turn lane
  - Southbound right turn lane
  - Second eastbound left turn lane
  - Eastbound right turn lane
  - Second westbound left turn lane
  - Westbound right turn lane
- Chandler Street (EW)
  - Second northbound through lane
  - Second southbound left turn lane
  - Second southbound through lane

- Second eastbound through lane
- Second westbound through lane

Vineyard Avenue (NS) at:

- SR-60 Freeway Eastbound Ramps (EW)
  - Eastbound all-way lane

Archibald Avenue (NS) at:

- Riverside Drive (EW)
  - Second eastbound left turn lane
- Edison Avenue (EW)
  - Second northbound left turn lane
  - Northbound right-turn overlap phasing
  - Eastbound right turn lane
  - Eastbound right-turn overlap phasing
  - Second westbound left turn lane
- Merrill Avenue (EW)
  - Second northbound through lane
  - Second southbound through lane
  - Westbound left turn lane
- Cloverdale Road (EW)
  - Second northbound through lane
  - Second southbound through lane
  - First and second eastbound left turn lanes
  - Second eastbound through lane
  - Second westbound through lane
- Pine Avenue (EW)
  - Second northbound through lane
  - Second westbound through lane
- River Road (EW)
  - Second southbound through lane

River Road (NS) at:

- Corydon Street (EW)
  - Southbound right turn lane
  - Second eastbound left turn lane
  - Second eastbound through lane

Haven Avenue (NS) at:

- SR-60 Freeway Eastbound Ramps (EW)
  - Northbound free-right turn lane

Hamner Avenue (NS) at:

- Cloverdale Road (EW)
  - Second northbound through lane
  - Second southbound through lane
  - Eastbound left turn lane
  - Second westbound through lane
- Schleisman Road (EW)
  - Second northbound through lane
  - Second southbound through lane

I-15 Freeway Southbound Ramps (NS) at:

- Galena Street (EW)
  - Second eastbound right turn lane
- Second Street (EW)
  - Second southbound right turn lane

I-15 Freeway Northbound Ramps (NS) at:

- Second Street (EW)
  - Northbound all-way lane

The operations analysis worksheets for 2020 with project conditions (with improvements) are included in Appendix "J". As shown in Table 5-6, the study area intersections are projected to operate at Level of Service "D" or better during the peak hours, with improvements.

5.3 Future Buildout Traffic Operations

The intersection operations analysis for Buildout with project traffic conditions with existing geometrics are summarized in Table 5-7. Buildout with project AM and PM peak hour intersection turning movement volumes are shown on Exhibits 5-I and 5-J, respectively. The operations analysis worksheets for Buildout with project conditions are included in Appendix "K". As shown in Table 5-7, the following study area intersections are projected to experience Level of Service "E" or "F" during the peak hours and are, therefore, deficient per the City of Chino criteria:

Pipeline Avenue (NS) at:

- Chino Hills Parkway (EW)

SR-71 Freeway Southbound Ramps (NS) at:

- Chino Hills Parkway (EW)
- Pine Avenue (EW)

SR-71 Freeway Northbound Ramps (NS) at:

- Pine Avenue (EW)

Central Avenue (NS) at:

- Edison Avenue (EW)
- El Prado Road (EW)

TABLE 5-7

BUILDOUT WITH PROJECT CONDITIONS INTERSECTION ANALYSIS

INTERSECTION	TRAFFIC CONTROL[3]	INTERSECTION APPROACH LANES[1] NORTH-BOUND			SOUTH-BOUND			EAST-BOUND			WEST-BOUND			DELAY[2] (SECS.)		LEVEL OF SERVICE	
		L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
Pipeline Ave. (NS) at:																	
• Chino Hills Pkwy. (EW)	TS	1	2	0	1	2	0	1	3	1	1	2	1	56.5	--[4]	E	F
SR-71 Fwy. SB Ramps (NS) at:																	
• Chino Hills Pkwy. (EW)	TS	0	0	0	1.5	0.5	1>>	0	4	1	1	2	0	39.6	96.9	D	F
• Soquel Canyon Pkwy. (EW)	TS	0	0	0	1.5	0	0.5	0	3	1>>	0	3	1>>	7.3	17.4	A	B
• Pine Ave. (EW)	TS	0	0	0	1.5	0	0.5	0	1	1	1	2	0	--[4]	45.5	F	D
• Euclid Ave. (EW)	TS	1	0	1	1.5	0.5	1	0	2	1	1	2	0	18.6	17.2	B	B
SR-71 Fwy. NB Ramps (NS) at:																	
• Chino Hills Pkwy. (EW)	TS	1.5	1.5	0	0	0	0	2	2	0	0	2	1	20.2	18.6	C	B
• Soquel Canyon Pkwy. (EW)	TS	1.5	0	0.5	0	0	0	0	3	1>>	0	3	1>>	11.3	14.9	B	B
• Pine Ave. (EW)	AWS	1	0	1	0	0	0	1	1	0	0	1	1	--[4]	--[4]	F	F
• Euclid Ave. (EW)	TS	2	0	1>>	0	0	0	0	2	1>>	1	2	0	11.6	18.8	B	B
Central Ave. (NS) at:																	
• Edison Ave. (EW)	TS	1	2	1	1	2	1	1	2	0	1	2	1	49.9	--[4]	D	F
• Chino Hills Pkwy. (EW)	TS	1	2	1	1	2	1	1.5	0.5	1	1	2	1	19.9	31.0	B	C
• El Prado Rd. (EW)	CSS	0	1	1	1	2	0	0	0	0	1	0	1	--[4]	--[4]	F	F
El Prado Rd. (NS) at:																	
• Kimball Ave. (EW)	CSS	1	1	0	1	1	1	1	1	0	1	1	0	--[4]	--[4]	F	F
• Pine Ave. (EW)	CSS	0	0	0	0	1	0	0	1	0	0	1	0	--[4]	--[4]	F	F
Mountain Ave. (NS) at:																	
• SR-60 Fwy. WB Ramps (EW)	TS	1	2	0	0	2	1	0	0	0	1	0	1	--[6]	45.4	F	D
• SR-60 Fwy. EB Ramps (EW)	TS	0	2	1	1	2	0	1.5	0	0.5	0	0	0	41.9	--[4]	D	F
• Walnut Ave. (EW)	TS	1	2	1	1	2	1	1	1	1	1	1	1	--[4]	28.9	F	C
• Riverside Dr. (EW)	TS	1	2	0	1	2	1	1	2	1	1	2	1	51.5	56.3	D	E
• Edison St. (EW)	TS	0	0	0	1	0	1	1	2	0	0	2	1	21.7	20.4	C	C
Euclid Ave. (NS) at:																	
• SR-60 Fwy. WB Ramps (EW)	TS	1	2	0	0	2	1	0	0	0	1.5	0	0.5	--[4]	--[4]	F	F
• SR-60 Fwy. EB Ramps (EW)	TS	0	2	1	1	2	0	1.5	0	0.5	0	0	0	--[4]	--[4]	F	F
• Walnut Ave. (EW)	TS	1	3	1	2	3	1	1	2	0	1	2	0	22.1	28.6	C	C
• Riverside Dr. (EW)	TS	1	2	1	1	2	1	0	2	0	0	2	0	39.6	--[4]	D	F
• Edison St. (EW)	TS	1	2	1	1	2	1	1	1	1	1	1	0	--[4]	--[4]	F	F
• Merrill Ave. (EW)	TS	0	2	1	1	2	0	0	0	0	0	1	0	--	--[4]	F	F
• Kimball Ave. (EW)	TS	1	2	1	1	2	1	0	1	0	0	1	0	--	--[4]	F	F
• Bickmore Ave. (EW)	CSS	1	1	0	1	1	0	0	1	0	0	1	0	--[4]	--[4]	F	F
• Pine Ave. (EW)	TS	1	2	1	1	2	1	0	1	1	0	1	1	--[4]	--[4]	F	F

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.
L = Left; T = Through; R = Right; >> = Free Right Turn

[2] Delay and level of service calculated using the following analysis software: Traffix, Version 7.5.1015 (2000). Per the 1997 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[3] TS = Traffic Signal
AWS = All Way Stop
CSS = Cross Street Stop

[4] -- = Delay High, Intersection Unstable, Level of Service "F".

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TABLE 5-7 (CONTINUED)

BUILDOUT WITH PROJECT CONDITIONS INTERSECTION ANALYSIS

INTERSECTION	TRAFFIC CONTROL[3]	INTERSECTION APPROACH LANES[1] NORTH-BOUND L	T	R	SOUTH-BOUND L	T	R	EAST-BOUND L	T	R	WEST-BOUND L	T	R	DELAY[2] (SECS.) AM	PM	LEVEL OF SERVICE AM	PM
Grove Ave. (NS) at:																	
• SR-60 Fwy. WB Ramps (EW)	TS	1	2	0	0	2	1	0	0	0	1	0	1	--[4]	35.9	F	D
• SR-60 Fwy. EB Ramps (EW)	TS	0	2	1	1	2	0	1	0	1	0	0	0	48.9	--[4]	D	F
• Edison St. (EW)	AWS	0	1	0	0	1	0	0	1	0	0	1	0	--[4]	--[4]	F	F
• Merrill Ave. (EW)	AWS	0	0	0	0	1	0	0	1	0	0	1	0	12.9	22.8	B	C
• Kimball Ave. (EW)	AWS	0	1	0	0	0	0	0	1	0	0	1	0	--[4]	--[4]	F	F
• Bickmore Ave. (EW)	CSS	0	1	0	0	1	0	0	1	0	0	1	0	--[4]	60.2	F	F
• Pine Ave. (EW)	CSS	0	0	0	0	1	0	1	1	0	0	1	0	--[4]	--[4]	F	F
Walker Ave. (NS) at:																	
• Edison Ave. (EW)	CSS	0	1	0	0	1	0	0	1	0	0	1	0	--[4]	--[4]	F	F
Hellman Ave. (NS) at:																	
• Merrill Ave. (EW)	TS	1	1	0	1	1	0	1	1	0	1	1	0	--[4]	--[4]	F	F
• Kimball Ave. (EW)	TS	1	1	0	1	1	0	1	1	0	1	1	0	--[4]	--[4]	F	F
• Pine Ave. (EW)	CSS	0	1	0	0	1	0	0	1	0	0	1	0	--[4]	--[4]	F	F
• Chandler St. (EW)	CSS	0	1	0	0	1	0	0	1	0	0	1	0	--[4]	--[4]	F	F
Vineyard Ave. (NS) at:																	
• SR-60 Fwy. WB Ramps (EW)	TS	1	1	0	0	2	0	0	0	0	1	0	1	35.8	45.3	D	D
• SR-60 Fwy. EB Ramps (EW)	TS	0	2	0	1	2	0	1	0	1	0	0	0	28.7	--[4]	C	F
• Edison Ave. (EW)	TS	1	1	0	1	1	0	1	2	1	1	2	1	22.2	28.4	C	C
Archibald Ave. (NS) at:																	
• SR-60 Fwy. WB Ramps (EW)	TS	1	3	0	0	4	0	0	0	0	1	0	1	23.0	28.4	C	B
• SR-60 Fwy. EB Ramps (EW)	TS	0	4	0	1	3	0	1	0	1	0	0	0	17.4	24.4	B	C
• Riverside Dr. (EW)	TS	1	3	0	1	3	0	1	2	1	1	1	1	--[4]	--[4]	F	F
• Edison Ave. (EW)	TS	1	2	1	1	2	1	1	2	0	1	2	0	--[4]	--[4]	F	F
• Merrill Ave. (EW)	CSS	1	1	0	0	1	0	0	1	0	0	1	0	--[4]	--[4]	F	F
• Cloverdale Rd. (EW)	TS	0	1	0	1	1	0	0	1	0	1	1	0	--[4]	--[4]	F	F
• Pine Ave. (EW)	TS	1	1	0	1	1	0	1	1	0	1	1	0	--[4]	--[4]	F	F
• River Rd. (EW)	CSS	1	1	0	0	1	1	1	0	1	0	0	0	--[4]	--[4]	F	F
River Rd. (NS) at:																	
• Corydon St. (EW)	TS	1	1	1	1	2	0	1	1	1	1	1	1	--	--[4]	F	F
• Second St. (EW)	TS	1	2	1	1	2	1	1	1	1	1	1	0	45.7	36.5	D	D
Haven Ave. (NS) at:																	
• SR-60 Fwy. WB Ramps (EW)	TS	2	3	0	0	3	1	0	0	0	1	0	1>>	18.0	17.8	B	B
• SR-60 Fwy. EB Ramps (EW)	TS	0	3	0	2	3	0	2	0	1	0	0	0	36.7	--[4]	D	F
Hamner Ave. (NS) at:																	
• Cloverdale Rd. (EW)	TS	1	1	1	1	1	1	0	1	1	0	1	1	--[4]	--[4]	F	F
• Schleisman Rd. (EW)	CSS	1	1	0	1	1	0	0	1	0	0	1	0	--[4]	--[4]	F	F
I-15 Fwy. SB Ramps (NS) at:																	
• Galena St. (EW)	TS	0	0	0	1	0	1	0	2	1	1	2	0	56.3	--[4]	E	F
• Limonite Ave. (EW)	TS	0	0	0	1	0	1	0	2	1	1	2	0	--[4]	43.4	F	D
• Second St. (EW)	TS	0	0	0	1	0	1	0	2	0	1	2	0	--[4]	--[4]	F	F
I-15 Fwy. NB Ramps (NS) at:																	
• Galena St. (EW)	TS	1	0	1	0	0	0	1	2	0	0	2	1	43.1	14.4	D	B
• Limonite Ave. (EW)	TS	0.5	0	1.5	0	0	0	1	2	0	0	2	1	26.0	29.6	C	C
• Second St. (EW)	TS	1	0	1	0	0	0	1	1	0	0	1	0	--[4]	--[4]	F	F

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.
L = Left; T = Through; R = Right; >> = Free Right Turn

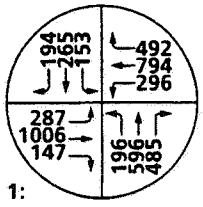
[2] Delay and level of service calculated using the following analysis software: Traffix, Version 7.5.1015 (2000). Per the 1997 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[3] TS = Traffic Signal
AWS = All Way Stop
CSS = Cross Street Stop

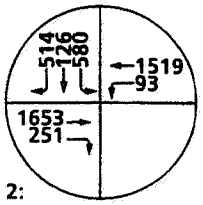
[4] -- = Delay High, Intersection Unstable, Level of Service "F".

EXHIBIT 5-I

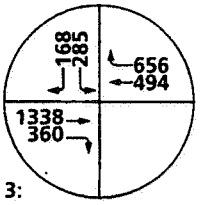
BUILDOUT WITH PROJECT
AM PEAK HOUR INTERSECTION VOLUMES (PART 1/2)



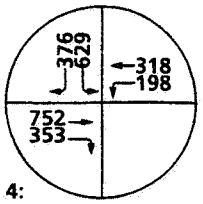
1: PIPELINE AVE. / CHINO HILLS PKWY.



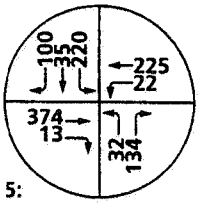
2: SR-71 SB RAMPS / CHINO HILLS PKWY.



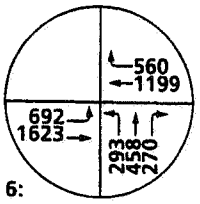
3: SR-71 SB RAMPS / SOQUEL CANYON PKWY.



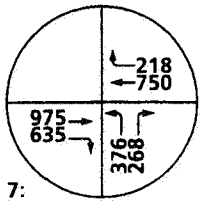
4: SR-71 SB RAMPS / PINE AVE.



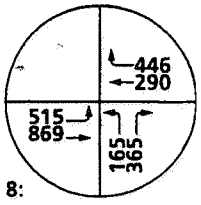
5: SR-71 SB RAMPS / EUCLID AVE.



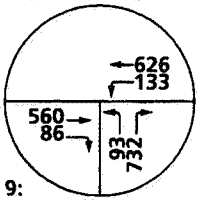
6: SR-71 NB RAMPS / CHINO HILLS PKWY.



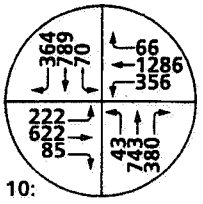
7: SR-71 NB RAMPS / SOQUEL CANYON PKWY.



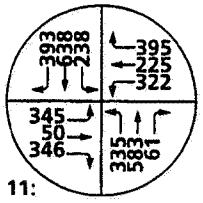
8: SR-71 NB RAMPS / PINE AVE.



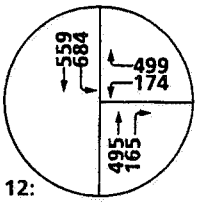
9: SR-71 NB RAMPS / EUCLID AVE.



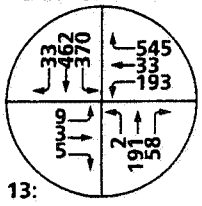
10: CENTRAL AVE. / EDISON AVE.



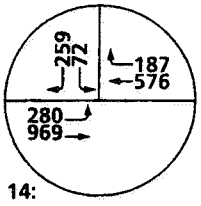
11: CENTRAL AVE. / CHINO HILLS PKWY.



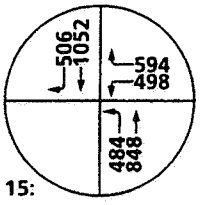
12: CENTRAL AVE. / EL PRADO RD.



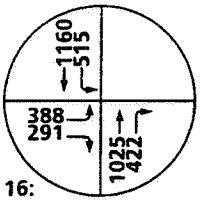
13: EL PRADO RD. / KIMBALL AVE.



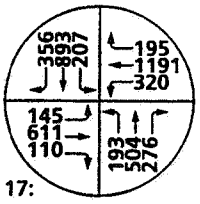
14: EL PRADO RD. / PINE AVE.



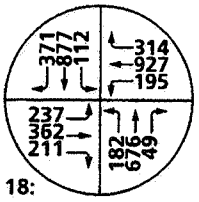
15: MOUNTAIN AVE. / SR-60 WB RAMPS



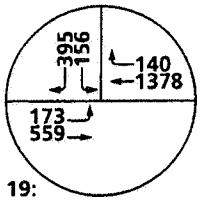
16: MOUNTAIN AVE. / SR-60 EB RAMPS



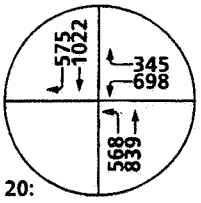
17: MOUNTAIN AVE. / WALNUT AVE.



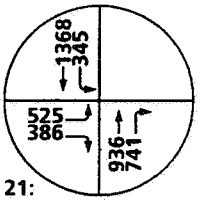
18: MOUNTAIN AVE. / RIVERSIDE DR.



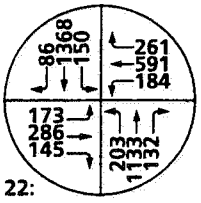
19: MOUNTAIN AVE. / EDISON AVE.



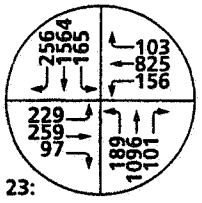
20: EUCLID AVE. / SR-60 WB RAMPS



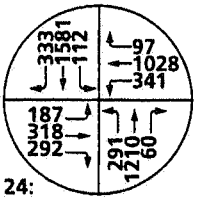
21: EUCLID AVE. / SR-60 EB RAMPS



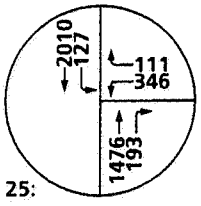
22: EUCLID AVE. / WALNUT AVE.



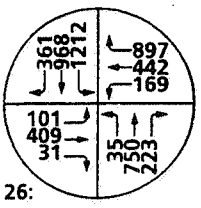
23: EUCLID AVE. / RIVERSIDE DR.



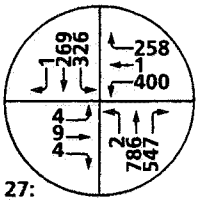
24: EUCLID AVE. / EDISON AVE.



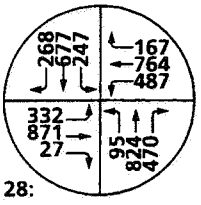
25: EUCLID AVE. / MERRILL AVE.



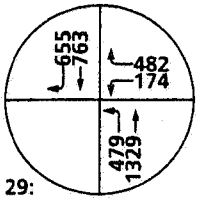
26: EUCLID AVE. / KIMBALL AVE.



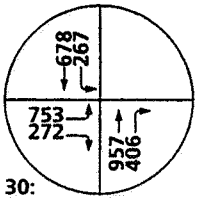
27: EUCLID AVE. / BICKMORE AVE.



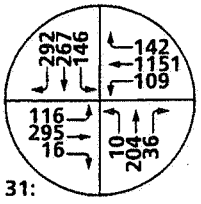
28: EUCLID AVE. / PINE AVE.



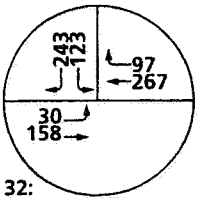
29: GROVE AVE. / SR-60 WB RAMPS



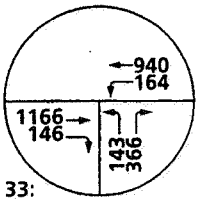
30: GROVE AVE. / SR-60 EB RAMPS



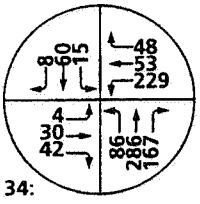
31: GROVE AVE. / EDISON AVE.



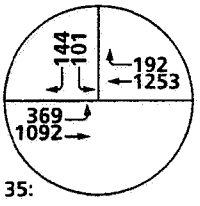
32: GROVE AVE. / MERRILL AVE.



33: GROVE AVE. / KIMBALL AVE.



34: GROVE AVE. / BICKMORE AVE.



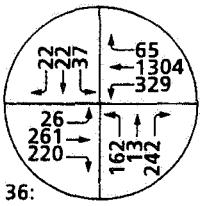
35: GROVE AVE. / PINE AVE.

N

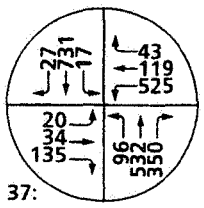
URBAN CROSSROADS

EXHIBIT 5-I

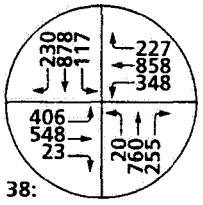
BUILDOUT WITH PROJECT AM PEAK HOUR INTERSECTION VOLUMES (PART 2/2)



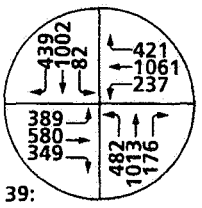
36: WALKER AVE. / EDISON AVE.



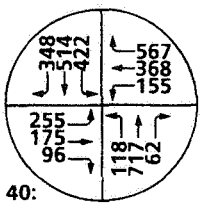
37: HELLMAN AVE. / MERRILL AVE.



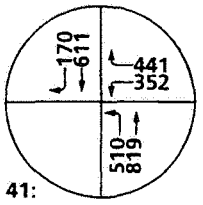
38: HELLMAN AVE. / KIMBALL AVE.



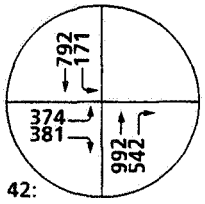
39: HELLMAN AVE. / PINE AVE.



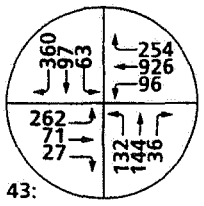
40: HELLMAN AVE. / CHANDLER ST.



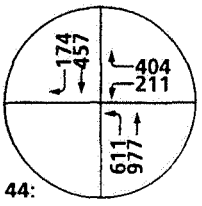
41: VINEYARD AVE. / SR-60 WB RAMPS



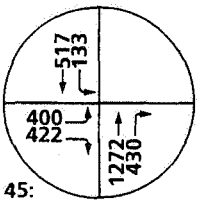
42: VINEYARD AVE. / SR-60 EB RAMPS



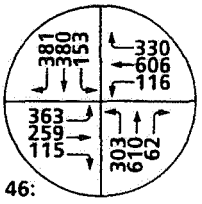
43: VINEYARD AVE. EDISON AVE.



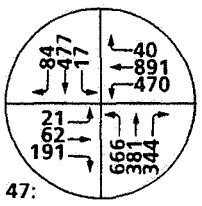
44: ARCHIBALD AVE. / SR-60 WB RAMPS



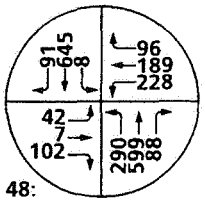
45: ARCHIBALD AVE. / SR-60 EB RAMPS



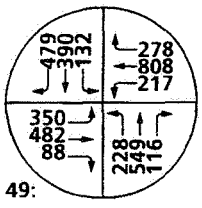
46: ARCHIBALD AVE. / RIVERSIDE DR.



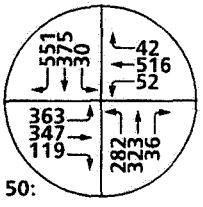
47: ARCHIBALD AVE. / EDISON AVE.



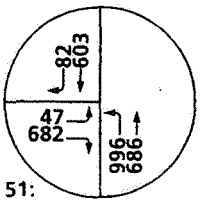
48: ARCHIBALD AVE. / MERRILL AVE.



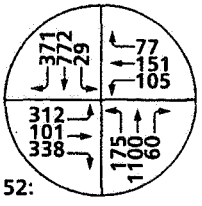
49: ARCHIBALD AVE. / CLOVERDALE RD.



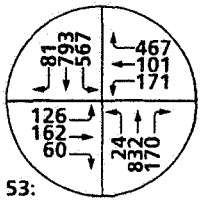
50: ARCHIBALD AVE. / PINE AVE.



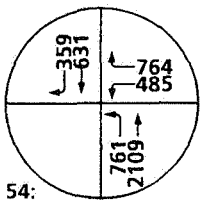
51: ARCHIBALD AVE. / RIVER RD.



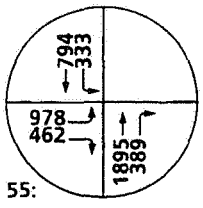
52: RIVER RD. / CORYDON ST.



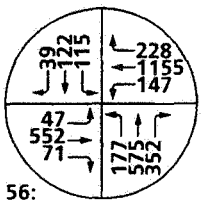
53: RIVER RD. / SECOND ST.



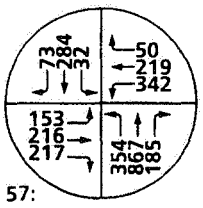
54: HAVEN AVE. / SR-60 WB RAMPS



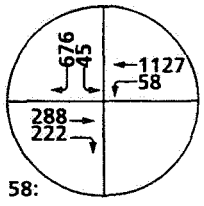
55: HAVEN AVE. / SR-60 EB RAMPS



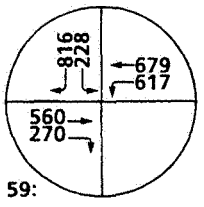
56: HAMNER AVE. / CLOVERDALE RD.



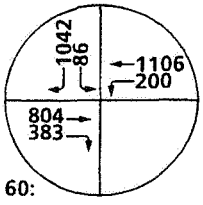
57: HAMNER AVE. / SCHLEISMAN RD.



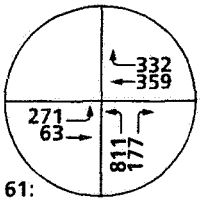
58: I-15 SB RAMPS / GALENA ST.



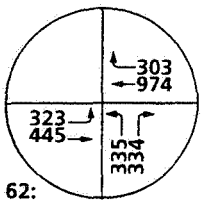
59: I-15 SB RAMPS / LIMONITE AVE.



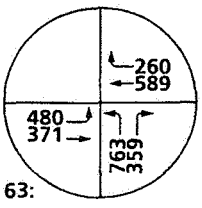
60: I-15 SB RAMPS / SECOND ST.



61: I-15 NB RAMPS / GALENA ST.



62: I-15 NB RAMPS / LIMONITE AVE.

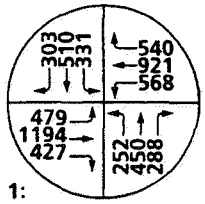


63: I-15 NB RAMPS / SECOND ST.

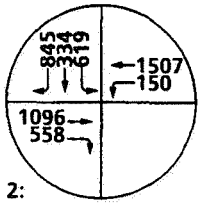
N

EXHIBIT 5-J

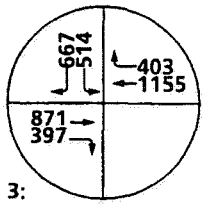
BUILDOUT WITH PROJECT
PM PEAK HOUR INTERSECTION VOLUMES (PART 1/2)



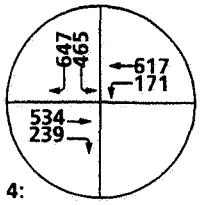
1: PIPELINE AVE. / CHINO HILLS PKWY.



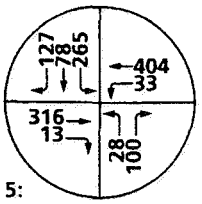
2: SR-71 SB RAMPS / CHINO HILLS PKWY.



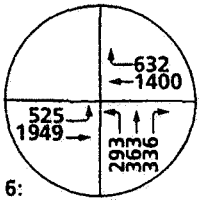
3: SR-71 SB RAMPS / SOQUEL CANYON PKWY.



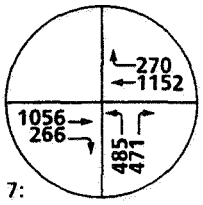
4: SR-71 SB RAMPS / PINE AVE.



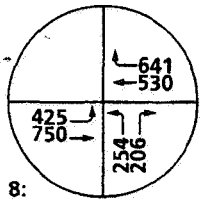
5: SR-71 SB RAMPS / EUCLID AVE.



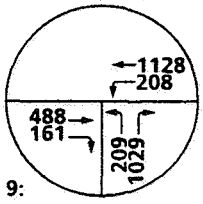
6: SR-71 NB RAMPS / CHINO HILLS PKWY.



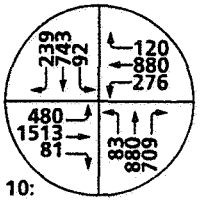
7: SR-71 NB RAMPS / SOQUEL CANYON PKWY.



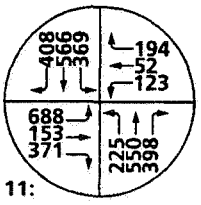
8: SR-71 NB RAMPS / PINE AVE.



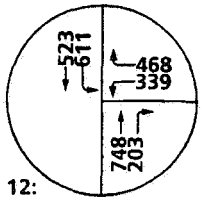
9: SR-71 NB RAMPS / EUCLID AVE.



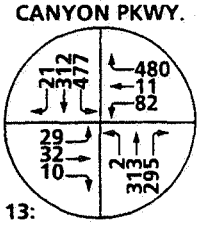
10: CENTRAL AVE. / EDISON AVE.



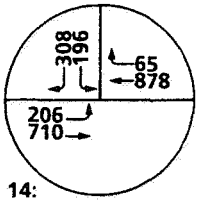
11: CENTRAL AVE. / CHINO HILLS PKWY.



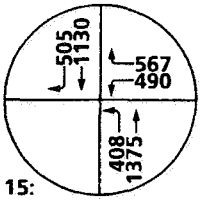
12: CENTRAL AVE. / EL PRADO RD.



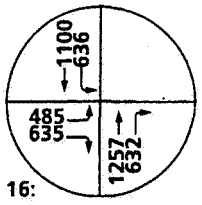
13: EL PRADO RD. / KIMBALL AVE.



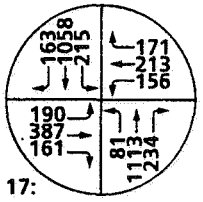
14: EL PRADO RD. / PINE AVE.



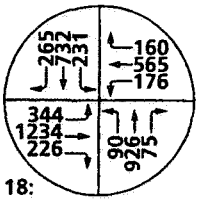
15: MOUNTAIN AVE. / SR-60 WB RAMPS



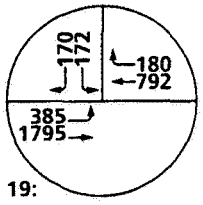
16: MOUNTAIN AVE. / SR-60 EB RAMPS



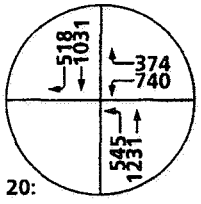
17: MOUNTAIN AVE. / WALNUT AVE.



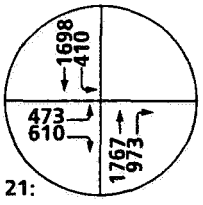
18: MOUNTAIN AVE. / RIVERSIDE DR.



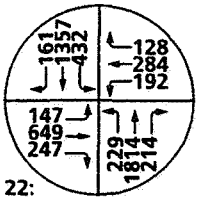
19: MOUNTAIN AVE. / EDISON AVE.



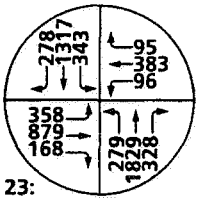
20: EUCLID AVE. / SR-60 WB RAMPS



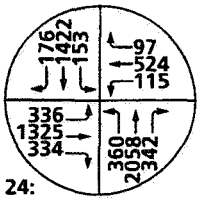
21: EUCLID AVE. / SR-60 EB RAMPS



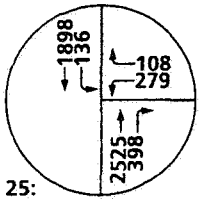
22: EUCLID AVE. / WALNUT AVE.



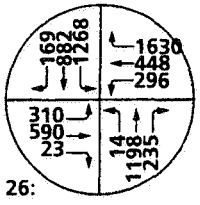
23: EUCLID AVE. / RIVERSIDE DR.



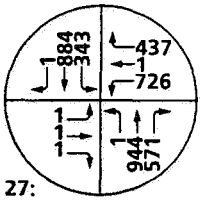
24: EUCLID AVE. / EDISON AVE.



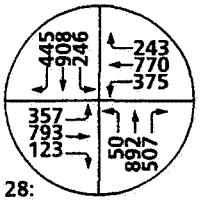
25: EUCLID AVE. / MERRILL AVE.



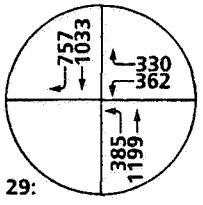
26: EUCLID AVE. / KIMBALL AVE.



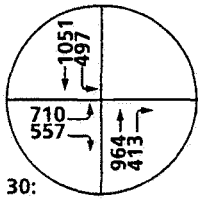
27: EUCLID AVE. / BICKMORE AVE.



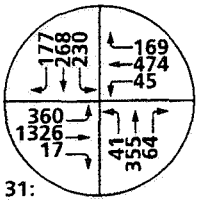
28: EUCLID AVE. / PINE AVE.



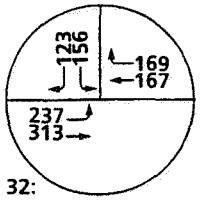
29: GROVE AVE. / SR-60 WB RAMPS



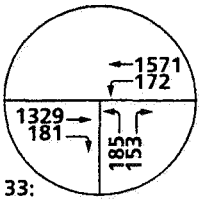
30: GROVE AVE. / SR-60 EB RAMPS



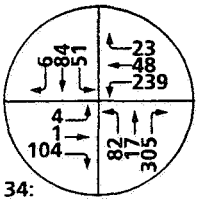
31: GROVE AVE. / EDISON AVE.



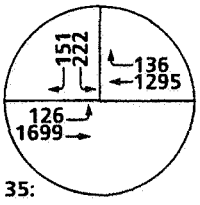
32: GROVE AVE. / MERRILL AVE.



33: GROVE AVE. / KIMBALL AVE.



34: GROVE AVE. / BICKMORE AVE.



35: GROVE AVE. / PINE AVE.

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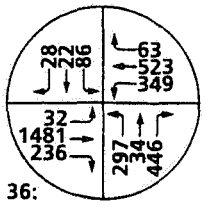
URBAN CROSSROADS

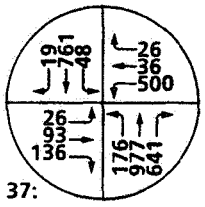
CHINO SUBAREA 2, Chino, California - 00020:98

EXHIBIT 5-J

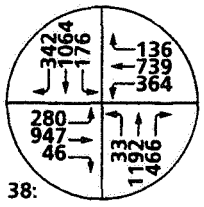
BUILDOUT WITH PROJECT
PM PEAK HOUR INTERSECTION VOLUMES (PART 2/2)



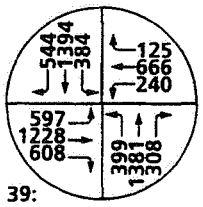
36: WALKER AVE. / EDISON AVE.



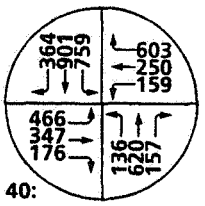
37: HELLMAN AVE. / MERRILL AVE.



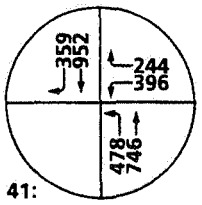
38: HELLMAN AVE. / KIMBALL AVE.



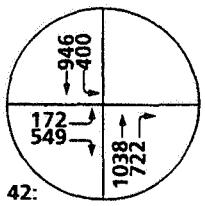
39: HELLMAN AVE. / PINE AVE.



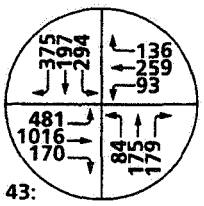
40: HELLMAN AVE. / CHANDLER ST.



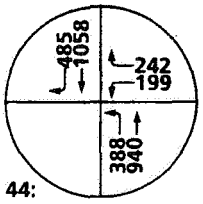
41: VINEYARD AVE. / SR-60 WB RAMPS



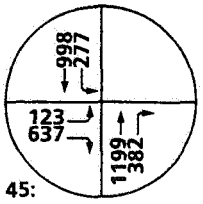
42: VINEYARD AVE. / SR-60 EB RAMPS



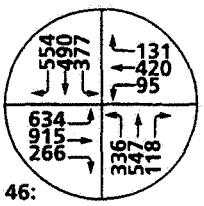
43: VINEYARD AVE. EDISON AVE.



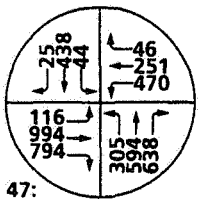
44: ARCHIBALD AVE. / SR-60 WB RAMPS



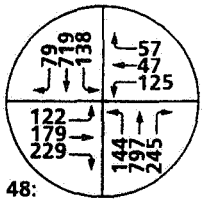
45: ARCHIBALD AVE. / SR-60 EB RAMPS



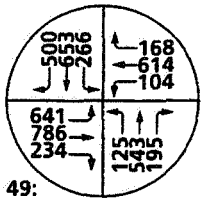
46: ARCHIBALD AVE. / RIVERSIDE DR.



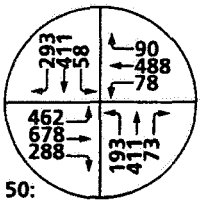
47: ARCHIBALD AVE. / EDISON AVE.



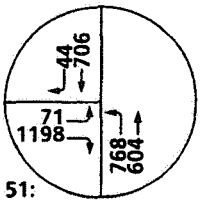
48: ARCHIBALD AVE. / MERRILL AVE.



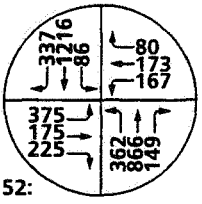
49: ARCHIBALD AVE. / CLOVERDALE RD.



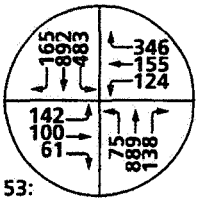
50: ARCHIBALD AVE. / PINE AVE.



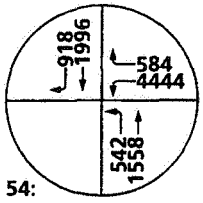
51: ARCHIBALD AVE. / RIVER RD.



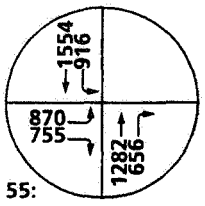
52: RIVER RD. / CORYDON ST.



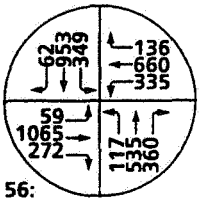
53: RIVER RD. / SECOND ST.



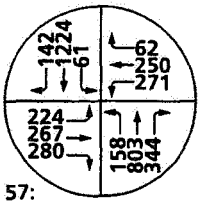
54: HAVEN AVE. / SR-60 WB RAMPS



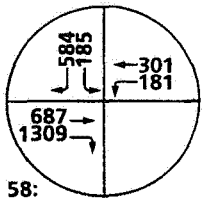
55: HAVEN AVE. / SR-60 EB RAMPS



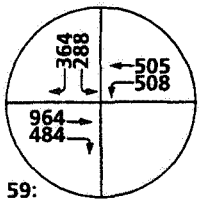
56: HAMNER AVE. / CLOVERDALE RD.



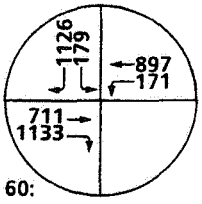
57: HAMNER AVE. / SCHLEISMAN RD.



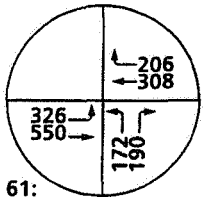
58: I-15 SB RAMPS / GALENA ST.



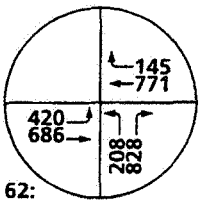
59: I-15 SB RAMPS / LIMONITE AVE.



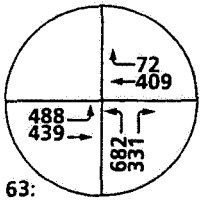
60: I-15 SB RAMPS / SECOND ST.



61: I-15 NB RAMPS / GALENA ST.



62: I-15 NB RAMPS / LIMONITE AVE.



63: I-15 NB RAMPS / SECOND ST.

N

El Prado Road (NS) at:

- Kimball Avenue (EW)
- Pine Avenue (EW)

Mountain Avenue (NS) at:

- SR-60 Freeway Westbound Ramps (EW)
- SR-60 Freeway Eastbound Ramps (EW)
- Walnut Avenue (EW)
- Riverside Drive (EW)

Euclid Avenue (NS) at:

- SR-60 Freeway Westbound Ramps (EW)
- SR-60 Freeway Eastbound Ramps (EW)
- Riverside Drive (EW)
- Edison Street (EW)
- Merrill Avenue (EW)
- Kimball Avenue (EW)
- Bickmore Avenue (EW)
- Pine Avenue (EW)

Grove Avenue (NS) at:

- SR-60 Freeway Westbound Ramps (EW)
- SR-60 Freeway Eastbound Ramps (EW)
- Edison Street (EW)
- Kimball Avenue (EW)
- Bickmore Avenue (EW)
- Pine Avenue (EW)

Walker Avenue (NS) at:

- Edison Avenue (EW)

Hellman Avenue (NS) at:

- Merrill Avenue (EW)
- Kimball Avenue (EW)
- Pine Avenue (EW)
- Chandler Street (EW)

Vineyard Avenue (NS) at:

- SR-60 Freeway Eastbound Ramps (EW)

Archibald Avenue (NS) at:

- Riverside Drive (EW)
- Edison Avenue (EW)
- Merrill Avenue (EW)
- Cloverdale Road (EW)
- Pine Avenue (EW)
- River Road (EW)

River Road (NS) at:

- Corydon Street (EW)

Haven Avenue (NS) at:

- SR-60 Freeway Eastbound Ramps (EW)

Hamner Avenue (NS) at:

- Cloverdale Road (EW)
- Schleisman Road (EW)

I-15 Freeway Southbound Ramps (NS) at:

- Galena Street (EW)
- Limonite Avenue (EW)
- Second Street (EW)

I-15 Freeway Northbound Ramps (NS) at:

- Second Street (EW)

The intersection operations analysis for Buildout with project traffic conditions with improvements are summarized in Table 5-8. Improvements presented in Table 5-8 include both funded improvements (see Section 3.4.1) and any additional improvements needed to achieve acceptable levels of service during the peak hours. Improvements are generally consistent with the subject roadway's planned long range classification (e.g. number of through lanes and no more than dual turn lanes). The one unusual case is Euclid Avenue (NS) at Pine Avenue (EW), where triple left turn lanes will be required on the westbound approach.

The following additional (beyond 2020 With Project conditions) intersection improvements are needed for Buildout with project conditions:

SR-71 Southbound Ramps (NS) at:

- Chino Hills Parkway (EW)
  - Third Westbound through lane

Central Avenue (NS) at:

- Edison Avenue (EW)
  - Eastbound right turn lane

Mountain Avenue (NS) at:

- SR-60 Freeway Westbound Ramps (EW)
  - Westbound all-way lane

Euclid Avenue (NS) at:

- SR-60 Freeway Eastbound Ramps (EW)
  - Second eastbound left turn lane

TABLE 5-8

BUILDOUT WITH PROJECT CONDITIONS INTERSECTION ANALYSIS WITH IMPROVEMENTS

INTERSECTION	TRAFFIC CONTROL[3]	INTERSECTION APPROACH LANES[1]												DELAY[2] (SECS.)		LEVEL OF SERVICE	
		NORTH-BOUND			SOUTH-BOUND			EAST-BOUND			WEST-BOUND						
		L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
Pipeline Ave. (NS) at:																	
• Chino Hills Pkwy. (EW)	TS	1	2	0	1	2	0	2	3	1>	2	3	1>	45.0	53.5	D	D
SR-71 Fwy. SB Ramps (NS) at:																	
• Chino Hills Pkwy. (EW)	TS	0	0	0	1.5	0.5	1>>	0	4	1	1	3	0	12.4	15.5	B	B
• Soquel Canyon Pkwy. (EW)	TS	0	0	0	1.5	0	0.5	0	3	1>>	0	3	1>>	7.3	17.4	A	B
• Pine Ave. (EW)	TS	0	0	0	1.5	0	0.5	0	2	1	1	2	0	36.9	37.5	D	D
• Euclid Ave. (EW)	TS	1	0	1	1.5	0.5	1	0	2	1	1	2	0	18.6	17.2	B	B
SR-71 Fwy. NB Ramps (NS) at:																	
• Chino Hills Pkwy. (EW)	TS	1.5	1.5	0	0	0	0	2	2	0	0	2	1	31.0	27.1	C	C
• Soquel Canyon Pkwy. (EW)	TS	1.5	0	0.5	0	0	0	0	3	1>>	0	3	1>>	11.3	14.9	B	B
• Pine Ave. (EW)	TS	1	0	1	0	0	0	1	2	0	0	1	1	43.5	45.5	D	D
• Euclid Ave. (EW)	TS	2	0	1>>	0	0	0	0	2	1>>	1	2	0	11.6	18.8	B	B
Central Ave. (NS) at:																	
• Edison Ave. (EW)	TS	1	2	1>	1	2	1	2	2	1	2	2	1	44.2	52.5	D	D
• Chino Hills Pkwy. (EW)	TS	1	2	1	1	2	1	1.5	0.5	1	1	2	1	19.9	31.0	B	C
• El Prado Rd. (EW)	TS	0	2	1	2	2	0	0	0	0	1	0	1	38.0	39.0	D	D
El Prado Rd. (NS) at:																	
• Kimball Ave. (EW)	TS	1	1	1	1	1	1	1	1	0	1	1	0	39.5	50.3	D	D
• Pine Ave. (EW)	TS	0	0	0	1	0	1	1	2	0	0	1	1	26.0	36.9	C	D
Mountain Ave. (NS) at:																	
• SR-60 Fwy. WB Ramps (EW)	TS	1	2	0	0	2	1	0	0	0	1.5	0	1.5	40.2	32.5	D	C
• SR-60 Fwy. EB Ramps (EW)	TS	0	2	1	2	2	0	2	0	2	0	0	0	23.8	32.5	C	C
• Walnut Ave. (EW)	TS	1	2	1	1	2	1	1	2	1	1	2	1	48.1	35.8	D	D
• Riverside Dr. (EW)	TS	1	2	1	2	2	1	1	2	1	1	2	1	50.0	47.8	D	D
• Edison St. (EW)	TS	0	0	0	1	0	1	1	2	0	0	2	1	26.5	25.1	C	C
Euclid Ave. (NS) at:																	
• SR-60 Fwy. WB Ramps (EW)	TS	1	2	0	0	2	1	0	0	0	1.5	0	1.5	50.1	45.9	D	D
• SR-60 Fwy. EB Ramps (EW)	TS	0	2	2	1	2	0	2	0	1>>	0	0	0	25.0	29.6	C	C
• Walnut Ave. (EW)	TS	1	3	1	2	3	1	1	2	0	1	2	0	22.1	28.6	C	C
• Riverside Dr. (EW)	TS	1	3	1	2	3	1	1	2	0	1	2	0	48.6	51.7	D	D
• Edison St. (EW)	TS	1	3	1	1	3	1>	2	3	0	1	2	0	54.3	53.5	D	D
• Merrill Ave. (EW)	TS	0	3	1	1	3	0	0	0	0	0	1	0	38.6	17.6	D	B
• Kimball Ave. (EW)	TS	1	4	1>	2	3	0	2	2	1	2	2	1>>	36.0	50.8	C	D
• Bickmore Ave. (EW)	TS	1	3	1	2	3	0	0	1	0	2	1	1	13.7	18.6	B	B
• Pine Ave. (EW)	TS	1	4	1>>	2	3	1	2	3	1	3	3	1>>	48.6	39.7	D	D

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.
L = Left; T = Through; R = Right; >> = Free Right Turn; > = Right Turn Overlap; 1 = Improvement

[2] Delay and level of service calculated using the following analysis software: Traffix, Version 7.5.1015 (2000). Per the 1997 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[3] TS = Traffic Signal

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TABLE 5-8 (CONTINUED)

BUILDOUT WITH PROJECT CONDITIONS INTERSECTION ANALYSIS WITH IMPROVEMENTS

INTERSECTION	TRAFFIC CONTROL[3]	INTERSECTION APPROACH LANES[1] NORTH-BOUND			SOUTH-BOUND			EAST-BOUND			WEST-BOUND			DELAY[2] (SECS.)		LEVEL OF SERVICE	
		L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
Grove Ave. (NS) at:																	
• SR-60 Fwy. WB Ramps (EW)	TS	1	2	0	0	2	1	0	0	0	1.5	0	1.5	30.1	27.9	C	C
• SR-60 Fwy. EB Ramps (EW)	TS	0	2	1	1	2	0	2	0	2	0	0	0	25.1	31.2	C	C
• Edison St. (EW)	TS	1	2	0	1	2	0	1	2	0	1	2	0	37.0	41.9	D	D
• Merrill Ave. (EW)	AWS	0	0	0	0	1	0	1	1	0	0	1	0	13.2	13.9	B	B
• Kimball Ave. (EW)	TS	1	0	1	0	0	0	0	2	0	1	2	0	24.3	43.8	B	D
• Bickmore Ave. (EW)	TS	1	1	0	1	1	0	1	1	0	1	1	0	10.5	10.5	B	B
• Pine Ave. (EW)	TS	0	0	0	1	0	1	1	2	0	0	2	0	26.4	20.9	C	C
Walker Ave. (NS) at:																	
• Edison Ave. (EW)	TS	1	1	1>	1	1	0	1	2	1	1	2	0	22.6	44.9	C	D
Hellman Ave. (NS) at:																	
• Merrill Ave. (EW)	TS	1	2	1	1	2	0	1	1	0	2	1	0	36.2	37.5	D	D
• Kimball Ave. (EW)	TS	2	2	1	2	2	1	2	2	1	2	2	0	40.7	40.8	D	D
• Pine Ave. (EW)	TS	2	2	1>	2	3	1>	2	3	1	2	2	1	48.2	54.8	D	D
• Chandler St. (EW)	TS	1	2	0	2	2	0	2	2	0	1	2	1>	43.6	48.0	D	D
Vineyard Ave. (NS) at:																	
• SR-60 Fwy. WB Ramps (EW)	TS	1	1	0	0	2	0	0	0	0	1	0	1	40.0	48.5	D	D
• SR-60 Fwy. EB Ramps (EW)	TS	0	2	0	1	2	0	1.5	0	1.5	0	0	0	22.9	43.5	C	D
• Edison Ave. (EW)	TS	1	1	0	1	1	0	1	2	1	1	2	1	22.2	28.4	C	C
Archibald Ave. (NS) at:																	
• SR-60 Fwy. WB Ramps (EW)	TS	1	3	0	0	4	0	0	0	0	1	0	1	23.0	14.9	C	B
• SR-60 Fwy. EB Ramps (EW)	TS	0	4	0	1	3	0	1	0	1	0	0	0	17.4	24.4	B	C
• Riverside Dr. (EW)	TS	1	3	0	1	3	1>	2	2	1	1	2	1	47.7	47.0	D	D
• Edison Ave. (EW)	TS	2	2	1>	1	2	1	1	2	1>	2	2	0	38.1	41.0	D	D
• Merrill Ave. (EW)	TS	1	2	0	1	2	0	1	1	0	1	1	0	21.2	24.7	C	C
• Cloverdale Rd. (EW)	TS	1	2	0	1	2	0	2	2	0	1	2	0	51.7	52.0	D	D
• Pine Ave. (EW)	TS	1	2	0	1	2	0	1	2	0	1	2	0	54.3	45.9	D	C
• River Rd. (EW)	TS	1	1	0	0	2	1	1	0	1>>	0	0	0	53.6	34.7	D	C
River Rd. (NS) at:																	
• Corydon St. (EW)	TS	1	2	1	1	2	1	2	2	1	1	1	1	37.2	46.2	D	D
• Second St. (EW)	TS	1	2	1	1	2	1	1	1	1	1	1	0	49.4	40.5	D	D
Haven Ave. (NS) at:																	
• SR-60 Fwy. WB Ramps (EW)	TS	2	3	0	0	3	1	0	0	0	1	0	1>>	33.3	22.2	C	C
• SR-60 Fwy. EB Ramps (EW)	TS	0	3	1>>	2	3	0	1.5	0	1.5	0	0	0	34.3	40.7	C	D
Hamner Ave. (NS) at:																	
• Cloverdale Rd. (EW)	TS	1	2	1>	2	2	1	1	2	1	2	2	1	40.8	53.7	D	D
• Schleisman Rd. (EW)	TS	1	2	1	1	2	1	1	1	0	2	1	0	45.6	54.4	D	D
I-15 Fwy. SB Ramps (NS) at:																	
• Galena St. (EW)	TS	0	0	0	1	0	1	0	2	2	1	2	0	47.3	35.6	D	D
• Limonite Ave. (EW)	TS	0	0	0	1	0	2	0	2	1	1	2	0	40.3	39.5	D	D
• Second St. (EW)	TS	0	0	0	1	0	2	0	2	2	1	2	0	20.2	21.5	C	C
I-15 Fwy. NB Ramps (NS) at:																	
• Galena St. (EW)	TS	1	0	1	0	0	0	1	2	0	0	2	1	47.7	27.9	D	C
• Limonite Ave. (EW)	TS	0.5	0	1.5	0	0	0	1	2	0	0	2	1	37.6	40.6	C	D
• Second St. (EW)	TS	1.5	0	1.5	0	0	0	1	1	0	0	1	1	52.5	39.9	D	D

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.
L = Left; T = Through; R = Right; >> = Free Right Turn; ‡ Improvement

[2] Delay and level of service calculated using the following analysis software: Traffix, Version 7.5.1015 (2000). Per the 1997 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[3] TS = Traffic Signal

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- Kimball Avenue (EW)
  - Westbound free-right turn lane

Walker Avenue (NS) at:

- Edison Avenue (EW)
  - Northbound right turn lane
  - Northbound right-turn overlap phasing
  - Eastbound right turn lane

Hellman Avenue (NS) at:

- Pine Avenue (EW)
  - Northbound right-turn overlap phasing
  - Third Southbound through lane
  - Southbound right-turn overlap phasing
  - Second eastbound left turn lane
  - Third eastbound through lane
  - Third westbound through lane
  - Westbound right turn lane
  - Westbound right-turn overlap phasing

Archibald Avenue (NS) at:

- Riverside Drive (EW)
  - Southbound right-turn overlap phasing
  - Second westbound through lane

River Road (NS) at:

- Corydon Street (EW)
  - Second northbound through lane

Haven Avenue (NS) at:

- SR-60 Freeway Eastbound Ramps (EW)
  - Restripe second eastbound left turn lane to an all-way lane

Hamner Avenue (NS) at:

- Cloverdale Road (EW)
  - Northbound right-turn overlap phasing
  - Second southbound left turn lane
  - Second westbound left turn lane
- Schleisman Road (EW)
  - Northbound right turn lane
  - Southbound right turn lane
  - Second westbound left turn lane

I-15 Freeway Southbound Ramps (NS) at:

- Limonite Avenue (EW)
  - Second southbound right turn lane

The operations analysis worksheets for Buildout with project conditions (with improvements) are included in Appendix "L". As shown in Table 5-8, the study area intersections are projected to operate at Level of Service "D" or better during the peak hours, with improvements.

5.4 CMP Freeway Evaluation

As required by the CMP, an analysis of 2020 freeway level of service is required for all freeway segments that carry 100 or more project trips in the peak hour. The freeway peak hour volume forecasts have been developed using the peak period CTP traffic model data directly, as discussed with SANBAG. The project contributes traffic greater than the CMP freeway

threshold of 100 two-way trips to the I-15 Freeway, SR-60 Freeway, SR-71 Freeway and SR-91 Freeway.

Table 5-9 presents the analysis for 2020 AM peak hour without project and with project traffic conditions. As shown in Table 5-9, a total of 32 freeway segments will operate at an unacceptable level of service for 2020 with project traffic conditions in the AM peak hour. The southbound and northbound I-15 Freeway, westbound and eastbound SR-60 Freeway, southbound SR-71 Freeway, and westbound and eastbound SR-91 Freeway are expected to experience AM peak hour deficiencies.

The PM peak hour freeway mainline segment operations have also been evaluated. Table 5-10 summarizes the results of this analysis. A total of 54 freeway mainline segments are deficient for Year 2020 PM peak hour with project traffic conditions. PM peak hour deficiencies are anticipated along the southbound and northbound I-15 Freeway, westbound and eastbound SR-60 Freeway, southbound and northbound SR-71 Freeway, and westbound and eastbound SR-91 Freeway corridors in the study area.

The improvements needed to provide LOS "E" or better operations during both peak hours of traffic have been determined. HOV lanes were used, if possible, to provide acceptable levels of service. Otherwise, a general use lane was added. General use lanes have an assumed capacity of 2,200 vehicles per hour, while HOV lanes have an assumed capacity of 1,600 vehicles per hour. The freeway mainline segment volume to capacity ratios have been recalculated, along with the resulting levels of service.

Table 5-11 summarizes the required improvements and the resulting levels of service for the AM peak hour. Table 5-12 summarizes the

TABLE 5-9

CMP FREEWAY MAINLINE AM PEAK HOUR OPERATIONS ANALYSIS (YEAR 2020)

FREEWAY	SEGMENT LIMITS	EXISTING COUNT	LANES GEN. USE	LANES HOV	CAPACITY	PROJECT TRIPS	YEAR 2020 W/O PROJECT TRIPS	YEAR 2020 W/O PROJECT VOL/ CAP	YEAR 2020 W/O PROJECT LOS	YEAR 2020 W/PROJECT TRIPS	YEAR 2020 W/PROJECT VOL/ CAP	YEAR 2020 W/PROJECT LOS
I-15 Fwy. SB	Jurupa St. to SR-60 Fwy.	13,466	4	0	8,800	436	15,615	1.77	F	16,036	1.82	F
	SR-60 Fwy. to Galena St.	8,534	3	0	6,600	610	11,108	1.68	F	11,125	1.69	F
	Galena St. to Limonite Ave.	8,534	3	0	6,600	462	10,617	1.61	F	10,636	1.61	F
	Limonite Ave. to 6th St.	9,395	3	0	6,600	16	10,982	1.66	F	11,020	1.67	F
	6th St. to 2nd St.	9,630	3	0	6,600	14	11,261	1.71	F	11,381	1.72	F
	2nd St. to Hidden Valley Pkwy.	10,256	4	0	8,800	138	11,073	1.26	F	11,434	1.30	F
	Hidden Valley Pkwy. to SR-91 Fwy.	9,943	4	0	8,800	138	10,760	1.22	F	11,121	1.26	F
	SR-91 Fwy. to Magnolia Ave.	2,510	4	0	8,800	40	5,503	0.63	C	5,417	0.62	C
I-15 Fwy. NB	Magnolia Ave. to SR-91 Fwy.	10,021	3	0	6,600	171	13,318	2.02	F	12,966	1.96	F
	SR-91 Fwy. to Hidden Valley Pkwy.	2,490	4	0	8,800	131	5,616	0.64	C	5,559	0.63	C
	Hidden Valley Pkwy. to 2nd St.	2,569	4	0	8,800	131	5,695	0.65	C	5,638	0.64	C
	2nd St. to 6th St.	2,412	3	0	6,600	79	6,167	0.93	D	6,144	0.93	D
	6th St. to Limonite Ave.	2,353	3	0	6,600	24	6,732	1.02	F	6,732	1.02	F
	Limonite Ave. to Galena St.	2,137	3	0	6,600	83	6,807	1.03	F	6,896	1.04	F
	Galena St. to SR-60 Fwy.	2,137	3	0	6,600	116	6,191	0.94	E	6,439	0.98	E
	SR-60 Fwy. to Jurupa St.	3,373	4	0	8,800	104	5,889	0.67	C	6,306	0.72	C
SR-60 Fwy. WB	Van Buren Blvd. to I-15 Fwy.	5,428	3	1	8,200	601	9,089	1.11	F	9,588	1.17	F
	I-15 Fwy. to Milliken Ave.	8,413	3	1	8,200	428	13,858	1.69	F	14,322	1.75	F
	Milliken Ave. to Haven Ave.	8,775	4	1	10,400	462	14,911	1.43	F	15,702	1.51	F
	Haven Ave. to Archibald Ave.	8,956	4	1	10,400	463	14,882	1.43	F	15,587	1.50	F
	Archibald Ave. to Vineyard Ave.	9,046	4	1	10,400	498	15,247	1.47	F	16,035	1.54	F
	Vineyard Ave. to Grove Ave.	8,911	4	1	10,400	289	15,134	1.46	F	15,787	1.52	F
	Grove Ave. to Euclid Ave. (SR-83)	9,092	4	1	10,400	412	15,334	1.47	F	16,083	1.55	F
	Euclid Ave. (SR-83) to Mountain Ave.	8,775	4	1	10,400	222	15,160	1.46	F	15,673	1.51	F
	Mountain Ave. to Central Ave.	8,458	4	1	10,400	307	14,787	1.42	F	15,405	1.48	F
	Central Ave. to Ramona Ave.	8,142	4	1	10,400	291	14,618	1.41	F	15,669	1.51	F
SR-60 Fwy. EB	Ramona Ave. to Central Ave.	3,504	4	1	10,400	186	6,129	0.59	C	6,605	0.64	C
	Central Ave. to Mountain Ave.	3,641	4	1	10,400	230	6,020	0.58	C	6,526	0.63	C
	Mountain Ave. to Euclid Ave. (SR-83)	3,777	4	1	10,400	252	6,026	0.58	C	6,412	0.62	C
	Euclid Ave. (SR-83) to Grove Ave.	3,913	4	1	10,400	177	5,882	0.57	C	6,426	0.62	C
	Grove Ave. to Vineyard Ave.	3,835	4	1	10,400	28	5,848	0.56	C	6,217	0.60	C
	Vineyard Ave. to Archibald Ave.	3,894	4	1	10,400	25	5,878	0.57	C	6,336	0.61	C
	Archibald Ave. to Haven Ave.	3,855	4	1	10,400	39	6,046	0.58	C	6,502	0.63	C
	Haven Ave. to Milliken Ave.	3,777	4	1	10,400	48	5,640	0.54	B	6,173	0.59	C
	Milliken Ave. to I-15 Fwy.	3,621	3	1	8,200	46	4,315	0.53	B	4,681	0.57	C
	I-15 Fwy. to Van Buren Blvd.	2,336	3	1	8,200	59	3,205	0.39	B	3,599	0.44	B
SR-71 Fwy. SB	Chino Ave. to Grand Ave.	1,823	3	1	8,200	398	5,947	0.73	C	6,125	0.75	C
	Grand Ave. to Chino Hills Pkwy. (SR-142)	2,160	3	1	8,200	364	4,662	0.57	C	4,866	0.59	C
	Chino Hills Pkwy. (SR-142) to Ramona Ave.	2,244	3	1	8,200	321	3,669	0.45	B	3,892	0.47	B
	Ramona Ave. to Soquel Canyon Pkwy.	2,244	3	1	8,200	321	3,669	0.45	B	3,892	0.47	B
	Soquel Canyon Pkwy. to Pine Ave.	2,020	2	1	6,000	336	4,531	0.76	C	4,922	0.82	D
	Pine Ave. to Euclid Ave. (SR-83)	2,076	2	1	6,000	28	4,712	0.79	D	4,656	0.78	D
	Euclid Ave. (SR-83) to SR-91 Fwy.	1,851	2	0	4,400	342	3,869	0.88	D	4,764	1.08	F
SR-71 Fwy. NB	SR-91 Fwy. to Euclid Ave. (SR-83)	752	2	0	4,400	459	2,050	0.47	B	3,293	0.75	C
	Euclid Ave. (SR-83) to Pine Ave.	844	2	1	6,000	39	3,022	0.50	B	3,288	0.55	C

TABLE 5-9 (CONTINUED)

CMP FREEWAY MAINLINE AM PEAK HOUR OPERATIONS ANALYSIS (YEAR 2020)

FREEWAY	SEGMENT LIMITS	EXISTING COUNT	LANES GEN. USE	LANES HOV	CAPACITY	PROJECT TRIPS	YEAR 2020 W/O PROJECT TRIPS	YEAR 2020 W/O PROJECT VOL/ CAP	YEAR 2020 W/O PROJECT LOS	YEAR 2020 W/PROJECT TRIPS	YEAR 2020 W/PROJECT VOL/ CAP	YEAR 2020 W/PROJECT LOS
	Pine Ave. to Soquel Canyon Pkwy.	821	2	1	6,000	370	3,009	0.50	B	3,659	0.61	C
	Soquel Canyon Pkwy. to Ramona Ave.	912	3	1	8,200	344	3,421	0.42	B	4,133	0.50	B
	Ramona Ave. to Chino Hills Pkwy. (SR-142)	912	3	1	8,200	344	2,742	0.33	A	3,451	0.42	B
	Chino Hills Pkwy. (SR-142) to Grand Ave.	878	3	1	8,200	326	3,948	0.48	B	4,663	0.57	C
	Grand Ave. to Chino Ave.	741	3	1	8,200	290	4,728	0.58	C	5,288	0.64	C
SR-91 Fwy. WB	McKinley St. to I-15 Fwy.	9,074	4	1	10,400	174	13,855	1.33	F	13,784	1.33	F
	I-15 Fwy. to Main St.	10,126	4	1	10,400	265	15,807	1.52	F	15,866	1.53	F
	Main St. to West Grand Blvd.	9,424	4	1	10,400	149	14,791	1.42	F	14,668	1.41	F
	West Grand Blvd. to Lincoln Ave.	9,731	4	1	10,400	155	16,261	1.56	F	15,924	1.53	F
	Lincoln Ave. to Maple St.	9,249	4	1	10,400	244	16,001	1.54	F	16,295	1.57	F
	Maple St. to Serfas Club Dr.	9,556	4	1	10,400	255	18,526	1.78	F	18,573	1.79	F
	Serfas Club Dr. to SR-71 Fwy.	9,424	4	1	10,400	279	19,354	1.86	F	19,435	1.87	F
	SR-71 Fwy. to Green River Rd.	9,468	4	2	12,000	425	18,992	1.58	F	19,949	1.66	F
	Green River Rd. to Coal Canyon Rd.	9,819	4	2	12,000	419	20,171	1.68	F	21,085	1.76	F
	Coal Canyon Rd. to Gypsum Canyon Rd.	10,257	4	2	12,000	416	23,767	1.98	F	22,667	1.89	F
SR-91 Fwy. EB	Gypsum Canyon Rd. to Coal Canyon Rd.	6,544	4	2	12,000	287	9,623	0.80	D	10,647	0.89	D
	Coal Canyon Rd. to Green River Rd.	6,264	4	2	12,000	290	9,463	0.79	D	10,518	0.88	D
	Green River Rd. to SR-71 Fwy.	6,041	4	2	12,000	313	9,272	0.77	C	10,354	0.86	D
	SR-71 Fwy. to Serfas Club Dr.	6,013	4	1	10,400	47	10,371	1.00	E	10,234	0.98	E
	Serfas Club Dr. to Maple St.	6,097	4	1	10,400	48	10,262	0.99	E	10,113	0.97	E
	Maple St. to Lincoln Ave.	5,901	4	1	10,400	44	9,720	0.93	D	9,598	0.92	D
	Lincoln Ave. to West Grand Blvd.	6,208	4	1	10,400	11	9,960	0.96	E	9,868	0.95	E
	West Grand Blvd. to Main St.	6,013	4	1	10,400	11	9,814	0.94	E	9,753	0.94	E
	Main St. to I-15 Fwy.	6,460	4	1	10,400	11	10,711	1.03	F	10,870	1.05	F
	I-15 Fwy. to McKinley St.	5,789	4	1	10,400	58	7,135	0.69	C	7,317	0.70	C

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TABLE 5-10

CMP FREEWAY MAINLINE PM PEAK HOUR OPERATIONS ANALYSIS (YEAR 2020)

FREEWAY	SEGMENT LIMITS	EXISTING COUNT	LANES GEN. USE	LANES HOV	CAPACITY	PROJECT TRIPS	YEAR 2020 W/O PROJECT TRIPS	YEAR 2020 W/O PROJECT VOL/ CAP	YEAR 2020 W/O PROJECT LOS	YEAR 2020 W/PROJECT TRIPS	YEAR 2020 W/PROJECT VOL/ CAP	YEAR 2020 W/PROJECT LOS
I-15 Fwy. SB	Jurupa St. to SR-60 Fwy.	5,416	4	0	8,800	109	8,543	0.97	E	8,985	1.02	F
	SR-60 Fwy. to Galena St.	3,432	3	0	6,600	154	7,226	1.09	F	7,789	1.18	F
	Galena St. to Limonite Ave.	3,432	3	0	6,600	94	8,335	1.26	F	8,782	1.33	F
	Limonite Ave. to 6th St.	3,778	3	0	6,600	123	8,647	1.31	F	8,868	1.34	F
	6th St. to 2nd St.	3,873	3	0	6,600	148	7,480	1.13	F	7,795	1.18	F
	2nd St. to Hidden Valley Pkwy.	4,125	4	0	8,800	213	6,919	0.79	D	7,352	0.84	D
	Hidden Valley Pkwy. to SR-91 Fwy.	3,999	4	0	8,800	213	6,793	0.77	C	7,226	0.82	D
	SR-91 Fwy. to Magnolia Ave.	9,000	4	0	8,800	140	12,722	1.45	F	13,022	1.48	F
I-15 Fwy. NB	Magnolia Ave. to SR-91 Fwy.	4,030	3	0	6,600	35	8,825	1.34	F	9,064	1.37	F
	SR-91 Fwy. to Hidden Valley Pkwy.	8,930	4	0	8,800	52	11,263	1.28	F	11,690	1.33	F
	Hidden Valley Pkwy. to 2nd St.	9,211	4	0	8,800	52	11,544	1.31	F	11,971	1.36	F
	2nd St. to 6th St.	8,649	3	0	6,600	-	11,174	1.69	F	11,497	1.74	F
	6th St. to Limonite Ave.	8,438	3	0	6,600	-	11,516	1.74	F	11,689	1.77	F
	Limonite Ave. to Galena St.	7,664	3	0	6,600	216	10,911	1.65	F	11,275	1.71	F
	Galena St. to SR-60 Fwy.	7,664	3	0	6,600	297	11,000	1.67	F	11,631	1.76	F
	SR-60 Fwy. to Jurupa St.	12,094	4	0	8,800	297	13,747	1.56	F	14,496	1.65	F
SR-60 Fwy. WB	Van Buren Blvd. to I-15 Fwy.	4,059	3	1	8,200	55	5,858	0.71	C	6,401	0.78	D
	I-15 Fwy. to Milliken Ave.	6,292	3	1	8,200	11	9,472	1.16	F	10,113	1.23	F
	Milliken Ave. to Haven Ave.	6,562	4	1	10,400	13	10,374	1.00	E	10,999	1.06	F
	Haven Ave. to Archibald Ave.	6,698	4	1	10,400	17	10,848	1.04	F	11,388	1.09	F
	Archibald Ave. to Vineyard Ave.	6,765	4	1	10,400	19	10,667	1.03	F	11,258	1.08	F
	Vineyard Ave. to Grove Ave.	6,664	4	1	10,400	20	10,642	1.02	F	11,137	1.07	F
	Grove Ave. to Euclid Ave. (SR-83)	6,799	4	1	10,400	120	10,607	1.02	F	11,387	1.09	F
	Euclid Ave. (SR-83) to Mountain Ave.	6,562	4	1	10,400	141	10,449	1.00	E	11,070	1.06	F
	Mountain Ave. to Central Ave.	6,326	4	1	10,400	138	10,336	0.99	E	11,076	1.07	F
	Central Ave. to Ramona Ave.	6,089	4	1	10,400	104	10,370	1.00	E	11,106	1.07	F
SR-60 Fwy. EB	Ramona Ave. to Central Ave.	8,329	4	1	10,400	528	15,193	1.46	F	16,369	1.57	F
	Central Ave. to Mountain Ave.	8,653	4	1	10,400	554	15,075	1.45	F	16,383	1.58	F
	Mountain Ave. to Euclid Ave. (SR-83)	8,977	4	1	10,400	396	15,405	1.48	F	16,533	1.59	F
	Euclid Ave. (SR-83) to Grove Ave.	9,301	4	1	10,400	548	15,164	1.46	F	16,375	1.57	F
	Grove Ave. to Vineyard Ave.	9,116	4	1	10,400	286	14,829	1.43	F	15,730	1.51	F
	Vineyard Ave. to Archibald Ave.	9,255	4	1	10,400	505	15,017	1.44	F	16,025	1.54	F
	Archibald Ave. to Haven Ave.	9,162	4	1	10,400	490	14,777	1.42	F	15,593	1.50	F
	Haven Ave. to Milliken Ave.	8,977	4	1	10,400	683	14,935	1.44	F	15,861	1.53	F
	Milliken Ave. to I-15 Fwy.	8,607	3	1	8,200	653	12,206	1.49	F	12,792	1.56	F
	I-15 Fwy. to Van Buren Blvd.	5,553	3	1	8,200	653	9,644	1.18	F	10,236	1.25	F
SR-71 Fwy. SB	Chino Ave. to Grand Ave.	1,038	3	1	8,200	248	6,890	0.84	D	7,218	0.88	D
	Grand Ave. to Chino Hills Pkwy. (SR-142)	1,230	3	1	8,200	289	5,782	0.71	C	6,415	0.78	D
	Chino Hills Pkwy. (SR-142) to Ramona Ave.	1,278	3	1	8,200	289	4,508	0.55	C	5,121	0.62	C
	Ramona Ave. to Soquel Canyon Pkwy.	1,278	3	1	8,200	290	4,508	0.55	C	5,120	0.62	C
	Soquel Canyon Pkwy. to Pine Ave.	1,150	2	1	6,000	320	4,242	0.71	C	4,847	0.81	D
	Pine Ave. to Euclid Ave. (SR-83)	1,182	2	1	6,000	290	4,210	0.70	C	4,389	0.73	C
	Euclid Ave. (SR-83) to SR-91 Fwy.	1,054	2	0	4,400	405	2,784	0.63	C	4,016	0.91	D
SR-71 Fwy. NB	SR-91 Fwy. to Euclid Ave. (SR-83)	1,886	2	0	4,400	282	4,028	0.92	D	5,345	1.21	F
	Euclid Ave. (SR-83) to Pine Ave.	2,115	2	1	6,000	539	5,051	0.84	D	5,368	0.89	D

TABLE 5-10 (CONTINUED)

CMP FREEWAY MAINLINE PM PEAK HOUR OPERATIONS ANALYSIS (YEAR 2020)

FREEWAY	SEGMENT LIMITS	EXISTING COUNT	LANES GEN. USE	LANES HOV	CAPACITY	PROJECT TRIPS	YEAR 2020 W/O PROJECT TRIPS	YEAR 2020 W/O PROJECT VOL/ CAP	YEAR 2020 W/O PROJECT LOS	YEAR 2020 W/PROJECT TRIPS	YEAR 2020 W/PROJECT VOL/ CAP	YEAR 2020 W/PROJECT LOS
	Pine Ave. to Soquel Canyon Pkwy.	2,057	2	1	6,000	525	4,744	0.79	D	5,447	0.91	D
	Soquel Canyon Pkwy. to Ramona Ave.	2,286	3	1	8,200	539	4,557	0.56	C	5,093	0.62	C
	Ramona Ave. to Chino Hills Pkwy. (SR-142)	2,286	3	1	8,200	539	3,863	0.47	B	4,378	0.53	B
	Chino Hills Pkwy. (SR-142) to Grand Ave.	2,200	3	1	8,200	552	5,233	0.64	C	5,726	0.70	C
	Grand Ave. to Chino Ave.	1,857	3	1	8,200	565	6,539	0.80	D	7,156	0.87	D
SR-91 Fwy. WB	McKinley St. to I-15 Fwy.	5,375	4	1	10,400	108	8,087	0.78	D	8,313	0.80	D
	I-15 Fwy. to Main St.	5,998	4	1	10,400	11	11,850	1.14	F	11,757	1.13	F
	Main St. to West Grand Blvd.	5,583	4	1	10,400	11	10,789	1.04	F	10,717	1.03	F
	West Grand Blvd. to Lincoln Ave.	5,764	4	1	10,400	11	11,028	1.06	F	10,935	1.05	F
	Lincoln Ave. to Maple St.	5,479	4	1	10,400	46	12,215	1.17	F	12,164	1.17	F
	Maple St. to Serfas Club Dr.	5,661	4	1	10,400	56	12,757	1.23	F	12,744	1.23	F
	Serfas Club Dr. to SR-71 Fwy.	5,583	4	1	10,400	62	12,813	1.23	F	12,836	1.23	F
	SR-71 Fwy. to Green River Rd.	5,609	4	2	12,000	326	11,537	0.96	E	13,152	1.10	F
	Green River Rd. to Coal Canyon Rd.	5,816	4	2	12,000	306	12,335	1.03	F	13,794	1.15	F
	Coal Canyon Rd. to Gypsum Canyon Rd.	6,076	4	2	12,000	299	12,715	1.06	F	13,773	1.15	F
SR-91 Fwy. EB	Gypsum Canyon Rd. to Coal Canyon Rd.	10,257	4	2	12,000	446	24,694	2.06	F	23,920	1.99	F
	Coal Canyon Rd. to Green River Rd.	9,819	4	2	12,000	452	21,592	1.80	F	22,895	1.91	F
	Green River Rd. to SR-71 Fwy.	9,468	4	2	12,000	457	20,033	1.67	F	21,602	1.80	F
	SR-71 Fwy. to Serfas Club Dr.	9,424	4	1	10,400	316	20,879	2.01	F	20,762	2.00	F
	Serfas Club Dr. to Maple St.	9,556	4	1	10,400	300	19,562	1.88	F	19,804	1.90	F
	Maple St. to Lincoln Ave.	9,249	4	1	10,400	290	17,096	1.64	F	17,208	1.65	F
	Lincoln Ave. to West Grand Blvd.	9,731	4	1	10,400	113	16,800	1.62	F	16,771	1.61	F
	West Grand Blvd. to Main St.	9,424	4	1	10,400	110	14,846	1.43	F	14,913	1.43	F
	Main St. to I-15 Fwy.	10,126	4	1	10,400	110	16,403	1.58	F	16,228	1.56	F
	I-15 Fwy. to McKinley St.	9,074	4	1	10,400	189	13,745	1.32	F	13,835	1.33	F

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TABLE 5-11

CMP FREEWAY MAINLINE AM OPERATIONS ANALYSIS WITH IMPROVEMENTS (YEAR 2020)

FREEWAY	SEGMENT LIMITS	IMPROVEMENT (LANES ADDED) GENERAL	HOV	IMPROVED CAPACITY	TRIPS	VOL/ CAP	LOS
I-15 Fwy. SB	Jurupa St. to SR-60 Fwy.	3	1	17,000	16,036	0.94	E
	SR-60 Fwy. to Galena St.	2	1	12,600	11,125	0.88	D
	Galena St. to Limonite Ave.	2	1	12,600	10,636	0.84	D
	Limonite Ave. to 6th St.	2	1	12,600	11,020	0.87	D
	6th St. to 2nd St.	2	1	12,600	11,381	0.90	D
	2nd St. to Hidden Valley Pkwy.	1	1	12,600	11,434	0.91	D
	Hidden Valley Pkwy. to SR-91 Fwy.	1	1	12,600	11,121	0.88	D
	SR-91 Fwy. to Magnolia Ave.			8,800	5,417	0.62	C
I-15 Fwy. NB	Magnolia Ave. to SR-91 Fwy.	3	1	14,800	12,966	0.88	D
	SR-91 Fwy. to Hidden Valley Pkwy.			8,800	5,559	0.63	C
	Hidden Valley Pkwy. to 2nd St.			8,800	5,638	0.64	C
	2nd St. to 6th St.			6,600	6,144	0.93	D
	6th St. to Limonite Ave.		1	8,200	6,732	0.82	D
	Limonite Ave. to Galena St.		1	8,200	6,896	0.84	D
	Galena St. to SR-60 Fwy.			6,600	6,439	0.98	E
	SR-60 Fwy. to Jurupa St.			8,800	6,306	0.72	C
SR-60 Fwy. WB	Van Buren Blvd. to I-15 Fwy.	1		10,400	9,588	0.92	D
	I-15 Fwy. to Milliken Ave.	3		14,800	14,322	0.97	E
	Milliken Ave. to Haven Ave.	3		17,000	15,702	0.92	D
	Haven Ave. to Archibald Ave.	3		17,000	15,587	0.92	D
	Archibald Ave. to Vineyard Ave.	3		17,000	16,035	0.94	E
	Vineyard Ave. to Grove Ave.	3		17,000	15,787	0.93	D
	Grove Ave. to Euclid Ave. (SR-83)	3		17,000	16,083	0.95	E
	Euclid Ave. (SR-83) to Mountain Ave.	3		17,000	15,673	0.92	D
	Mountain Ave. to Central Ave.	3		17,000	15,405	0.91	D
	Central Ave. to Ramona Ave.	3		17,000	15,669	0.92	D
SR-60 Fwy. EB	Ramona Ave. to Central Ave.			10,400	6,605	0.64	C
	Central Ave. to Mountain Ave.			10,400	6,526	0.63	C
	Mountain Ave. to Euclid Ave. (SR-83)			10,400	6,412	0.62	C
	Euclid Ave. (SR-83) to Grove Ave.			10,400	6,426	0.62	C
	Grove Ave. to Vineyard Ave.			10,400	6,217	0.60	C
	Vineyard Ave. to Archibald Ave.			10,400	6,336	0.61	C
	Archibald Ave. to Haven Ave.			10,400	6,502	0.63	C
	Haven Ave. to Milliken Ave.			10,400	6,173	0.59	C
	Milliken Ave. to I-15 Fwy.			8,200	4,681	0.57	C
	I-15 Fwy. to Van Buren Blvd.			8,200	3,599	0.44	B
SR-71 Fwy. SB	Chino Ave. to Grand Ave.			8,200	6,125	0.75	C
	Grand Ave. to Chino Hills Pkwy. (SR-142)			8,200	4,866	0.59	C
	Chino Hills Pkwy. (SR-142) to Ramona Ave.			8,200	3,892	0.47	B
	Ramona Ave. to Soquel Canyon Pkwy.			8,200	3,892	0.47	B
	Soquel Canyon Pkwy. to Pine Ave.			6,000	4,922	0.82	D
	Pine Ave. to Euclid Ave. (SR-83)			6,000	4,656	0.78	D

TABLE 5-11 (CONTINUED)

CMP FREEWAY MAINLINE AM OPERATIONS ANALYSIS WITH IMPROVEMENTS (YEAR 2020)

FREEWAY	SEGMENT LIMITS	IMPROVEMENT (LANES ADDED) GENERAL	HOV	IMPROVED CAPACITY	TRIPS	VOL/ CAP	LOS
	Euclid Ave. (SR-83) to SR-91 Fwy.		1	6,000	4,764	0.79	D
SR-71 Fwy. NB	SR-91 Fwy. to Euclid Ave. (SR-83)			4,400	3,293	0.75	C
	Euclid Ave. (SR-83) to Pine Ave.			6,000	3,288	0.55	C
	Pine Ave. to Soquel Canyon Pkwy.			6,000	3,659	0.61	C
	Soquel Canyon Pkwy. to Ramona Ave.			8,200	4,133	0.50	B
	Ramona Ave. to Chino Hills Pkwy. (SR-142)			8,200	3,451	0.42	B
	Chino Hills Pkwy. (SR-142) to Grand Ave.			8,200	4,663	0.57	C
	Grand Ave. to Chino Ave.			8,200	5,288	0.64	C
SR-91 Fwy. WB	McKinley St. to I-15 Fwy.	--[1]	--	10,400	13,784	1.33	F
	I-15 Fwy. to Main St.	--	--	10,400	15,866	1.53	F
	Main St. to West Grand Blvd.	--	--	10,400	14,668	1.41	F
	West Grand Blvd. to Lincoln Ave.	--	--	10,400	15,924	1.53	F
	Lincoln Ave. to Maple St.	--	--	10,400	16,295	1.57	F
	Maple St. to Serfas Club Dr.	--	--	10,400	18,573	1.79	F
	Serfas Club Dr. to SR-71 Fwy.	--	--	10,400	19,435	1.87	F
	SR-71 Fwy. to Green River Rd.	--	--	12,000	19,949	1.66	F
	Green River Rd. to Coal Canyon Rd.	--	--	12,000	21,085	1.76	F
	Coal Canyon Rd. to Gypsum Canyon Rd.	--	--	12,000	22,667	1.89	F
SR-91 Fwy. EB	Gypsum Canyon Rd. to Coal Canyon Rd.	--	--	12,000	10,647	0.89	D
	Coal Canyon Rd. to Green River Rd.	--	--	12,000	10,518	0.88	D
	Green River Rd. to SR-71 Fwy.	--	--	12,000	10,354	0.86	D
	SR-71 Fwy. to Serfas Club Dr.	--	--	10,400	10,234	0.98	E
	Serfas Club Dr. to Maple St.	--	--	10,400	10,113	0.97	E
	Maple St. to Lincoln Ave.	--	--	10,400	9,598	0.92	D
	Lincoln Ave. to West Grand Blvd.	--	--	10,400	9,868	0.95	E
	West Grand Blvd. to Main St.	--	--	10,400	9,753	0.94	E
	Main St. to I-15 Fwy.	--	--	10,400	10,870	1.05	F
	I-15 Fwy. to McKinley St.	--	--	10,400	7,317	0.70	C

[1] -- = Congestion on the SR-91 Freeway corridor is the subject of studies by the Counties of San Bernardino, Riverside and Orange.

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TABLE 5-12

CMP FREEWAY MAINLINE PM OPERATIONS ANALYSIS WITH IMPROVEMENTS (YEAR 2020)

FREEWAY	SEGMENT LIMITS	IMPROVEMENT (LANES ADDED) GENERAL	HOV	IMPROVED CAPACITY	TRIPS	VOL/ CAP	LOS
I-15 Fwy. SB	Jurupa St. to SR-60 Fwy.		1	10,400	8,985	0.86	D
	SR-60 Fwy. to Galena St.		1	8,200	7,789	0.95	E
	Galena St. to Limonite Ave.	1	1	10,400	8,782	0.84	D
	Limonite Ave. to 6th St.	1	1	10,400	8,868	0.85	D
	6th St. to 2nd St.		1	8,200	7,795	0.95	E
	2nd St. to Hidden Valley Pkwy.			8,800	7,352	0.84	D
	Hidden Valley Pkwy. to SR-91 Fwy.			8,800	7,226	0.82	D
	SR-91 Fwy. to Magnolia Ave.	2	1	14,800	13,022	0.88	D
I-15 Fwy. NB	Magnolia Ave. to SR-91 Fwy.	1	1	10,400	9,064	0.87	D
	SR-91 Fwy. to Hidden Valley Pkwy.	1	1	12,600	11,690	0.93	D
	Hidden Valley Pkwy. to 2nd St.	1	1	12,600	11,971	0.95	E
	2nd St. to 6th St.	2	1	12,600	11,497	0.91	D
	6th St. to Limonite Ave.	2	1	12,600	11,689	0.93	D
	Limonite Ave. to Galena St.	2	1	12,600	11,275	0.89	D
	Galena St. to SR-60 Fwy.	2	1	12,600	11,631	0.92	D
	SR-60 Fwy. to Jurupa St.	2	1	14,800	14,496	0.98	E
SR-60 Fwy. WB	Van Buren Blvd. to I-15 Fwy.			8,200	6,401	0.78	D
	I-15 Fwy. to Milliken Ave.	1		10,400	10,113	0.97	E
	Milliken Ave. to Haven Ave.	1		12,600	10,999	0.87	D
	Haven Ave. to Archibald Ave.	1		12,600	11,388	0.90	D
	Archibald Ave. to Vineyard Ave.	1		12,600	11,258	0.89	D
	Vineyard Ave. to Grove Ave.	1		12,600	11,137	0.88	D
	Grove Ave. to Euclid Ave. (SR-83)	1		12,600	11,387	0.90	D
	Euclid Ave. (SR-83) to Mountain Ave.	1		12,600	11,070	0.88	D
	Mountain Ave. to Central Ave.	1		12,600	11,076	0.88	D
	Central Ave. to Ramona Ave.	1		12,600	11,106	0.88	D
SR-60 Fwy. EB	Ramona Ave. to Central Ave.	3		17,000	16,369	0.96	E
	Central Ave. to Mountain Ave.	3		17,000	16,383	0.96	E
	Mountain Ave. to Euclid Ave. (SR-83)	3		17,000	16,533	0.97	E
	Euclid Ave. (SR-83) to Grove Ave.	3		17,000	16,375	0.96	E
	Grove Ave. to Vineyard Ave.	3		17,000	15,730	0.93	D
	Vineyard Ave. to Archibald Ave.	3		17,000	16,025	0.94	E
	Archibald Ave. to Haven Ave.	3		17,000	15,593	0.92	D
	Haven Ave. to Milliken Ave.	3		17,000	15,861	0.93	D
	Milliken Ave. to I-15 Fwy.	3		14,800	12,792	0.86	D
	I-15 Fwy. to Van Buren Blvd.	2		12,600	10,236	0.81	D
SR.-71 Fwy. SB	Chino Ave. to Grand Ave.			8,200	7,218	0.88	D
	Grand Ave. to Chino Hills Pkwy. (SR-142)			8,200	6,415	0.78	D
	Chino Hills Pkwy. (SR-142) to Ramona Ave.			8,200	5,121	0.62	C
	Ramona Ave. to Soquel Canyon Pkwy.			8,200	5,120	0.62	C
	Soquel Canyon Pkwy. to Pine Ave.			6,000	4,847	0.81	D
	Pine Ave. to Euclid Ave. (SR-83)			6,000	4,389	0.73	C
	Euclid Ave. (SR-83) to SR-91 Fwy.			4,400	4,016	0.91	D

TABLE 5-12 (CONTINUED)

CMP FREEWAY MAINLINE PM OPERATIONS ANALYSIS WITH IMPROVEMENTS (YEAR 2020)

FREEWAY	SEGMENT LIMITS	IMPROVEMENT (LANES ADDED) GENERAL	HOV	IMPROVED CAPACITY	TRIPS	VOL/ CAP	LOS
SR-71 Fwy. NB	SR-91 Fwy. to Euclid Ave. (SR-83)		1	6,000	5,345	0.89	D
	Euclid Ave. (SR-83) to Pine Ave.			6,000	5,368	0.89	D
	Pine Ave. to Soquel Canyon Pkwy.			6,000	5,447	0.91	D
	Soquel Canyon Pkwy. to Ramona Ave.			8,200	5,093	0.62	C
	Ramona Ave. to Chino Hills Pkwy. (SR-142)			8,200	4,378	0.53	B
	Chino Hills Pkwy. (SR-142) to Grand Ave.			8,200	5,726	0.70	C
	Grand Ave. to Chino Ave.			8,200	7,156	0.87	D
SR-91 Fwy. WB	McKinley St. to I-15 Fwy.	--[1]	--	10,400	8,313	0.80	D
	I-15 Fwy. to Main St.	--	--	10,400	11,757	1.13	F
	Main St. to West Grand Blvd.	--	--	10,400	10,717	1.03	F
	West Grand Blvd. to Lincoln Ave.	--	--	10,400	10,935	1.05	F
	Lincoln Ave. to Maple St.	--	--	10,400	12,164	1.17	F
	Maple St. to Serfas Club Dr.	--	--	10,400	12,744	1.23	F
	Serfas Club Dr. to SR-71 Fwy.	--	--	10,400	12,836	1.23	F
	SR-71 Fwy. to Green River Rd.	--	--	12,000	13,152	1.10	F
	Green River Rd. to Coal Canyon Rd.	--	--	12,000	13,794	1.15	F
	Coal Canyon Rd. to Gypsum Canyon Rd.	--	--	12,000	13,773	1.15	F
SR-91 Fwy. EB	Gypsum Canyon Rd. to Coal Canyon Rd.	--	--	12,000	23,920	1.99	F
	Coal Canyon Rd. to Green River Rd.	--	--	12,000	22,895	1.91	F
	Green River Rd. to SR-71 Fwy.	--	--	12,000	21,602	1.80	F
	SR-71 Fwy. to Serfas Club Dr.	--	--	10,400	20,762	2.00	F
	Serfas Club Dr. to Maple St.	--	--	10,400	19,804	1.90	F
	Maple St. to Lincoln Ave.	--	--	10,400	17,208	1.65	F
	Lincoln Ave. to West Grand Blvd.	--	--	10,400	16,771	1.61	F
	West Grand Blvd. to Main St.	--	--	10,400	14,913	1.43	F
	Main St. to I-15 Fwy.	--	--	10,400	16,228	1.56	F
	I-15 Fwy. to McKinley St.	--	--	10,400	13,835	1.33	F

[1] -- = Congestion on the SR-91 Freeway corridor is the subject of studies by the Counties of San Bernardino, Riverside and Orange.

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required improvements and the resulting levels of service for the PM peak hour. The SR-91 Freeway corridor is subject to long periods of congestion. The Counties of San Bernardino, Riverside, and Orange are currently studying this corridor and attempting to identify feasible solutions. No improvements, therefore, have been shown for the SR-91 Freeway.

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6. IMPROVEMENT COSTS AND PROJECT CONTRIBUTION

This section of the report summarizes the improvements and associated costs required to meet CMP level of service requirements at CMP analysis locations. The project fair share contribution for the improvements at each location is also identified.

6.1 CMP Required Improvements and Costs

Improvements which will eliminate all anticipated roadway operational deficiencies throughout the study area have been identified for CMP Interim 2010, CMP Horizon 2020 and Buildout traffic conditions. The improvements were determined through the operations analysis of Section 5.

The approximate costs for the CMP 2020 improvements have generally been estimated using cost guidelines in the 1997 CMP Handbook (see Appendix "M"). A unit cost of $120,000 for installation of a traffic signal has been substituted for the somewhat lower value cited in the CMP materials. The total needed improvements and resulting costs are summarized in Tables 6-1 and 6-2 for 2020 and Buildout conditions, respectively.

The estimated cost to construct Pine Street from the SR-71 Freeway to El Prado Road has been increased substantially due to issues related to the vertical alignment and bridge structures needed to cross Chino Creek. Tables 6-3 and 6-4 summarize the freeway segment needed improvements. For the arterial roadway system, some of the improvements identified in Sections 3 and 5 are already funded. For instance, if the San Bernardino RTIP indicated that a roadway was to be

TABLE 6-1 (1 of 6)

2020 WITH PROJECT CONDITIONS
SUMMARY OF INTERSECTION IMPROVEMENTS AND COSTS

LOCATION	2020 IMPROVEMENT	COST
Pipeline Avenue (NS) at:		
• Chino Hills Parkway (EW)	• Second EB Left Turn Lane	$ 50,000
	• Second WB Left Turn Lane	$ 50,000
	• EB Right-Turn Overlap Phasing	$ 25,000
	• Third WB Through Lane	$ 259,000
	• WB Right-Turn Overlap Phasing	$ 25,000
SR-71 Freeway NB Ramps (NS) at:		
• Pine Avenue (EW)	• Traffic Signal	$ 120,000
	• Second EB Through Lane	$ 259,000
Central Avenue (NS) at:		
• Edison Avenue (EW)	• NB Right-Turn Overlap Phasing	$ 25,000
	• Second EB Left Turn Lane	$ 50,000
	• Second WB Left Turn Lane	$ 50,000
• El Prado Road (EW)	• Traffic Signal	$ 120,000
	• Second NB Through Lane	$ 259,000
	• Second SB Left Turn Lane	$ 50,000
El Prado Road (NS) at:		
• Kimball Road (EW)	• Traffic Signal	$ 120,000
	• NB Right Turn Lane	$ 50,000
• Pine Avenue (EW)	• Traffic Signal	$ 120,000
	• EB Left Turn Lane	$ 50,000
	• SB Left Turn Lane	$ 50,000
	• Second EB Through Lane	$ 259,000
	• WB Right Turn Lane	$ 50,000
Mountain Avenue (NS) at:		
• SR-60 Freeway EB Ramps (EW)	• Second SB Left Turn Lane	$ 50,000
	• EB All-Way Lane	$ 259,000
	• Restripe EB All-Way Lane to a Second EB Left Turn Lane	$ 10,000
	• Second EB Right Turn Lane	$ 350,000
• Walnut Avenue (EW)	• Second WB Through Lane	$ 259,000
	• Second EB Through Lane	$ 259,000
• Riverside Drive (EW)	• NB Right Turn Lane	$ 50,000
	• Second SB Left Turn Lane	$ 50,000
Euclid Avenue (NS) at:		
• SR-60 Freeway WB Ramps (EW)	• WB All-Way Lane	$ 259,000
• SR-60 Freeway EB Ramps (EW)	• Second NB Right Turn Lane	$ 50,000
	• Restripe EB All-Way Lane to a Shared Through & Right Turn Lane	$ 10,000
	• EB free-Right Turn Lane	$ 350,000

TABLE 6-1 (2 of 6)

2020 WITH PROJECT CONDITIONS
SUMMARY OF INTERSECTION IMPROVEMENTS AND COSTS

LOCATION	2020 IMPROVEMENT	COST
• Riverside Drive (EW)	• Third NB Through Lane	$ 259,000
	• Second SB Left Turn Lane	$ 50,000
	• Third SB Through Lane	$ 259,000
	• SB Right-Turn Overlap Phasing	$ 25,000
	• EB Left Turn Lane	$ 50,000
	• WB Left Turn Lane	$ 50,000
• Edison Street (EW)	• Third NB Through Lane	$ 259,000
	• Third SB Through Lane	$ 259,000
	• Second EB Left Turn Lane	$ 50,000
	• Second & Third EB Through Lanes (2)	$ 518,000
	• Second WB Through Lane	$ 259,000
• Merrill Avenue (EW)	• Third NB Through Lane	$ 259,000
	• Third SB Through Lane	$ 259,000
• Kimball Avenue (EW)	• NB Right-Turn Overlap Phasing	$ 25,000
	• EB Left Turn Lane	$ 50,000
	• First & Second WB Left Turn Lanes (2)	$ 100,000
	• WB Right Turn Lane	$ 50,000
	• Third & Fourth NB Through Lanes (2)	$ 518,000
	• Second SB Left Turn Lane	$ 50,000
	• Third SB Through Lane	$ 259,000
	• Second EB Left Turn Lane	$ 50,000
	• Second EB Through Lane	$ 259,000
	• EB Right Turn Lane	$ 50,000
	• Second WB Through Lane	$ 259,000
	• WB Right-Turn Overlap Phasing	$ 25,000
• Bickmore Avenue (EW)	• Traffic Signal	$ 120,000
	• Second NB Through Lane	$ 259,000
	• Second SB Through Lane	$ 259,000
	• Third NB Through Lane	$ 259,000
	• NB Right Turn Lane	$ 50,000
	• Second SB Left Turn Lane	$ 50,000
	• Third SB Through Lane	$ 259,000
	• First & Second WB Left Turn Lanes (2)	$ 100,000
	• WB Right Turn Lane	$ 50,000
• Pine Avenue (EW)	• Third & Fourth NB Through Lanes (2)	$ 259,000
	• NB free-Right Turn Lane	$ 350,000
	• Second SB Left Turn Lane	$ 50,000
	• Third SB Through Lane	$ 259,000

TABLE 6-1 (3 of 6)

2020 WITH PROJECT CONDITIONS
SUMMARY OF INTERSECTION IMPROVEMENTS AND COSTS

LOCATION	2020 IMPROVEMENT	COST
	• First & Second EB Left Turn Lanes (2)	$ 100,000
	• Second & Third EB Through Lanes (2)	$ 518,000
	• First, Second & Third WB Left Turn Lanes (3)	$ 150,000
	• Second & Third WB Through Lanes (2)	$ 518,000
	• WB free-Right Turn Lane	$ 350,000
Grove Avenue (NS) at:		
• SR-60 Freeway WB Ramps (EW)	• Westbound All-Way Lane	$ 259,000
• SR-60 Freeway EB Ramps (EW)	• Second EB Left Turn Lane	$ 350,000
	• Second EB Right Turn Lane	$ 350,000
• Edison Street (EW)	• Traffic Signal	$ 120,000
	• NB Left Turn Lane	$ 50,000
	• SB Left Turn Lane	$ 50,000
	• EB Left Turn Lane	$ 50,000
	• Second EB Through Lane	$ 259,000
	• WB Left Turn Lane	$ 50,000
	• Second WB Through Lane	$ 259,000
	• Second NB Through Lane	$ 259,000
	• Second SB Through Lane	$ 259,000
• Merrill Avenue (EW)	• EB Left Turn Lane	$ 50,000
• Kimball Avenue (EW)	• Traffic Signal	$ 120,000
	• NB Left Turn Lane	$ 50,000
	• WB Left Turn Lane	$ 50,000
	• Second EB Through Lane	$ 259,000
	• Second WB Through Lane	$ 259,000
• Bickmore Avenue (EW)	• Traffic Signal	$ 120,000
	• NB Left Turn Lane	$ 50,000
	• SB Left Turn Lane	$ 50,000
	• EB Left Turn Lane	$ 50,000
	• WB Left Turn Lane	$ 50,000
• Pine Avenue (EW)	• Traffic Signal	$ 120,000
	• Second EB Through Lane	$ 259,000
	• SB Left Turn Lane	$ 50,000
	• Second WB Through Lane	$ 259,000
Walker Avenue (NS) at:		
• Edison Street (EW)	• Traffic Signal	$ 120,000
	• NB Left Turn Lane	$ 50,000
	• SB Left Turn Lane	$ 50,000
	• EB Left Turn Lane	$ 50,000
	• Second EB Through Lane	$ 259,000
	• WB Left Turn Lane	$ 50,000
	• Second WB Through Lane	$ 259,000

TABLE 6-1 (4 of 6)

2020 WITH PROJECT CONDITIONS
SUMMARY OF INTERSECTION IMPROVEMENTS AND COSTS

LOCATION	2020 IMPROVEMENT	COST
Hellman Avenue (NS) at:		
• Merrill Avenue (EW)	• Second NB Through Lane	$ 259,000
	• NB Right Turn Lane	$ 50,000
	• Second SB Through Lane	$ 259,000
	• Second WB Left Turn Lane	$ 50,000
• Kimball Avenue (EW)	• Second SB Through Lane	$ 259,000
	• Second NB Left Turn Lane	$ 50,000
	• Second NB Through Lane	$ 259,000
	• NB Right Turn Lane	$ 50,000
	• Second SB Left Turn Lane	$ 50,000
	• SB Right Turn Lane	$ 50,000
	• Second EB Left Turn Lane	$ 50,000
	• Second EB Through Lane	$ 259,000
	• EB Right Turn Lane	$ 50,000
	• Second WB Left Turn Lane	$ 50,000
	• Second WB Through Lane	$ 259,000
• Pine Avenue (EW)	• Traffic Signal	$ 120,000
	• NB Left Turn Lane	$ 50,000
	• Second NB Through Lane	$ 259,000
	• SB Left Turn Lane	$ 50,000
	• Second SB Through Lane	$ 259,000
	• EB Left Turn Lane	$ 50,000
	• Second EB Through Lane	$ 259,000
	• WB Left Turn Lane	$ 50,000
	• Second WB Through Lane	$ 259,000
	• Second NB Left Turn Lane	$ 50,000
	• NB Right Turn Lane	$ 50,000
	• Second SB Left Turn Lane	$ 50,000
	• SB Right Turn Lane	$ 50,000
	• Second EB Left Turn Lane	$ 50,000
	• EB Right Turn Lane	$ 50,000
	• Second WB Left Turn Lane	$ 50,000
	• WB Right Turn Lane	$ 50,000
• Chandler Street (EW)	• Traffic Signal	$ 120,000
	• NB Left Turn Lane	$ 50,000
	• SB Left Turn Lane	$ 50,000
	• EB Left Turn Lane	$ 50,000
	• WB Left Turn Lane	$ 50,000
	• Second NB Through Lane	$ 259,000
	• Second SB Left Turn Lane	$ 50,000
	• Second SB Through Lane	$ 259,000
	• Second EB Through Lane	$ 259,000
	• Second WB Through Lane	$ 259,000
Vineyard Avenue (NS) at:		
• SR-60 Freeway EB Ramps (EW)	• EB All-Way Lane	$ 259,000

TABLE 6-1 (5 of 6)

2020 WITH PROJECT CONDITIONS
SUMMARY OF INTERSECTION IMPROVEMENTS AND COSTS

LOCATION	2020 IMPROVEMENT	COST
Archibald Avenue (NS) at:		
• Riverside Drive (EW)	• Second EB Left Turn Lane	$ 50,000
• Edison Avenue (EW)	• Second NB Left Turn Lane	$ 50,000
	• NB Right-Turn Overlap Phasing	$ 25,000
	• EB Right Turn Lane	$ 50,000
	• EB Right-Turn Overlap Phasing	$ 25,000
	• Second WB Left Turn Lane	$ 50,000
• Merrill Avenue (EW)	• Traffic Signal	$ 120,000
	• SB Left Turn Lane	$ 50,000
	• EB Left Turn Lane	$ 50,000
	• Second NB Through Lane	$ 259,000
	• Second SB Through Lane	$ 259,000
	• WB Left Turn Lane	$ 50,000
• Cloverdale Road (EW)	• NB Left Turn Lane	$ 50,000
	• Second NB Through Lane	$ 259,000
	• Second SB Through Lane	$ 259,000
	• First & Second EB Left Turn Lanes (2)	$ 100,000
	• Second EB Through Lane	$ 259,000
	• Second WB Through Lane	$ 259,000
• Pine Avenue (EW)	• Second SB Through Lane	$ 259,000
	• Second EB Through Lane	$ 259,000
	• Second NB Through Lane	$ 259,000
	• Second WB Through Lane	$ 259,000
• River Road (EW)	• Traffic Signal	$ 120,000
	• EB free-Right Turn Lane	$ 350,000
	• Second SB Through Lane	$ 259,000
River Road (NS) at:		
• Corydon Street (EW)	• SB Right Turn Lane	$ 50,000
	• Second EB Left Turn Lane	$ 50,000
	• Second EB Through Lane	$ 259,000
Haven Avenue (NS) at:		
• SR-60 Freeway EB Ramps (EW)	• NB free-Right Turn Lane	$ 350,000
Hamner Avenue (NS) at:		
• Cloverdale Road (EW)	• Second EB Through Lane	$ 259,000
	• WB Left Turn Lane	$ 50,000
	• Second NB Through Lane	$ 259,000
	• Second SB Through Lane	$ 259,000
	• EB Left Turn Lane	$ 50,000
	• Second WB Through Lane	$ 259,000
• Schleisman Road (EW)	• Traffic Signal	$ 120,000
	• EB Left Turn Lane	$ 50,000
	• WB Left Turn Lane	$ 50,000
	• Second NB Through Lane	$ 259,000
	• Second SB Through Lane	$ 259,000

TABLE 6-1 (6 of 6)

2020 WITH PROJECT CONDITIONS
SUMMARY OF INTERSECTION IMPROVEMENTS AND COSTS

LOCATION	2020 IMPROVEMENT	COST
I-15 Freeway SB Ramps (NS) at:		
• Galena Street (EW)	• Second EB Right Turn Lane	$ 50,000
• Second Street (EW)	• First & Second EB Right Turn Lanes (2)	$ 100,000
	• Second SB Right Turn Lane	$ 350,000
I-15 Freeway NB Ramps (NS) at:		
• Second Street (EW)	• WB Right Turn Lane	$ 50,000
	• NB All-Way Lane	$ 259,000
Hellman Avenue		
• Eucalyptus Ave. to Merrill Ave.	• Construct 2 Lanes (0.6 Miles)	$ 1,200,000
Kimball Avenue		
• Hellman Ave. to Archibald Ave.	• Construct 2 Lanes (1.1 Miles)	$ 2,200,000
Pine Avenue		
• SR-71 Fwy. to El Prado Rd.	• Construct 2 Lanes (0.6 Miles)	$ 6,200,000
TOTAL COST		$ 39,563,000

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TABLE 6-2 (1 of 7)

BUILDOUT WITH PROJECT CONDITIONS
SUMMARY OF INTERSECTION IMPROVEMENTS AND COSTS

LOCATION	BUILDOUT IMPROVEMENT	COST
Pipeline Avenue (NS) at:		
• Chino Hills Parkway (EW)	• Second EB Left Turn Lane	$ 50,000
	• Second WB Left Turn Lane	$ 50,000
	• EB Right-Turn Overlap Phasing	$ 25,000
	• Third WB Through Lane	$ 259,000
	• WB Right-Turn Overlap Phasing	$ 25,000
SR-71 Freeway SB Ramps (NS) at:		
• Chino Hills Parkway (EW)	• Third WB Through Lane	$ 259,000
• Pine Avenue (EW)	• Second EB Through Lane	$ 259,000
SR-71 Freeway NB Ramps (NS) at:		
• Pine Avenue (EW)	• Traffic Signal	$ 120,000
	• Second EB Through Lane	$ 259,000
Central Avenue (NS) at:		
• Edison Avenue (EW)	• NB Right-Turn Overlap Phasing	$ 25,000
	• Second EB Left Turn Lane	$ 50,000
	• Second WB Left Turn Lane	$ 50,000
	• EB Right Turn Lane	$ 50,000
• El Prado Road (EW)	• Traffic Signal	$ 120,000
	• Second NB Through Lane	$ 259,000
	• Second SB Left Turn Lane	$ 50,000
El Prado Road (NS) at:		
• Kimball Road (EW)	• Traffic Signal	$ 120,000
	• NB Right Turn Lane	$ 50,000
• Pine Avenue (EW)	• Traffic Signal	$ 120,000
	• EB Left Turn Lane	$ 50,000
	• SB Left Turn Lane	$ 50,000
	• Second EB Through Lane	$ 259,000
	• WB Right Turn Lane	$ 50,000
Mountain Avenue (NS) at:		
• SR-60 Freeway WB Ramps (EW)	• WB All-Way Lane	$ 259,000
• SR-60 Freeway EB Ramps (EW)	• Second SB Left Turn Lane	$ 50,000
	• EB All-Way Lane	$ 259,000
	• Restripe EB All-Way Lane to a Second EB Left Turn Lane	$ 10,000
	• Second EB Right Turn Lane	$ 350,000
• Walnut Avenue (EW)	• Second WB Through Lane	$ 259,000
	• Second EB Through Lane	$ 259,000
• Riverside Drive (EW)	• NB Right Turn Lane	$ 50,000
	• Second SB Left Turn Lane	$ 50,000
Euclid Avenue (NS) at:		
• SR-60 Freeway WB Ramps (EW)	• WB All-Way Lane	$ 259,000

TABLE 6-2 (2 of 7)

BUILDOUT WITH PROJECT CONDITIONS
SUMMARY OF INTERSECTION IMPROVEMENTS AND COSTS

LOCATION	BUILDOUT IMPROVEMENT	COST
• SR-60 Freeway EB Ramps (EW)	• Second NB Right Turn Lane	$ 50,000
	• Restripe EB All-Way Lane to a Shared Through & Right Turn Lane	$ 10,000
	• EB free-Right Turn Lane	$ 350,000
	• Second EB Left Turn Lane	$ 350,000
• Kimball Avenue (EW)	• WB free-Right Turn Lane	$ 350,000
• Riverside Drive (EW)	• Third NB Through Lane	$ 259,000
	• Second SB Left Turn Lane	$ 50,000
	• Third SB Through Lane	$ 259,000
	• SB Right-Turn Overlap Phasing	$ 25,000
	• EB Left Turn Lane	$ 50,000
	• WB Left Turn Lane	$ 50,000
• Edison Street (EW)	• Third NB Through Lane	$ 259,000
	• Third SB Through Lane	$ 259,000
	• Second EB Left Turn Lane	$ 50,000
	• Second & Third EB Through Lanes (2)	$ 518,000
	• Second WB Through Lane	$ 259,000
• Merrill Avenue (EW)	• Third NB Through Lane	$ 259,000
	• Third SB Through Lane	$ 259,000
• Kimball Avenue (EW)	• NB Right-Turn Overlap Phasing	$ 25,000
	• EB Left Turn Lane	$ 50,000
	• First & Second WB Left Turn Lanes (2)	$ 100,000
	• WB Right Turn Lane	$ 50,000
	• Third & Fourth NB Through Lanes (2)	$ 518,000
	• Second SB Left Turn Lane	$ 50,000
	• Third SB Through Lane	$ 259,000
	• Second EB Left Turn Lane	$ 50,000
	• Second EB Through Lane	$ 259,000
	• EB Right Turn Lane	$ 50,000
	• Second WB Through Lane	$ 259,000
	• WB Right-Turn Overlap Phasing	$ 25,000

TABLE 6-2 (3 of 7)

BUILDOUT WITH PROJECT CONDITIONS
SUMMARY OF INTERSECTION IMPROVEMENTS AND COSTS

LOCATION	BUILDOUT IMPROVEMENT	COST
• Bickmore Avenue (EW)	• Traffic Signal	$ 120,000
	• Second NB Through Lane	$ 259,000
	• Second SB Through Lane	$ 259,000
	• Third NB Through Lane	$ 259,000
	• NB Right Turn Lane	$ 50,000
	• Second SB Left Turn Lane	$ 50,000
	• Third SB Through Lane	$ 259,000
	• First & Second WB Left Turn Lanes (2)	$ 100,000
	• WB Right Turn Lane	$ 50,000
• Pine Avenue (EW)	• Third & Fourth NB Through Lanes (2)	$ 259,000
	• NB free-Right Turn Lane	$ 350,000
	• Second SB Left Turn Lane	$ 50,000
	• Third SB Through Lane	$ 259,000
	• First & Second EB Left Turn Lanes (2)	$ 100,000
	• Second & Third EB Through Lanes (2)	$ 518,000
	• First, Second & Third WB Left Turn Lanes (3)	$ 150,000
	• Second & Third WB Through Lanes (2)	$ 518,000
	• WB free-Right Turn Lane	$ 350,000
Grove Avenue (NS) at:		
• SR-60 Freeway WB Ramps (EW)	• Westbound All-Way Lane	$ 259,000
• SR-60 Freeway EB Ramps (EW)	• Second EB Left Turn Lane	$ 350,000
	• Second EB Right Turn Lane	$ 350,000
• Edison Street (EW)	• Traffic Signal	$ 120,000
	• NB Left Turn Lane	$ 50,000
	• SB Left Turn Lane	$ 50,000
	• EB Left Turn Lane	$ 50,000
	• Second EB Through Lane	$ 259,000
	• WB Left Turn Lane	$ 50,000
	• Second WB Through Lane	$ 259,000
	• Second NB Through Lane	$ 259,000
	• Second SB Through Lane	$ 259,000

TABLE 6-2 (4 of 7)

BUILDOUT WITH PROJECT CONDITIONS
SUMMARY OF INTERSECTION IMPROVEMENTS AND COSTS

LOCATION	BUILDOUT IMPROVEMENT	COST
• Merrill Avenue (EW)	• EB Left Turn Lane	$ 50,000
• Kimball Avenue (EW)	• Traffic Signal	$ 120,000
	• NB Left Turn Lane	$ 50,000
	• WB Left Turn Lane	$ 50,000
	• Second EB Through Lane	$ 259,000
	• Second WB Through Lane	$ 259,000
• Bickmore Avenue (EW)	• Traffic Signal	$ 120,000
	• NB Left Turn Lane	$ 50,000
	• SB Left Turn Lane	$ 50,000
	• EB Left Turn Lane	$ 50,000
	• WB Left Turn Lane	$ 50,000
• Pine Avenue (EW)	• Traffic Signal	$ 120,000
	• Second EB Through Lane	$ 259,000
	• SB Left Turn Lane	$ 50,000
	• Second WB Through Lane	$ 259,000
Walker Avenue (NS) at:		
• Edison Street (EW)	• Traffic Signal	$ 120,000
	• NB Left Turn Lane	$ 50,000
	• SB Left Turn Lane	$ 50,000
	• EB Left Turn Lane	$ 50,000
	• Second EB Through Lane	$ 259,000
	• WB Left Turn Lane	$ 50,000
	• Second WB Through Lane	$ 259,000
	• NB Right Turn Lane	$ 50,000
	• NB Right-Turn Overlap Phasing	$ 25,000
	• EB Right Turn Lane	$ 50,000
Hellman Avenue (NS) at:		
• Merrill Avenue (EW)	• Second NB Through Lane	$ 259,000
	• NB Right Turn Lane	$ 50,000
	• Second SB Through Lane	$ 259,000
	• Second WB Left Turn Lane	$ 50,000
• Kimball Avenue (EW)	• Second SB Through Lane	$ 259,000
	• Second NB Left Turn Lane	$ 50,000
	• Second NB Through Lane	$ 259,000
	• NB Right Turn Lane	$ 50,000
	• Second SB Left Turn Lane	$ 50,000
	• SB Right Turn Lane	$ 50,000
	• Second EB Left Turn Lane	$ 50,000
	• Second EB Through Lane	$ 259,000
	• EB Right Turn Lane	$ 50,000
	• Second WB Left Turn Lane	$ 50,000
	• Second WB Through Lane	$ 259,000

TABLE 6-2 (5 of 7)

BUILDOUT WITH PROJECT CONDITIONS
SUMMARY OF INTERSECTION IMPROVEMENTS AND COSTS

LOCATION	BUILDOUT IMPROVEMENT	COST
• Pine Avenue (EW)	• Traffic Signal	$ 120,000
	• NB Left Turn Lane	$ 50,000
	• Second NB Through Lane	$ 259,000
	• SB Left Turn Lane	$ 50,000
	• Second SB Through Lane	$ 259,000
	• EB Left Turn Lane	$ 50,000
	• Second EB Through Lane	$ 259,000
	• WB Left Turn Lane	$ 50,000
	• Second WB Through Lane	$ 259,000
	• Second NB Left Turn Lane	$ 50,000
	• NB Right Turn Lane	$ 50,000
	• Second SB Left Turn Lane	$ 50,000
	• SB Right Turn Lane	$ 50,000
	• Second EB Left Turn Lane	$ 50,000
	• EB Right Turn Lane	$ 50,000
	• Second WB Left Turn Lane	$ 50,000
	• WB Right Turn Lane	$ 50,000
	• NB Right-Turn Overlap Phasing	$ 25,000
	• Third SB Through Lane	$ 259,000
	• SB Right-Turn Overlap Phasing	$ 25,000
	• Second EB Left Turn Lane	$ 50,000
	• Third EB Through Lane	$ 259,000
	• Third WB Through Lane	$ 259,000
	• WB Right Turn Lane	$ 50,000
	• WB Right-Turn Overlap Phasing	$ 25,000
• Chandler Street (EW)	• Traffic Signal	$ 120,000
	• NB Left Turn Lane	$ 50,000
	• SB Left Turn Lane	$ 50,000
	• EB Left Turn Lane	$ 50,000
	• WB Left Turn Lane	$ 50,000
	• Second NB Through Lane	$ 259,000
	• Second SB Left Turn Lane	$ 50,000
	• Second SB Through Lane	$ 259,000
	• Second EB Through Lane	$ 259,000
	• Second WB Through Lane	$ 259,000
Vineyard Avenue (NS) at:		
• SR-60 Freeway EB Ramps (EW)	• EB All-Way Lane	$ 259,000

TABLE 6-2 (6 of 7)

BUILDOUT WITH PROJECT CONDITIONS
SUMMARY OF INTERSECTION IMPROVEMENTS AND COSTS

LOCATION	BUILDOUT IMPROVEMENT	COST
Archibald Avenue (NS) at:		
• Riverside Drive (EW)	• Second EB Left Turn Lane	$ 50,000
	• SB Right-Turn Overlap Phasing	$ 25,000
	• Second WB Through Lane	$ 259,000
• Edison Avenue (EW)	• Second NB Left Turn Lane	$ 50,000
	• NB Right-Turn Overlap Phasing	$ 25,000
	• EB Right Turn Lane	$ 50,000
	• EB Right-Turn Overlap Phasing	$ 25,000
	• Second WB Left Turn Lane	$ 50,000
• Merrill Avenue (EW)	• Traffic Signal	$ 120,000
	• SB Left Turn Lane	$ 50,000
	• EB Left Turn Lane	$ 50,000
	• Second NB Through Lane	$ 259,000
	• Second SB Through Lane	$ 259,000
	• WB Left Turn Lane	$ 50,000
• Cloverdale Road (EW)	• NB Left Turn Lane	$ 50,000
	• Second NB Through Lane	$ 259,000
	• Second SB Through Lane	$ 259,000
	• First & Second EB Left Turn Lanes (2)	$ 100,000
	• Second EB Through Lane	$ 259,000
	• Second WB Through Lane	$ 259,000
• Pine Avenue (EW)	• Second SB Through Lane	$ 259,000
	• Second EB Through Lane	$ 259,000
	• Second NB Through Lane	$ 259,000
	• Second WB Through Lane	$ 259,000
• River Road (EW)	• Traffic Signal	$ 120,000
	• EB free-Right Turn Lane	$ 350,000
	• Second SB Through Lane	$ 259,000
River Road (NS) at:		
• Corydon Street (EW)	• SB Right Turn Lane	$ 50,000
	• Second EB Left Turn Lane	$ 50,000
	• Second EB Through Lane	$ 259,000
	• Second NB Through Lane	$ 259,000
Haven Avenue (NS) at:		
• SR-60 Freeway EB Ramps (EW)	• NB free-Right Turn Lane	$ 350,000
	• Restripe Second EB Left Turn Lane to an All-Way Lane	$ 10,000

TABLE 6-2 (7 of 7)

BUILDOUT WITH PROJECT CONDITIONS
SUMMARY OF INTERSECTION IMPROVEMENTS AND COSTS

LOCATION	BUILDOUT IMPROVEMENT	COST
Hamner Avenue (NS) at:		
• Cloverdale Road (EW)	• Second EB Through Lane	$ 259,000
	• WB Left Turn Lane	$ 50,000
	• Second NB Through Lane	$ 259,000
	• Second SB Through Lane	$ 259,000
	• EB Left Turn Lane	$ 50,000
	• Second WB Through Lane	$ 259,000
	• NB Right-Turn Overlap Phasing	$ 25,000
	• Second SB Left Turn Lane	$ 50,000
	• Second WB Left Turn Lane	$ 50,000
• Schleisman Road (EW)	• Traffic Signal	$ 120,000
	• EB Left Turn Lane	$ 50,000
	• WB Left Turn Lane	$ 50,000
	• Second NB Through Lane	$ 259,000
	• Second SB Through Lane	$ 259,000
	• NB Right Turn Lane	$ 50,000
	• SB Right Turn Lane	$ 50,000
	• Second WB Left Turn Lane	$ 50,000
I-15 Freeway SB Ramps (NS) at:		
• Galena Street (EW)	• Second EB Right Turn Lane	$ 50,000
• Limonite Avenue (EW)	• Second SB Right Turn Lane	$ 350,000
• Second Street (EW)	• First & Second EB Right Turn Lanes (2)	$ 100,000
	• Second SB Right Turn Lane	$ 350,000
I-15 Freeway NB Ramps (NS) at:		
• Second Street (EW)	• WB Right Turn Lane	$ 50,000
	• NB All-Way Lane	$ 259,000
Hellman Avenue		
• Eucalyptus Ave. to Merrill Ave.	• Construct 2 Lanes (0.6 Miles)	$ 1,200,000
Kimball Avenue		
• Hellman Ave. to Archibald Ave.	• Construct 2 Lanes (1.1 Miles)	$ 2,200,000
Pine Avenue		
• SR-71 Fwy. to El Prado Rd.	• Construct 2 Lanes (0.6 Miles)	$ 6,200,000
TOTAL COST		$ 43,345,000

TABLE 6-3

SUMMARY OF CMP FREEWAY MAINLINE AM IMPROVEMENTS AND COSTS

FREEWAY	SEGMENT LIMITS	SEGMENT LENGTH (MILES)	IMPROVEMENT (LANES ADDED) GENERAL	HOV	COST PER MILE	TOTAL COST
I-15 Fwy. SB	Jurupa St. to SR-60 Fwy.	1.8	3	1	$9,400,000	$16,920,000
	SR-60 Fwy. to Galena St.	1.2	2	1	$7,000,000	$8,400,000
	Galena St. to Limonite Ave.	2.0	2	1	$7,000,000	$14,000,000
	Limonite Ave. to 6th St.	2.7	2	1	$7,000,000	$18,900,000
	6th St. to 2nd St.	2.0	2	1	$7,000,000	$14,000,000
	2nd St. to Hidden Valley Pkwy.	0.8	1	1	$4,600,000	$3,680,000
	Hidden Valley Pkwy. to SR-91 Fwy.	1.4	1	1	$4,600,000	$6,440,000
	SR-91 Fwy. to Magnolia Ave.	1.2	0	0	$0	$0
I-15 Fwy. NB	Magnolia Ave. to SR-91 Fwy.	1.2	3	1	$9,400,000	$11,280,000
	SR-91 Fwy. to Hidden Valley Pkwy.	1.4	0	0	$0	$0
	Hidden Valley Pkwy. to 2nd St.	0.8	0	0	$0	$0
	2nd St. to 6th St.	2.0	0	0	$0	$0
	6th St. to Limonite Ave.	2.7	0	1	$2,200,000	$5,940,000
	Limonite Ave. to Galena St.	2.0	0	1	$2,200,000	$4,400,000
	Galena St. to SR-60 Fwy.	1.2	0	0	$0	$0
	SR-60 Fwy. to Jurupa St.	1.8	0	0	$0	$0
SR-60 Fwy. WB	Van Buren Blvd. to I-15 Fwy.	1.1	1	0	$2,400,000	$2,640,000
	I-15 Fwy. to Milliken Ave.	0.5	3	0	$7,200,000	$3,600,000
	Milliken Ave. to Haven Ave.	1.1	3	0	$7,200,000	$7,920,000
	Haven Ave. to Archibald Ave.	1.0	3	0	$7,200,000	$7,200,000
	Archibald Ave. to Vineyard Ave.	1.0	3	0	$7,200,000	$7,200,000
	Vineyard Ave. to Grove Ave.	1.0	3	0	$7,200,000	$7,200,000
	Grove Ave. to Euclid Ave. (SR-83)	1.3	3	0	$7,200,000	$9,360,000
	Euclid Ave. (SR-83) to Mountain Ave.	1.0	3	0	$7,200,000	$7,200,000
	Mountain Ave. to Central Ave.	1.2	3	0	$7,200,000	$8,640,000
	Central Ave. to Ramona Ave.	1.0	3	0	$7,200,000	$7,200,000
SR-60 Fwy. EB	Ramona Ave. to Central Ave.	1.0	0	0	$0	$0
	Central Ave. to Mountain Ave.	1.2	0	0	$0	$0
	Mountain Ave. to Euclid Ave. (SR-83)	1.0	0	0	$0	$0
	Euclid Ave. (SR-83) to Grove Ave.	1.3	0	0	$0	$0
	Grove Ave. to Vineyard Ave.	1.0	0	0	$0	$0
	Vineyard Ave. to Archibald Ave.	1.0	0	0	$0	$0
	Archibald Ave. to Haven Ave.	1.0	0	0	$0	$0
	Haven Ave. to Milliken Ave.	1.1	0	0	$0	$0
	Milliken Ave. to I-15 Fwy.	0.5	0	0	$0	$0
	I-15 Fwy. to Van Buren Blvd.	1.1	0	0	$0	$0
SR-71 Fwy. SB	Chino Ave. to Grand Ave.	0.9	0	0	$0	$0
	Grand Ave. to Chino Hills Pkwy. (SR-142)	1.5	0	0	$0	$0
	Chino Hills Pkwy. (SR-142) to Ramona Ave.	0.2	0	0	$0	$0
	Ramona Ave. to Soquel Canyon Pkwy.	1.3	0	0	$0	$0
	Soquel Canyon Pkwy. to Pine Ave.	1.6	0	0	$0	$0
	Pine Ave. to Euclid Ave. (SR-83)	1.5	0	0	$0	$0
	Euclid Ave. (SR-83) to SR-91 Fwy.	3.5	0	1	$2,200,000	$7,700,000

TABLE 6-3 (CONTINUED)

SUMMARY OF CMP FREEWAY MAINLINE AM IMPROVEMENTS AND COSTS

FREEWAY	SEGMENT LIMITS	SEGMENT LENGTH (MILES)	IMPROVEMENT (LANES ADDED) GENERAL	HOV	COST PER MILE	TOTAL COST
SR-71 Fwy. NB	SR-91 Fwy. to Euclid Ave. (SR-83)	3.5	0	0	$0	$0
	Euclid Ave. (SR-83) to Pine Ave.	1.5	0	0	$0	$0
	Pine Ave. to Soquel Canyon Pkwy.	1.6	0	0	$0	$0
	Soquel Canyon Pkwy. to Ramona Ave.	1.3	0	0	$0	$0
	Ramona Ave. to Chino Hills Pkwy. (SR-142)	0.2	0	0	$0	$0
	Chino Hills Pkwy. (SR-142) to Grand Ave.	1.5	0	0	$0	$0
	Grand Ave. to Chino Ave.	0.9	0	0	$0	$0
SR-91 Fwy. WB	McKinley St. to I-15 Fwy.	1.7	–[1]	–	$0	$0
	I-15 Fwy. to Main St.	1.1	–	–	$0	$0
	Main St. to West Grand Blvd.	0.3	–	–	$0	$0
	West Grand Blvd. to Lincoln Ave.	0.6	–	–	$0	$0
	Lincoln Ave. to Maple St.	1.2	–	–	$0	$0
	Maple St. to Serfas Club Dr.	0.5	–	–	$0	$0
	Serfas Club Dr. to SR-71 Fwy.	1.6	–	–	$0	$0
	SR-71 Fwy. to Green River Rd.	1.1	–	–	$0	$0
	Green River Rd. to Coal Canyon Rd.	2.0	–	–	$0	$0
	Coal Canyon Rd. to Gypsum Canyon Rd.	1.6	–	–	$0	$0
SR-91 Fwy. EB	Gypsum Canyon Rd. to Coal Canyon Rd.	1.6	–	–	$0	$0
	Coal Canyon Rd. to Green River Rd.	2.0	–	–	$0	$0
	Green River Rd. to SR-71 Fwy.	1.1	–	–	$0	$0
	SR-71 Fwy. to Serfas Club Dr.	1.6	–	–	$0	$0
	Serfas Club Dr. to Maple St.	0.5	–	–	$0	$0
	Maple St. to Lincoln Ave.	1.2	–	–	$0	$0
	Lincoln Ave. to West Grand Blvd.	0.6	–	–	$0	$0
	West Grand Blvd. to Main St.	0.3	–	–	$0	$0
	Main St. to I-15 Fwy.	1.1	–	–	$0	$0
	I-15 Fwy. to McKinley St.	1.7	–	–	$0	$0
TOTAL						$179,820,000

[1] – = Congestion on the SR-91 Freeway corridor is the subject of studies by the Counties of San Bernardino, Riverside and Orange.

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TABLE 6-4

SUMMARY OF CMP FREEWAY MAINLINE PM IMPROVEMENTS AND COSTS

FREEWAY	SEGMENT LIMITS	SEGMENT LENGTH (MILES)	IMPROVEMENT (LANES ADDED) GENERAL	HOV	COST PER MILE	TOTAL COST
I-15 Fwy. SB	Jurupa St. to SR-60 Fwy.	1.8	0	1	$2,200,000	$3,960,000
	SR-60 Fwy. to Galena St.	1.2	0	1	$2,200,000	$2,640,000
	Galena St. to Limonite Ave.	2.0	1	1	$4,600,000	$9,200,000
	Limonite Ave. to 6th St.	2.7	1	1	$4,600,000	$12,420,000
	6th St. to 2nd St.	2.0	0	1	$2,200,000	$4,400,000
	2nd St. to Hidden Valley Pkwy.	0.8	0	0	$0	$0
	Hidden Valley Pkwy. to SR-91 Fwy.	1.4	0	0	$0	$0
	SR-91 Fwy. to Magnolia Ave.	1.2	2	1	$7,000,000	$8,400,000
I-15 Fwy. NB	Magnolia Ave. to SR-91 Fwy.	1.2	1	1	$4,600,000	$5,520,000
	SR-91 Fwy. to Hidden Valley Pkwy.	1.4	1	1	$4,600,000	$6,440,000
	Hidden Valley Pkwy. to 2nd St.	0.8	1	1	$4,600,000	$3,680,000
	2nd St. to 6th St.	2.0	2	1	$7,000,000	$14,000,000
	6th St. to Limonite Ave.	2.7	2	1	$7,000,000	$18,900,000
	Limonite Ave. to Galena St.	2.0	2	1	$7,000,000	$14,000,000
	Galena St. to SR-60 Fwy.	1.2	2	1	$7,000,000	$8,400,000
	SR-60 Fwy. to Jurupa St.	1.8	2	1	$7,000,000	$12,600,000
SR-60 Fwy. WB	Van Buren Blvd. to I-15 Fwy.	1.1	0	0	$0	$0
	I-15 Fwy. to Milliken Ave.	0.5	1	0	$2,400,000	$1,200,000
	Milliken Ave. to Haven Ave.	1.1	1	0	$2,400,000	$2,640,000
	Haven Ave. to Archibald Ave.	1.0	1	0	$2,400,000	$2,400,000
	Archibald Ave. to Vineyard Ave.	1.0	1	0	$2,400,000	$2,400,000
	Vineyard Ave. to Grove Ave.	1.0	1	0	$2,400,000	$2,400,000
	Grove Ave. to Euclid Ave. (SR-83)	1.3	1	0	$2,400,000	$3,120,000
	Euclid Ave. (SR-83) to Mountain Ave.	1.0	1	0	$2,400,000	$2,400,000
	Mountain Ave. to Central Ave.	1.2	1	0	$2,400,000	$2,880,000
	Central Ave. to Ramona Ave.	1.0	1	0	$2,400,000	$2,400,000
SR-60 Fwy. EB	Ramona Ave. to Central Ave.	1.0	3	0	$7,200,000	$7,200,000
	Central Ave. to Mountain Ave.	1.2	3	0	$7,200,000	$8,640,000
	Mountain Ave. to Euclid Ave. (SR-83)	1.0	3	0	$7,200,000	$7,200,000
	Euclid Ave. (SR-83) to Grove Ave.	1.3	3	0	$7,200,000	$9,360,000
	Grove Ave. to Vineyard Ave.	1.0	3	0	$7,200,000	$7,200,000
	Vineyard Ave. to Archibald Ave.	1.0	3	0	$7,200,000	$7,200,000
	Archibald Ave. to Haven Ave.	1.0	3	0	$7,200,000	$7,200,000
	Haven Ave. to Milliken Ave.	1.1	3	0	$7,200,000	$7,920,000
	Milliken Ave. to I-15 Fwy.	0.5	3	0	$7,200,000	$3,600,000
	I-15 Fwy. to Van Buren Blvd.	1.1	2	0	$4,800,000	$5,280,000
SR.-71 Fwy. SB	Chino Ave. to Grand Ave.	0.9	0	0	$0	$0
	Grand Ave. to Chino Hills Pkwy. (SR-142)	1.5	0	0	$0	$0
	Chino Hills Pkwy. (SR-142) to Ramona Ave.	0.2	0	0	$0	$0
	Ramona Ave. to Soquel Canyon Pkwy.	1.3	0	0	$0	$0
	Soquel Canyon Pkwy. to Pine Ave.	1.6	0	0	$0	$0
	Pine Ave. to Euclid Ave. (SR-83)	1.5	0	0	$0	$0
	Euclid Ave. (SR-83) to SR-91 Fwy.	3.5	0	0	$0	$0

TABLE 6-4 (CONTINUED)

SUMMARY OF CMP FREEWAY MAINLINE PM IMPROVEMENTS AND COSTS

FREEWAY	SEGMENT LIMITS	SEGMENT LENGTH (MILES)	IMPROVEMENT (LANES ADDED) GENERAL	HOV	COST PER MILE	TOTAL COST
SR-71 Fwy. NB	SR-91 Fwy. to Euclid Ave. (SR-83)	3.5	0	1	$2,200,000	$7,700,000
	Euclid Ave. (SR-83) to Pine Ave.	1.5	0	0	$0	$0
	Pine Ave. to Soquel Canyon Pkwy.	1.6	0	0	$0	$0
	Soquel Canyon Pkwy. to Ramona Ave.	1.3	0	0	$0	$0
	Ramona Ave. to Chino Hills Pkwy. (SR-142)	0.2	0	0	$0	$0
	Chino Hills Pkwy. (SR-142) to Grand Ave.	1.5	0	0	$0	$0
	Grand Ave. to Chino Ave.	0.9	0	0	$0	$0
SR-91 Fwy. WB	McKinley St. to I-15 Fwy.	1.7	–[1]	–	$0	$0
	I-15 Fwy. to Main St.	1.1	–	–	$0	$0
	Main St. to West Grand Blvd.	0.3	–	–	$0	$0
	West Grand Blvd. to Lincoln Ave.	0.6	–	–	$0	$0
	Lincoln Ave. to Maple St.	1.2	–	–	$0	$0
	Maple St. to Serfas Club Dr.	0.5	–	–	$0	$0
	Serfas Club Dr. to SR-71 Fwy.	1.6	–	–	$0	$0
	SR-71 Fwy. to Green River Rd.	1.1	–	–	$0	$0
	Green River Rd. to Coal Canyon Rd.	2.0	–	–	$0	$0
	Coal Canyon Rd. to Gypsum Canyon Rd.	1.6	–	–	$0	$0
SR-91 Fwy. EB	Gypsum Canyon Rd. to Coal Canyon Rd.	1.6	–	–	$0	$0
	Coal Canyon Rd. to Green River Rd.	2.0	–	–	$0	$0
	Green River Rd. to SR-71 Fwy.	1.1	–	–	$0	$0
	SR-71 Fwy. to Serfas Club Dr.	1.6	–	–	$0	$0
	Serfas Club Dr. to Maple St.	0.5	–	–	$0	$0
	Maple St. to Lincoln Ave.	1.2	–	–	$0	$0
	Lincoln Ave. to West Grand Blvd.	0.6	–	–	$0	$0
	West Grand Blvd. to Main St.	0.3	–	–	$0	$0
	Main St. to I-15 Fwy.	1.1	–	–	$0	$0
	I-15 Fwy. to McKinley St.	1.7	–	–	$0	$0
TOTAL						$224,900,000

[1] – = Congestion on the SR-91 Freeway corridor is the subject of studies by the Counties of San Bernardino, Riverside and Orange.

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improved to a six lane divided facility, three through lanes and a single left turn lane were assumed to be constructed as part of the funded improvements. Therefore, no cost is shown in Table 6-1 for already funded improvements. The total cost of needed and unfunded arterial roadway improvements are $39,563,000 and $43,345,000 for 2020 and Buildout conditions, respectively. The total cost of needed freeway mainline improvements along the segments studied is $331,760,000, with the higher of the AM/PM cost allocation by direction.

6.2 Project Contribution and Fair Share Costs

In conformance with CMP requirements, project fair share contributions have also been calculated for CMP Horizon Year improvement locations. The project share of cost has been based on the proportion of project peak hour traffic contributed to the improvement location relative to the total new peak hour 2020 and Buildout traffic volumes.

Tables 6-5 and 6-6 present the summary of improvement cost and project cost shares at each CMP intersection improvement location for 2020 and Buildout conditions, respectively. The intersection fair share cost calculations are based on the PM peak hour traffic volumes, since this is when most (and the most severe) intersection deficiencies occur. As shown in Tables 6-5 and 6-6, the project's fair share of identified intersection and roadway link costs are $21,632,000 and $29,651,000 for 2020 and Buildout conditions, respectively.

Table 6-7 summarizes the needed AM peak hour freeway mainline improvement costs and project fair share cost contribution estimates for each freeway mainline segment which will require improvements. Table 6-8

TABLE 6-5 (1 of 2)

2020 PROJECT FAIR SHARE INTERSECTION TRAFFIC CONTRIBUTION

LOCATION	TOTAL COST	EXISTING TRAFFIC	2020 WITH PROJECT TRAFFIC	PROJECT TRAFFIC	TOTAL NEW TRAFFIC	PROJECT % OF NEW TRAFFIC	PROJECT COST SHARE
Pipeline Ave. (NS) at:							
• Chino Hills Pkwy. (EW)	$ 409,000	5,201	6,287	206	1,086	19.0%	$ 78,000
SR-71 Fwy. NB Ramps (NS) at:							
• Pine Ave. (EW)	$ 379,000	160	2,698	1,232	2,538	48.5%	$ 184,000
Central Ave. (NS) at:							
• Edison Ave. (EW)	$ 125,000	3,076	5,970	206	2,894	7.1%	$ 9,000
• El Prado Rd. (EW)	$ 429,000	1,123	2,860	617	1,737	35.5%	$ 152,000
El Prado Rd. (NS) at:							
• Kimball Ave. (EW)	$ 170,000	457	2,103	616	1,646	37.4%	$ 64,000
• Pine Ave. (EW)	$ 529,000	272	2,542	1,233	2,270	54.3%	$ 287,000
Mountain Ave. (NS) at:							
• SR-60 Fwy. EB Ramps (EW)	$ 669,000	3,612	4,813	206	1,201	17.2%	$ 115,000
• Walnut Ave. (EW)	$ 518,000	3,223	4,103	206	880	23.4%	$ 121,000
• Riverside Dr. (EW)	$ 100,000	3,176	5,089	206	1,913	10.8%	$ 11,000
Euclid Ave. (NS) at:							
• SR-60 Fwy. WB Ramps (EW)	$ 259,000	3,113	4,480	802	1,367	58.7%	$ 152,000
• SR-60 Fwy. EB Ramps (EW)	$ 410,000	3,283	4,771	1,233	1,488	82.9%	$ 340,000
• Riverside Dr. (EW)	$ 693,000	3,065	6,472	1,438	3,407	42.2%	$ 292,000
• Edison Ave. (EW)	$ 1,345,000	2,384	7,063	2,259	4,679	48.3%	$ 649,000
• Merrill Ave. (EW)	$ 518,000	1,266	5,378	3,081	4,112	74.9%	$ 388,000
• Kimball Ave. (EW)	$ 1,695,000	1,208	8,011	4,408	6,803	64.8%	$ 1,098,000
• Bickmore Ave. (EW)	$ 1,406,000	966	6,570	2,259	5,604	40.3%	$ 567,000
• Pine Ave. (EW)	$ 2,554,000	1,535	9,431	3,081	7,896	39.0%	$ 997,000
Grove Ave. (NS) at:							
• SR-60 Fwy. WB Ramps (EW)	$ 259,000	3,124	4,562	319	1,438	22.2%	$ 57,000
• SR-60 Fwy. EB Ramps (EW)	$ 700,000	3,063	4,743	411	1,680	24.5%	$ 171,000
• Edison Ave. (EW)	$ 1,356,000	778	3,846	823	3,068	26.8%	$ 364,000
• Merrill Ave. (EW)	$ 50,000	369	1,383	206	1,014	20.3%	$ 10,000
• Kimball Ave. (EW)	$ 738,000	202	3,631	2,671	3,429	77.9%	$ 575,000
• Bickmore Ave. (EW)	$ 320,000	142	1,940	411	1,798	22.9%	$ 73,000
• Pine Ave. (EW)	$ 688,000	708	4,712	2,260	4,004	56.4%	$ 388,000
Walker Ave. (NS) at:							
• Edison Ave. (EW)	$ 838,000	732	3,357	1,027	2,625	39.1%	$ 328,000

TABLE 6-5 (2 of 2)

2020 PROJECT FAIR SHARE INTERSECTION TRAFFIC CONTRIBUTION

LOCATION	TOTAL COST	EXISTING TRAFFIC	2020 WITH PROJECT TRAFFIC	PROJECT TRAFFIC	TOTAL NEW TRAFFIC	PROJECT % OF NEW TRAFFIC	PROJECT COST SHARE
Hellman Ave. (NS) at:							
• Merrill Ave. (EW)	$ 618,000	-	4,051	2,260	4,051	55.8%	$ 345,000
• Kimball Ave. (EW)	$ 1,386,000	-	6,637	4,109	6,637	61.9%	$ 858,000
• Pine Ave. (EW)	$ 1,756,000	780	6,875	5,136	6,095	84.3%	$ 1,480,000
• Chandler St. (EW)	$ 1,406,000	324	4,762	3,287	4,438	74.1%	$ 1,041,000
Vineyard Ave. (NS) at:							
• SR-60 Fwy. EB Ramps (EW)	$ 259,000	2,441	3,780	206	1,339	15.4%	$ 40,000
Archibald Ave. (NS) at:							
• Riverside Dr. (EW)	$ 50,000	2,773	4,399	206	1,626	12.7%	$ 6,000
• Edison Ave. (EW)	$ 200,000	1,180	4,717	1,232	3,537	34.8%	$ 70,000
• Merrill Ave. (EW)	$ 788,000	905	2,793	822	1,888	43.5%	$ 343,000
• Cloverdale Rd. (EW)	$ 1,186,000	1,141	4,579	2,054	3,438	59.7%	$ 709,000
• Pine Ave. (EW)	$ 1,036,000	1,067	3,389	1,439	2,322	62.0%	$ 642,000
• River Rd. (EW)	$ 729,000	1,070	3,467	1,234	2,397	51.5%	$ 375,000
River Rd. (NS) at:							
• Corydon St. (EW)	$ 359,000	1,860	4,064	1,233	2,204	55.9%	$ 201,000
Haven Ave. (NS) at:							
• SR-60 Fwy. EB Ramps (EW)	$ 350,000	2,514	5,810	412	3,296	12.5%	$ 44,000
Hamner Ave. (NS) at:							
• Cloverdale Rd. (EW)	$ 1,136,000	1,331	4,540	1,027	3,209	32.0%	$ 364,000
• Schleisman Rd. (EW)	$ 738,000	1,033	4,095	412	3,062	13.5%	$ 99,000
I-15 Fwy. SB Ramps (NS) at:							
• Galena St. (EW)	$ 50,000	-	3,220	206	3,220	6.4%	$ 3,000
• Second St. (EW)	$ 450,000	2,542	4,222	206	1,680	12.3%	$ 55,000
I-15 Fwy. NB Ramps (NS) at:							
• Second St. (EW)	$ 309,000	1,794	2,432	93	638	14.6%	$ 45,000
Hellman Ave.							
• Eucalyptus Ave. to Merrill Ave.	$ 1,200,000	-	18.8	17.1	18.8	91.0%	$ 1,091,000
Kimball Ave.							
• Hellman Ave. to Archibald Ave.	$ 2,200,000	-	24.1	21.9	24.1	90.9%	$ 1,999,000
Pine Ave.							
• SR-71 Fwy. to El Prado Rd.	$ 6,200,000	-	20.8	14.6	20.8	70.2%	$ 4,352,000
TOTAL	$ 39,563,000						$ 21,632,000

TABLE 6-6 (1 of 2)

BUILDOUT PROJECT FAIR SHARE INTERSECTION TRAFFIC CONTRIBUTION

LOCATION	TOTAL COST	EXISTING TRAFFIC	BUILDOUT WITH PROJECT TRAFFIC	PROJECT TRAFFIC	TOTAL NEW TRAFFIC	PROJECT % OF NEW TRAFFIC	PROJECT COST SHARE
Pipeline Ave. (NS) at:							
• Chino Hills Pkwy. (EW)	$ 409,000	5,201	6,263	259	1,062	24.4%	$ 100,000
SR-71 Fwy. SB Ramps (NS) at:							
• Chino Hills Pkwy. (EW)	$ 259,000	3,021	5,109	259	2,088	12.4%	$ 32,000
• Pine Ave. (EW)	$ 259,000	346	2,673	974	2,327	41.9%	$ 108,000
SR-71 Fwy. NB Ramps (NS) at:							
• Pine Ave. (EW)	$ 379,000	160	2,806	1,554	2,646	58.7%	$ 223,000
Central Ave. (NS) at:							
• Edison Ave. (EW)	$ 175,000	3,076	6,096	259	3,020	8.6%	$ 15,000
• El Prado Rd. (EW)	$ 429,000	1,123	2,892	777	1,769	43.9%	$ 188,000
El Prado Rd. (NS) at:							
• Kimball Ave. (EW)	$ 170,000	457	2,064	777	1,607	48.4%	$ 82,000
• Pine Ave. (EW)	$ 529,000	272	2,363	1,554	2,091	74.3%	$ 393,000
Mountain Ave. (NS) at:							
• SR-60 Fwy. WB Ramps (EW)	$ 259,000	3,715	4,475	145	760	19.1%	$ 49,000
• SR-60 Fwy. EB Ramps (EW)	$ 669,000	3,612	4,475	259	863	30.0%	$ 201,000
• Walnut Ave. (EW)	$ 518,000	3,223	4,142	259	919	28.2%	$ 146,000
• Riverside Dr. (EW)	$ 100,000	3,176	5,024	259	1,848	14.0%	$ 14,000
Euclid Ave. (NS) at:							
• SR-60 Fwy. WB Ramps (EW)	$ 259,000	3,113	4,439	1,005	1,326	75.8%	$ 196,000
• SR-60 Fwy. EB Ramps (EW)	$ 760,000	3,283	5,931	1,554	2,648	58.7%	$ 446,000
• Riverside Dr. (EW)	$ 693,000	3,065	6,353	1,813	3,288	55.1%	$ 382,000
• Edison Ave. (EW)	$ 1,345,000	2,384	7,242	2,850	4,858	58.7%	$ 789,000
• Merrill Ave. (EW)	$ 518,000	1,266	5,344	3,887	4,078	95.3%	$ 494,000
• Kimball Ave. (EW)	$ 2,045,000	1,208	7,063	5,181	5,855	88.5%	$ 1,810,000
• Bickmore Ave. (EW)	$ 1,406,000	966	3,911	2,849	2,945	96.7%	$ 1,360,000
• Pine Ave. (EW)	$ 2,554,000	1,535	5,709	3,885	4,174	93.1%	$ 2,377,000
Grove Ave. (NS) at:							
• SR-60 Fwy. WB Ramps (EW)	$ 259,000	3,124	4,066	404	942	42.9%	$ 111,000
• SR-60 Fwy. EB Ramps (EW)	$ 700,000	3,063	4,192	518	1,129	45.9%	$ 321,000
• Edison Ave. (EW)	$ 1,356,000	778	3,526	1,036	2,748	37.7%	$ 511,000
• Merrill Ave. (EW)	$ 50,000	369	1,165	259	796	32.5%	$ 16,000
• Kimball Ave. (EW)	$ 738,000	202	3,591	3,369	3,389	99.4%	$ 734,000
• Bickmore Ave. (EW)	$ 320,000	142	964	518	822	63.0%	$ 202,000
• Pine Ave. (EW)	$ 688,000	708	3,629	2,850	2,921	97.6%	$ 671,000
Walker Ave. (NS) at:							
• Edison Ave. (EW)	$ 963,000	732	3,597	1,295	2,865	45.2%	$ 435,000

TABLE 6-6 (2 of 2)

BUILDOUT PROJECT FAIR SHARE INTERSECTION TRAFFIC CONTRIBUTION

LOCATION	TOTAL COST	EXISTING TRAFFIC	BUILDOUT WITH PROJECT TRAFFIC	PROJECT TRAFFIC	TOTAL NEW TRAFFIC	PROJECT % OF NEW TRAFFIC	PROJECT COST SHARE
Hellman Ave. (NS) at:							
• Merrill Ave. (EW)	$ 618,000	-	3,439	2,849	3,439	82.8%	$ 512,000
• Kimball Ave. (EW)	$ 1,386,000	-	5,785	5,180	5,785	89.5%	$ 1,241,000
• Pine Ave. (EW)	$ 2,708,000	780	7,874	6,477	7,094	91.3%	$ 2,472,000
• Chandler St. (EW)	$ 1,406,000	324	4,640	4,144	4,316	96.0%	$ 1,350,000
Vineyard Ave. (NS) at:							
• SR-60 Fwy. EB Ramps (EW)	$ 259,000	2,441	3,827	259	1,386	18.7%	$ 48,000
Archibald Ave. (NS) at:							
• Riverside Dr. (EW)	$ 334,000	2,773	4,883	259	2,110	12.3%	$ 41,000
• Edison Ave. (EW)	$ 200,000	1,180	4,715	1,554	3,535	44.0%	$ 88,000
• Merrill Ave. (EW)	$ 788,000	905	2,881	1,036	1,976	52.4%	$ 413,000
• Cloverdale Rd. (EW)	$ 1,186,000	1,141	4,829	2,590	3,688	70.2%	$ 833,000
• Pine Ave. (EW)	$ 1,036,000	1,067	3,523	1,813	2,456	73.8%	$ 765,000
• River Rd. (EW)	$ 729,000	1,070	3,391	1,813	2,321	78.1%	$ 569,000
River Rd. (NS) at:							
• Corydon St. (EW)	$ 618,000	1,860	4,211	1,554	2,351	66.1%	$ 408,000
Haven Ave. (NS) at:							
• SR-60 Fwy. EB Ramps (EW)	$ 360,000	2,514	6,033	518	3,519	14.7%	$ 53,000
Hamner Ave. (NS) at:							
• Cloverdale Rd. (EW)	$ 1,261,000	1,331	4,903	1,295	3,572	36.3%	$ 457,000
• Schleisman Rd. (EW)	$ 888,000	1,033	4,086	518	3,053	17.0%	$ 151,000
I-15 Fwy. SB Ramps (NS) at:							
• Galena St. (EW)	$ 50,000	-	3,247	259	3,247	8.0%	$ 4,000
• Limonite Ave. (EW)	$ 350,000	1,446	3,113	1,295	1,667	77.7%	$ 272,000
• Second St. (EW)	$ 450,000	2,542	4,217	259	1,675	15.5%	$ 70,000
I-15 Fwy. NB Ramps (NS) at:							
• Second St. (EW)	$ 309,000	1,794	2,421	114	627	18.2%	$ 56,000
Hellman Ave.							
• Eucalyptus Ave. to Merrill Ave.	$ 1,200,000	-	18.8	17.1	18.8	91.0%	$ 1,091,000
Kimball Ave.							
• Hellman Ave. to Archibald Ave.	$ 2,200,000	-	24.1	21.9	24.1	90.9%	$ 1,999,000
Pine Ave.							
• SR-71 Fwy. to El Prado Rd.	$ 6,200,000	-	20.8	14.6	20.8	70.2%	$ 4,352,000
TOTAL	$ 43,345,000						$ 29,651,000

TABLE 6-7

PROJECT FREEWAY MAINLINE AM FAIR SHARE TRAFFIC CONTRIBUTION

FREEWAY	SEGMENT LIMITS	EXISTING TRAFFIC	2020 WITH PROJECT TRAFFIC	PROJECT TRAFFIC	TOTAL NEW TRAFFIC	PROJECT % OF NEW TRAFFIC	IMPROVEMENT COST	PROJECT COST SHARE
I-15 Fwy. SB	Jurupa St. to SR-60 Fwy.	13,466	16,036	436	2,570	16.97%	$16,920,000	$2,870,564
	SR-60 Fwy. to Galena St.	8,534	11,125	610	2,591	23.54%	$8,400,000	$1,977,416
	Galena St. to Limonite Ave.	8,534	10,636	462	2,102	21.98%	$14,000,000	$3,076,689
	Limonite Ave. to 6th St.	9,395	11,020	16	1,625	0.98%	$18,900,000	$186,083
	6th St. to 2nd St.	9,630	11,381	14	1,751	0.80%	$14,000,000	$111,928
	2nd St. to Hidden Valley Pkwy.	10,256	11,434	138	1,178	11.71%	$3,680,000	$430,986
	Hidden Valley Pkwy. to SR-91 Fwy.	9,943	11,121	138	1,178	11.71%	$6,440,000	$754,226
	SR-91 Fwy. to Magnolia Ave.	2,510	5,417	40	2,907	1.38%	$0	$0
I-15 Fwy. NB	Magnolia Ave. to SR-91 Fwy.	10,021	12,966	171	2,945	5.81%	$11,280,000	$655,012
	SR-91 Fwy. to Hidden Valley Pkwy.	2,490	5,559	131	3,069	4.27%	$0	$0
	Hidden Valley Pkwy. to 2nd St.	2,569	5,638	131	3,069	4.27%	$0	$0
	2nd St. to 6th St.	2,412	6,144	79	3,732	2.12%	$0	$0
	6th St. to Limonite Ave.	2,353	6,732	24	4,379	0.55%	$5,940,000	$32,558
	Limonite Ave. to Galena St.	2,137	6,896	83	4,759	1.74%	$4,400,000	$76,744
	Galena St. to SR-60 Fwy.	2,137	6,439	116	4,302	2.70%	$0	$0
	SR-60 Fwy. to Jurupa St.	3,373	6,306	104	2,933	3.55%	$0	$0
SR-60 Fwy. WB	Van Buren Blvd. to I-15 Fwy.	5,428	9,588	601	4,160	14.45%	$2,640,000	$381,431
	I-15 Fwy. to Milliken Ave.	8,413	14,322	428	5,909	7.24%	$3,600,000	$260,761
	Milliken Ave. to Haven Ave.	8,775	15,702	462	6,927	6.67%	$7,920,000	$528,247
	Haven Ave. to Archibald Ave.	8,956	15,587	463	6,631	6.98%	$7,200,000	$502,748
	Archibald Ave. to Vineyard Ave.	9,046	16,035	498	6,989	7.13%	$7,200,000	$513,023
	Vineyard Ave. to Grove Ave.	8,911	15,787	289	6,876	4.20%	$7,200,000	$302,611
	Grove Ave. to Euclid Ave. (SR-83)	9,092	16,083	412	6,991	5.89%	$9,360,000	$551,609
	Euclid Ave. (SR-83) to Mountain Ave.	8,775	15,673	222	6,898	3.22%	$7,200,000	$231,735
	Mountain Ave. to Central Ave.	8,458	15,405	307	6,947	4.42%	$8,640,000	$381,796
	Central Ave. to Ramona Ave.	8,142	15,669	291	7,527	3.87%	$7,200,000	$278,373
SR-60 Fwy. EB	Ramona Ave. to Central Ave.	3,504	6,605	186	3,101	6.00%	$0	$0
	Central Ave. to Mountain Ave.	3,641	6,526	230	2,885	7.97%	$0	$0
	Mountain Ave. to Euclid Ave. (SR-83)	3,777	6,412	252	2,635	9.56%	$0	$0
	Euclid Ave. (SR-83) to Grove Ave.	3,913	6,426	177	2,513	7.04%	$0	$0
	Grove Ave. to Vineyard Ave.	3,835	6,217	28	2,382	1.18%	$0	$0
	Vineyard Ave. to Archibald Ave.	3,894	6,336	25	2,442	1.02%	$0	$0
	Archibald Ave. to Haven Ave.	3,855	6,502	39	2,647	1.47%	$0	$0
	Haven Ave. to Milliken Ave.	3,777	6,173	48	2,396	2.00%	$0	$0
	Milliken Ave. to I-15 Fwy.	3,621	4,681	46	1,060	4.34%	$0	$0
	I-15 Fwy. to Van Buren Blvd.	2,336	3,599	59	1,263	4.67%	$0	$0
SR-71 Fwy. SB	Chino Ave. to Grand Ave.	1,823	6,125	398	4,302	9.25%	$0	$0
	Grand Ave. to Chino Hills Pkwy. (SR-142)	2,160	4,866	364	2,706	13.45%	$0	$0
	Chino Hills Pkwy. (SR-142) to Ramona Ave.	2,244	3,892	321	1,648	19.47%	$0	$0
	Ramona Ave. to Soquel Canyon Pkwy.	2,244	3,892	321	1,648	19.47%	$0	$0
	Soquel Canyon Pkwy. to Pine Ave.	2,020	4,922	336	2,902	11.58%	$0	$0
	Pine Ave. to Euclid Ave. (SR-83)	2,076	4,656	28	2,580	1.09%	$0	$0
	Euclid Ave. (SR-83) to SR-91 Fwy.	1,851	4,764	342	2,913	11.74%	$7,700,000	$904,128
SR-71 Fwy. NB	SR-91 Fwy. to Euclid Ave. (SR-83)	752	3,293	459	2,541	18.06%	$0	$0
	Euclid Ave. (SR-83) to Pine Ave.	844	3,288	39	2,444	1.60%	$0	$0
	Pine Ave. to Soquel Canyon Pkwy.	821	3,659	370	2,838	13.04%	$0	$0
	Soquel Canyon Pkwy. to Ramona Ave.	912	4,133	344	3,221	10.68%	$0	$0
	Ramona Ave. to Chino Hills Pkwy. (SR-142)	912	3,451	344	2,539	13.55%	$0	$0
	Chino Hills Pkwy. (SR-142) to Grand Ave.	878	4,663	326	3,785	8.61%	$0	$0
	Grand Ave. to Chino Ave.	741	5,288	290	4,547	6.38%	$0	$0
SR-91 Fwy. WB	McKinley St. to I-15 Fwy.	9,074	13,784	174	4,710	3.69%	$0	$0
	I-15 Fwy. to Main St.	10,126	15,866	265	5,740	4.62%	$0	$0
	Main St. to West Grand Blvd.	9,424	14,668	149	5,244	2.84%	$0	$0
	West Grand Blvd. to Lincoln Ave.	9,731	15,924	155	6,193	2.50%	$0	$0
	Lincoln Ave. to Maple St.	9,249	16,295	244	7,046	3.46%	$0	$0

TABLE 6-7 (CONTINUED)

PROJECT FREEWAY MAINLINE AM FAIR SHARE TRAFFIC CONTRIBUTION

FREEWAY	SEGMENT LIMITS	EXISTING TRAFFIC	2020 WITH PROJECT TRAFFIC	PROJECT TRAFFIC	TOTAL NEW TRAFFIC	PROJECT % OF NEW TRAFFIC	IMPROVEMENT COST	PROJECT COST SHARE
	Maple St. to Serfas Club Dr.	9,556	18,573	255	9,017	2.83%	$0	$0
	Serfas Club Dr. to SR-71 Fwy.	9,424	19,435	279	10,011	2.79%	$0	$0
	SR-71 Fwy. to Green River Rd.	9,468	19,949	425	10,481	4.06%	$0	$0
	Green River Rd. to Coal Canyon Rd.	9,819	21,085	419	11,266	3.72%	$0	$0
	Coal Canyon Rd. to Gypsum Canyon Rd.	10,257	22,667	416	12,410	3.35%	$0	$0
SR-91 Fwy. EB	Gypsum Canyon Rd. to Coal Canyon Rd.	6,544	10,647	287	4,103	6.99%	$0	$0
	Coal Canyon Rd. to Green River Rd.	6,264	10,518	290	4,254	6.82%	$0	$0
	Green River Rd. to SR-71 Fwy.	6,041	10,354	313	4,313	7.26%	$0	$0
	SR-71 Fwy. to Serfas Club Dr.	6,013	10,234	47	4,221	1.11%	$0	$0
	Serfas Club Dr. to Maple St.	6,097	10,113	48	4,016	1.20%	$0	$0
	Maple St. to Lincoln Ave.	5,901	9,598	44	3,697	1.19%	$0	$0
	Lincoln Ave. to West Grand Blvd.	6,208	9,868	11	3,660	0.30%	$0	$0
	West Grand Blvd. to Main St.	6,013	9,753	11	3,740	0.29%	$0	$0
	Main St. to I-15 Fwy.	6,460	10,870	11	4,410	0.25%	$0	$0
	I-15 Fwy. to McKinley St.	5,789	7,317	58	1,528	3.80%	$0	$0
TOTAL								$15,008,671

[1] -- = Congestion on the SR-91 Freeway corridor is the subject of studies by the Counties of San Bernardino, Riverside and Orange.

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TABLE 6-8

PROJECT FREEWAY MAINLINE PM FAIR SHARE TRAFFIC CONTRIBUTION

FREEWAY	SEGMENT LIMITS	EXISTING TRAFFIC	2020 WITH PROJECT TRAFFIC	PROJECT TRAFFIC	TOTAL NEW TRAFFIC	PROJECT % OF NEW TRAFFIC	IMPROVEMENT COST	PROJECT COST SHARE
I-15 Fwy. SB	Jurupa St. to SR-60 Fwy.	5,416	8,985	109	3,569	3.05%	$3,960,000	$120,947
	SR-60 Fwy. to Galena St.	3,432	7,789	154	4,357	3.53%	$2,640,000	$93,308
	Galena St. to Limonite Ave.	3,432	8,782	94	5,350	1.76%	$9,200,000	$161,640
	Limonite Ave. to 6th St.	3,778	8,868	123	5,090	2.42%	$12,420,000	$300,118
	6th St. to 2nd St.	3,873	7,795	148	3,922	3.77%	$4,400,000	$166,024
	2nd St. to Hidden Valley Pkwy.	4,125	7,352	213	3,227	6.60%	$0	$0
	Hidden Valley Pkwy. to SR-91 Fwy.	3,999	7,226	213	3,227	6.60%	$0	$0
	SR-91 Fwy. to Magnolia Ave.	9,000	13,022	140	4,022	3.48%	$8,400,000	$292,401
I-15 Fwy. NB	Magnolia Ave. to SR-91 Fwy.	4,030	9,064	35	5,034	0.70%	$5,520,000	$38,378
	SR-91 Fwy. to Hidden Valley Pkwy.	8,930	11,690	52	2,760	1.88%	$6,440,000	$121,326
	Hidden Valley Pkwy. to 2nd St.	9,211	11,971	52	2,760	1.88%	$3,680,000	$69,329
	2nd St. to 6th St.	8,649	11,497	0	2,848	0.00%	$14,000,000	$0
	6th St. to Limonite Ave.	8,438	11,689	0	3,251	0.00%	$18,900,000	$0
	Limonite Ave. to Galena St.	7,664	11,275	216	3,611	5.98%	$14,000,000	$837,450
	Galena St. to SR-60 Fwy.	7,664	11,631	297	3,967	7.49%	$8,400,000	$628,895
	SR-60 Fwy. to Jurupa St.	12,094	14,496	297	2,402	12.36%	$12,600,000	$0
SR-60 Fwy. WB	Van Buren Blvd. to I-15 Fwy.	4,059	6,401	55	2,342	2.35%	$0	$0
	I-15 Fwy. to Milliken Ave.	6,292	10,113	11	3,821	0.29%	$1,200,000	$3,455
	Milliken Ave. to Haven Ave.	6,562	10,999	13	4,437	0.29%	$2,640,000	$7,736
	Haven Ave. to Archibald Ave.	6,698	11,388	17	4,690	0.36%	$2,400,000	$8,700
	Archibald Ave. to Vineyard Ave.	6,765	11,258	19	4,493	0.42%	$2,400,000	$10,150
	Vineyard Ave. to Grove Ave.	6,664	11,137	20	4,473	0.45%	$2,400,000	$10,732
	Grove Ave. to Euclid Ave. (SR-83)	6,799	11,387	120	4,588	2.62%	$3,120,000	$81,598
	Euclid Ave. (SR-83) to Mountain Ave.	6,562	11,070	141	4,508	3.13%	$2,400,000	$75,063
	Mountain Ave. to Central Ave.	6,326	11,076	138	4,750	2.91%	$2,880,000	$83,670
	Central Ave. to Ramona Ave.	6,089	11,106	104	5,017	2.07%	$2,400,000	$49,747
SR-60 Fwy. EB	Ramona Ave. to Central Ave.	8,329	16,369	528	8,040	6.57%	$7,200,000	$472,833
	Central Ave. to Mountain Ave.	8,653	16,383	554	7,730	7.17%	$8,640,000	$619,254
	Mountain Ave. to Euclid Ave. (SR-83)	8,977	16,533	396	7,556	5.24%	$7,200,000	$377,350
	Euclid Ave. (SR-83) to Grove Ave.	9,301	16,375	548	7,074	7.75%	$9,360,000	$725,064
	Grove Ave. to Vineyard Ave.	9,116	15,730	286	6,614	4.32%	$7,200,000	$311,358
	Vineyard Ave. to Archibald Ave.	9,255	16,025	505	6,770	7.46%	$7,200,000	$537,059
	Archibald Ave. to Haven Ave.	9,162	15,593	490	6,431	7.62%	$7,200,000	$548,589
	Haven Ave. to Milliken Ave.	8,977	15,861	683	6,884	9.92%	$7,920,000	$785,783
	Milliken Ave. to I-15 Fwy.	8,607	12,792	653	4,185	15.60%	$3,600,000	$561,731
	I-15 Fwy. to Van Buren Blvd.	5,553	10,236	653	4,683	13.94%	$5,280,000	$736,284
SR.-71 Fwy. SB	Chino Ave. to Grand Ave.	1,038	7,218	248	6,180	4.01%	$0	$0
	Grand Ave. to Chino Hills Pkwy. (SR-142)	1,230	6,415	289	5,185	5.57%	$0	$0
	Chino Hills Pkwy. (SR-142) to Ramona Ave.	1,278	5,121	289	3,843	7.52%	$0	$0
	Ramona Ave. to Soquel Canyon Pkwy.	1,278	5,120	290	3,842	7.55%	$0	$0
	Soquel Canyon Pkwy. to Pine Ave.	1,150	4,847	320	3,697	8.66%	$0	$0
	Pine Ave. to Euclid Ave. (SR-83)	1,182	4,389	290	3,207	9.04%	$0	$0
	Euclid Ave. (SR-83) to SR-91 Fwy.	1,054	4,016	405	2,962	13.67%	$0	$0
SR-71 Fwy. NB	SR-91 Fwy. to Euclid Ave. (SR-83)	1,886	5,345	282	3,459	8.15%	$7,700,000	$627,746
	Euclid Ave. (SR-83) to Pine Ave.	2,115	5,368	539	3,253	16.57%	$0	$0
	Pine Ave. to Soquel Canyon Pkwy.	2,057	5,447	525	3,390	15.49%	$0	$0
	Soquel Canyon Pkwy. to Ramona Ave.	2,286	5,093	539	2,807	19.20%	$0	$0
	Ramona Ave. to Chino Hills Pkwy. (SR-142)	2,286	4,378	539	2,092	25.77%	$0	$0
	Chino Hills Pkwy. (SR-142) to Grand Ave.	2,200	5,726	552	3,526	15.66%	$0	$0
	Grand Ave. to Chino Ave.	1,857	7,156	565	5,299	10.66%	$0	$0
SR-91 Fwy. WB	McKinley St. to I-15 Fwy.	5,375	8,313	108	2,938	3.68%	$0	$0
	I-15 Fwy. to Main St.	5,998	11,757	11	5,759	0.19%	$0	$0
	Main St. to West Grand Blvd.	5,583	10,717	11	5,134	0.21%	$0	$0
	West Grand Blvd. to Lincoln Ave.	5,764	10,935	11	5,171	0.21%	$0	$0
	Lincoln Ave. to Maple St.	5,479	12,164	46	6,685	0.69%	$0	$0

TABLE 6-8 (CONTINUED)

PROJECT FREEWAY MAINLINE PM FAIR SHARE TRAFFIC CONTRIBUTION

FREEWAY	SEGMENT LIMITS	EXISTING TRAFFIC	2020 WITH PROJECT TRAFFIC	PROJECT TRAFFIC	TOTAL NEW TRAFFIC	PROJECT % OF NEW TRAFFIC	IMPROVEMENT COST	PROJECT COST SHARE
	Maple St. to Serfas Club Dr.	5,661	12,744	56	7,083	0.79%	$0	$0
	Serfas Club Dr. to SR-71 Fwy.	5,583	12,836	62	7,253	0.85%	$0	$0
	SR-71 Fwy. to Green River Rd.	5,609	13,152	326	7,543	4.32%	$0	$0
	Green River Rd. to Coal Canyon Rd.	5,816	13,794	306	7,978	3.84%	$0	$0
	Coal Canyon Rd. to Gypsum Canyon Rd.	6,076	13,773	299	7,697	3.88%	$0	$0
SR-91 Fwy. EB	Gypsum Canyon Rd. to Coal Canyon Rd.	10,257	23,920	446	13,663	3.26%	$0	$0
	Coal Canyon Rd. to Green River Rd.	9,819	22,895	452	13,076	3.46%	$0	$0
	Green River Rd. to SR-71 Fwy.	9,468	21,602	457	12,134	3.77%	$0	$0
	SR-71 Fwy. to Serfas Club Dr.	9,424	20,762	316	11,338	2.79%	$0	$0
	Serfas Club Dr. to Maple St.	9,556	19,804	300	10,248	2.93%	$0	$0
	Maple St. to Lincoln Ave.	9,249	17,208	290	7,959	3.64%	$0	$0
	Lincoln Ave. to West Grand Blvd.	9,731	16,771	113	7,040	1.61%	$0	$0
	West Grand Blvd. to Main St.	9,424	14,913	110	5,489	2.00%	$0	$0
	Main St. to I-15 Fwy.	10,126	16,228	110	6,102	1.80%	$0	$0
	I-15 Fwy. to McKinley St.	9,074	13,835	189	4,761	3.97%	$0	$0
TOTAL								$9,463,722

[1] -- = Congestion on the SR-91 Freeway corridor is the subject of studies by the Counties of San Bernardino, Riverside and Orange.

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summarizes the needed PM peak hour freeway mainline improvement costs and project fair share cost contribution estimates for each freeway mainline segment which will require improvements.

Some of the freeway segment deficiencies occur during both peak hours of traffic. The freeway fair share cost contribution calculation is "conservatively" based on the highest project contribution peak hour (AM or PM) during which the deficiency occurs.

As shown in Table 6-9, the project's fair share of freeway costs is $23,352,512 based upon worse case (highest of AM or PM peak hour) conditions. The overall calculated project fair share contribution to both arterials and freeways amounts to $44,984,512 for 2020 conditions.

TABLE 6-9

PROJECT FREEWAY MAINLINE MAXIMUM FAIR SHARE TRAFFIC CONTRIBUTION

FREEWAY	SEGMENT LIMITS	PROJECT COST SHARE		
		AM PEAK HOUR	PM PEAK HOUR	MAXIMUM
I-15 Fwy. SB	Jurupa St. to SR-60 Fwy.	$ 2,870,564	$ 120,947	$ 2,870,564
	SR-60 Fwy. to Galena St.	$ 1,977,416	$ 93,308	$ 1,977,416
	Galena St. to Limonite Ave.	$ 3,076,689	$ 161,640	$ 3,076,689
	Limonite Ave. to 6th St.	$ 186,083	$ 300,118	$ 300,118
	6th St. to 2nd St.	$ 111,928	$ 166,024	$ 166,024
	2nd St. to Hidden Valley Pkwy.	$ 430,986	$ -	$ 430,986
	Hidden Valley Pkwy. to SR-91 Fwy.	$ 754,226	$ -	$ 754,226
	SR-91 Fwy. to Magnolia Ave.	$ -	$ 292,401	$ 292,401
I-15 Fwy. NB	Magnolia Ave. to SR-91 Fwy.	$ 655,012	$ 38,378	$ 655,012
	SR-91 Fwy. to Hidden Valley Pkwy.	$ -	$ 121,326	$ 121,326
	Hidden Valley Pkwy. to 2nd St.	$ -	$ 69,329	$ 69,329
	2nd St. to 6th St.	$ -	$ -	$ -
	6th St. to Limonite Ave.	$ 32,558	$ -	$ 32,558
	Limonite Ave. to Galena St.	$ 76,744	$ 837,450	$ 837,450
	Galena St. to SR-60 Fwy.	$ -	$ 628,895	$ 628,895
	SR-60 Fwy. to Jurupa St.	$ -	$ -	$ -
SR-60 Fwy. WB	Van Buren Blvd. to I-15 Fwy.	$ 381,431	$ -	$ 381,431
	I-15 Fwy. to Milliken Ave.	$ 260,761	$ 3,455	$ 260,761
	Milliken Ave. to Haven Ave.	$ 528,247	$ 7,736	$ 528,247
	Haven Ave. to Archibald Ave.	$ 502,748	$ 8,700	$ 502,748
	Archibald Ave. to Vineyard Ave.	$ 513,023	$ 10,150	$ 513,023
	Vineyard Ave. to Grove Ave.	$ 302,611	$ 10,732	$ 302,611
	Grove Ave. to Euclid Ave. (SR-83)	$ 551,609	$ 81,598	$ 551,609
	Euclid Ave. (SR-83) to Mountain Ave.	$ 231,735	$ 75,063	$ 231,735
	Mountain Ave. to Central Ave.	$ 381,796	$ 83,670	$ 381,796
	Central Ave. to Ramona Ave.	$ 278,373	$ 49,747	$ 278,373
SR-60 Fwy. EB	Ramona Ave. to Central Ave.	$ -	$ 472,833	$ 472,833
	Central Ave. to Mountain Ave.	$ -	$ 619,254	$ 619,254
	Mountain Ave. to Euclid Ave. (SR-83)	$ -	$ 377,350	$ 377,350
	Euclid Ave. (SR-83) to Grove Ave.	$ -	$ 725,064	$ 725,064
	Grove Ave. to Vineyard Ave.	$ -	$ 311,358	$ 311,358
	Vineyard Ave. to Archibald Ave.	$ -	$ 537,059	$ 537,059
	Archibald Ave. to Haven Ave.	$ -	$ 548,589	$ 548,589
	Haven Ave. to Milliken Ave.	$ -	$ 785,783	$ 785,783
	Milliken Ave. to I-15 Fwy.	$ -	$ 561,731	$ 561,731
	I-15 Fwy. to Van Buren Blvd.	$ -	$ 736,284	$ 736,284
SR.-71 Fwy. SB	Chino Ave. to Grand Ave.	$ -	$ -	$ -
	Grand Ave. to Chino Hills Pkwy. (SR-142)	$ -	$ -	$ -
	Chino Hills Pkwy. (SR-142) to Ramona Ave	$ -	$ -	$ -
	Ramona Ave. to Soquel Canyon Pkwy.	$ -	$ -	$ -
	Soquel Canyon Pkwy. to Pine Ave.	$ -	$ -	$ -
	Pine Ave. to Euclid Ave. (SR-83)	$ -	$ -	$ -
	Euclid Ave. (SR-83) to SR-91 Fwy.	$ 904,128	$ -	$ 904,128
SR-71 Fwy. NB	SR-91 Fwy. to Euclid Ave. (SR-83)	$ -	$ 627,746	$ 627,746
	Euclid Ave. (SR-83) to Pine Ave.	$ -	$ -	$ -

TABLE 6-9 (CONTINUED)

PROJECT FREEWAY MAINLINE MAXIMUM FAIR SHARE TRAFFIC CONTRIBUTION

FREEWAY	SEGMENT LIMITS	PROJECT COST SHARE		
		AM PEAK HOUR	PM PEAK HOUR	MAXIMUM
	Pine Ave. to Soquel Canyon Pkwy.	$ -	$ -	$ -
	Soquel Canyon Pkwy. to Ramona Ave.	$ -	$ -	$ -
	Ramona Ave. to Chino Hills Pkwy. (SR-142	$ -	$ -	$ -
	Chino Hills Pkwy. (SR-142) to Grand Ave.	$ -	$ -	$ -
	Grand Ave. to Chino Ave.	$ -	$ -	$ -
SR-91 Fwy. WB	McKinley St. to I-15 Fwy.	$ -	$ -	$ -
	I-15 Fwy. to Main St.	$ -	$ -	$ -
	Main St. to West Grand Blvd.	$ -	$ -	$ -
	West Grand Blvd. to Lincoln Ave.	$ -	$ -	$ -
	Lincoln Ave. to Maple St.	$ -	$ -	$ -
	Maple St. to Serfas Club Dr.	$ -	$ -	$ -
	Serfas Club Dr. to SR-71 Fwy.	$ -	$ -	$ -
	SR-71 Fwy. to Green River Rd.	$ -	$ -	$ -
	Green River Rd. to Coal Canyon Rd.	$ -	$ -	$ -
	Coal Canyon Rd. to Gypsum Canyon Rd.	$ -	$ -	$ -
SR-91 Fwy. EB	Gypsum Canyon Rd. to Coal Canyon Rd.	$ -	$ -	$ -
	Coal Canyon Rd. to Green River Rd.	$ -	$ -	$ -
	Green River Rd. to SR-71 Fwy.	$ -	$ -	$ -
	SR-71 Fwy. to Serfas Club Dr.	$ -	$ -	$ -
	Serfas Club Dr. to Maple St.	$ -	$ -	$ -
	Maple St. to Lincoln Ave.	$ -	$ -	$ -
	Lincoln Ave. to West Grand Blvd.	$ -	$ -	$ -
	West Grand Blvd. to Main St.	$ -	$ -	$ -
	Main St. to I-15 Fwy.	$ -	$ -	$ -
	I-15 Fwy. to McKinley St.	$ -	$ -	$ -
TOTAL		$ 15,008,671	$ 9,463,722	$ 23,352,512

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7. SUMMARY AND RECOMMENDATIONS

This chapter summarizes the findings of this traffic impact analysis, and provides a series of recommendations related to project implementation.

7.1 Summary

The traffic issues related to the proposed land use and development have been evaluated in the context of the California Environmental Quality Act (CEQA) and the San Bernardino County Congestion Management Program (CMP). The City of Chino is the lead agency responsible for preparation of the traffic impact analysis, in accordance with both CEQA and CMP authorizing legislation. In accordance with explicit CMP requirements, both an Interim Year analysis, a CMP Horizon Year analysis, and a Buildout analysis are included in this report.

A series of scoping discussions were conducted with the following agencies to define the desired analysis locations for each future analysis year:

- City of Chino
- San Bernardino Associated Governments (SANBAG)

In addition, staff from the Southern California Association of Governments (SCAG) have also been contacted to discuss the project and its associated travel patterns.

The project contributes traffic greater than the CMP freeway threshold volume of 100 two-way trips to the I-15 Freeway, SR-60 Freeway, SR-71 Freeway and SR-91 Freeway and the project contribution test has indicated that the project will contribute more than 80 trips (CMP roadway threshold

volume) along roadway segments serving CMP intersections within the City of Chino Hills, City of Ontario, County of San Bernardino, City of Norco, City of Corona and County of Riverside. This means that the City of Chino must notify the Congestion Management Agency (SANBAG), the California Department of Transportation (Caltrans), City of Chino Hills, City of Ontario, County of San Bernardino, City of Norco, City of Corona and County of Riverside in accordance with CMP requirements. Each of these agencies must also be provided with a copy of the CMP traffic impact analysis, once the document is accepted by the City of Chino.

The CMP Horizon Year (2020) traffic volumes with the project have been derived from the subregional travel demand model currently being used for long range planning in San Bernardino County. This model is commonly referred to as the Comprehensive Transportation Plan (CTP) traffic model. The CTP traffic model is currently the only approved travel demand forecasting tool within the study area, as none of the locally developed travel demand models in the study area have received the necessary "finding of consistency" (with the CTP traffic model) from SANBAG/SCAG. The Chino Traffic Model (CTM) was consistent with previous versions of the regional analysis tool, but was not updated to the newer 1994 base year and 2020 horizon year. The CTM cannot be used for this reason. The socio-economic data inputs to the CTP model are representative of the planned project development intensity.

Project traffic volumes for all future conditions projections were estimated using the manual approach described in the CMP guidelines. Trip generation has been estimated based on the trip rates contained in the Institute of Transportation Engineers (ITE) Trip Generation and the San Diego Association of Governments (SANDAG) Traffic Generators reports. Heavy truck trip rates are provided by SANBAG staff. The project trip

distributions were developed based on a review of existing traffic volumes and projected future traffic patterns as predicted by the CTP traffic model.

Project traffic volumes were then subtracted from the future year CTP traffic model volumes. The result of this traffic forecasting procedure is a series of traffic volumes suitable for traffic operations analysis.

7.1.1 The Project

In order to quantify the project site land uses, the Chino Agricultural Preserve Subarea 2 has been subdivided into ten (10) traffic analysis zones (TAZ's), as shown on Exhibit 2-A. The approximately 5,435 acre project site is proposed to be developed with airport, light industrial, single-family detached residential, multi-family attached residential, hotel, open space-recreation, elementary school, junior high school, prison, agriculture, office, business park and commercial retail land uses. Exhibit 1-C illustrates the project land use plan.

The traffic related to the project has been calculated in accordance with the following accepted procedural steps:

- Trip Generation
- Trip Distribution
- Traffic Assignment

Tables 2-2 to 2-4 summarize the projected trip generation by TAZ for the Chino Agricultural Preserve Subarea 2 development for Interim 2010, 2020 and Buildout conditions, respectively.

For Interim 2010 conditions, the development is projected to generate a total of approximately 71,499 trip-ends per day with 5,722 vehicles per hour during the AM peak hour and 7,793 vehicles per hour during the PM peak hour. The heavy truck vehicle volumes (included in the totals) are 1,254 trip-ends per day with 70 vehicles per hour during the AM peak hour.

For 2020 conditions, the development is projected to generate a total of approximately 192,493 trip-ends per day with 16,400 vehicles per hour during the AM peak hour and 20,540 vehicles per hour during the PM peak hour. The heavy truck vehicle volumes (included in the totals) are 3,098 trip-ends per day with 172 vehicles per hour during the AM peak hour.

For Buildout conditions, the development is projected to generate a total of approximately 244,930 trip-ends per day with 18,993 vehicles per hour during the AM peak hour and 25,911 vehicles per hour during the PM peak hour. The heavy truck vehicle volumes (included in the totals) are 3,633 trip-ends per day with 202 vehicles per hour during the AM peak hour.

The trip distribution/traffic assignment process has been accomplished manually. The individual distribution patterns for the project have been developed based on the regional trip distributions, as well as the individual access points and local traffic patterns.

7.1.2 Existing Study Area Conditions

All CMP Horizon Year (2020) analysis locations which exist today have been analyzed. Regional access to the site is provided by the I-

15 Freeway, SR-60 Freeway, SR-71 Freeway and SR-91 Freeway. Local access is provided by various arterial roadways in the vicinity of the site. The east-west arterials which will be most affected by the project include Walnut Avenue, Riverside Drive, Edison Avenue, Galena Street, Chino Hills Parkway (SR-142), Merrill Avenue, Kimball Avenue, Cloverdale Road, Limonite Avenue, Bickmore Avenue, Pine Avenue, Schleisman Road, Chandler Street, River Road, Corydon Street and 2nd Street. North-south arterials expected to provide local access include Pipeline Avenue, Central Avenue, El Prado Road, Mountain Avenue, Euclid Avenue (SR-83), Grove Avenue, Walker Avenue, Hellman Avenue, Vineyard Avenue, Archibald Avenue, Haven Avenue and Hamner Avenue.

The study area intersections analyzed currently operate at Level of Service "D" or better during the peak hours, except for the following intersections which operate at Level of Service "E" or "F" during the peak hours:

Pipeline Avenue (NS) at:

- Chino Hills Parkway (EW)

Mountain Avenue (NS) at:

- SR-60 Freeway Eastbound Ramps (EW)
- Walnut Avenue (EW)

Hamner Avenue (NS) at:

- Schleisman Road (EW)

Traffic signals appear to currently be warranted at the following study area intersections (see Appendix "D"):

Central Avenue (NS) at:

- El Prado Road (EW)

Hellman Avenue (NS) at:

- Pine Avenue (EW)

Archibald Avenue (NS) at:

- Merrill Avenue (EW)
- River Road (EW)

Hamner Avenue (NS) at:

- Schleisman Road (EW)

7.1.3 Future Conditions

An Interim 2010 analysis and CMP Horizon 2020 analysis are included in this report. Interim 2010 traffic operations analysis have been completed for the AM and PM peak hours and are shown in Tables 5-1 through 5-3. AM peak hour and PM peak hour traffic operations analysis are summarized in Tables 5-4 through 5-8 for 2020 conditions.

For Interim 2010 without project traffic conditions, traffic signals are projected to be warranted at the following additional area intersections (see Appendix "D"):

SR-71 Freeway Northbound Ramps (NS) at:

- Pine Avenue (EW)

El Prado Road (NS) at:

- Kimball Avenue (EW)

Grove Avenue (NS) at:

- Edison Avenue (EW)

Walker Avenue (NS) at:

- Edison Avenue (EW)

I-15 Freeway Southbound Ramps (NS) at:

- Galena Street (EW)

I-15 Freeway Northbound Ramps (NS) at:

- Galena Street (EW)

For Interim 2010 with project traffic conditions, traffic signals are projected to be warranted at the following additional study area intersections (see Appendix "D"):

El Prado Road (NS) at:

- Pine Avenue

Euclid Avenue (NS) at:

- Bickmore Avenue (EW)

Grove Avenue (NS) at:

- Merrill Avenue (EW)
- Kimball Avenue (EW)
- Bickmore Avenue (EW)
- Pine Avenue (EW)

Hellman Avenue (NS) at:

- Merrill Avenue (EW)

- Kimball Avenue (EW)
- Chandler Street (EW)

For 2020 without project traffic conditions, a traffic signal is projected to be warranted at the following additional study area intersection (see Appendix "D"):

Vineyard Avenue (NS) at:

- Edison Avenue (EW)

7.2 Recommendations

The recommendations in this section address on-site improvements, off-site improvements and the phasing of all necessary study area transportation improvements.

7.2.1 On-Site Improvements.

On-site improvements and improvements adjacent to the site will be required in conjunction with the proposed development to ensure adequate circulation within the project itself.

7.2.2 Off-Site Improvements

The necessary off-site improvement recommendations were described in previous sections of this report. The project should contribute towards the cost of necessary study area improvements on a fair share or "pro-rata" basis.

The following intersection improvements are needed for 2010 with project conditions:

Pipeline Avenue (NS) at:

- Chino Hills Parkway (EW)
  - Second eastbound left turn lane
  - Second westbound left turn lane

Central Avenue (NS) at:

- El Prado Road (EW)
  - Traffic signal

El Prado Road (NS) at:

- Kimball Road (EW)
  - Traffic signal
- Pine Avenue (EW)
  - Traffic signal
  - Eastbound left turn lane

Mountain Avenue (NS) at:

- SR-60 Freeway Eastbound Ramps (EW)
  - Second southbound left turn lane
  - Eastbound all-way lane
- Walnut Avenue (EW)
  - Second westbound through lane

Euclid Avenue (NS) at:

- SR-60 Freeway Westbound Ramps (EW)
  - Westbound all-way lane
- SR-60 Freeway Eastbound Ramps (EW)
  - Second northbound right turn lane
  - Restripe eastbound all-way lane to a shared through and right turn lane

- Kimball Avenue (EW)
  - Northbound right-turn overlap phasing
  - Eastbound left turn lane
  - First and second westbound left turn lanes
  - Westbound right turn lane
- Bickmore Avenue (EW)
  - Traffic signal
  - Second northbound through lane
  - Second southbound through lane

Grove Avenue (NS) at:

- Edison Street (EW)
  - Traffic signal
  - Northbound left turn lane
  - Southbound left turn lane
  - Eastbound left turn lane
  - Second eastbound through lane
  - Westbound left turn lane
  - Second westbound through lane
- Merrill Avenue (EW)
  - Eastbound left turn lane
- Kimball Avenue (EW)
  - Traffic signal
  - Northbound left turn lane
  - Westbound left turn lane
- Bickmore Avenue (EW)
  - Traffic signal
  - Northbound left turn lane
  - Southbound left turn lane
  - Eastbound left turn lane

    - Westbound left turn lane
- Pine Avenue (EW)
    - Traffic signal
    - Second eastbound through lane

Walker Avenue (NS) at:

- Edison Street (EW)
    - Traffic signal

Hellman Avenue (NS) at:

- Kimball Avenue (EW)
    - Second southbound through lane
- Pine Avenue (EW)
    - Traffic signal
    - Northbound left turn lane
    - Second northbound through lane
    - Southbound left turn lane
    - Second southbound through lane
    - Eastbound left turn lane
    - Second eastbound through lane
    - Westbound left turn lane
    - Second westbound through lane
- Chandler Street (EW)
    - Traffic signal
    - Northbound left turn lane
    - Southbound left turn lane
    - Eastbound left turn lane
    - Westbound left turn lane

Archibald Avenue (NS) at:

- Merrill Avenue (EW)

- Traffic signal
- Southbound left turn lane
- Eastbound left turn lane

- Cloverdale Road (EW)
  - Northbound left turn lane
- Pine Avenue (EW)

Second southbound through lane

- Second eastbound through lane
- River Road (EW)
  - Traffic signal
  - Eastbound free-right turn lane

Hamner Avenue (NS) at:

- Cloverdale Road (EW)
  - Second eastbound through lane
  - Westbound left turn lane
- Schleisman Road (EW)
  - Traffic signal
  - Eastbound left turn lane
  - Westbound left turn lane

I-15 Freeway Southbound Ramps (NS) at:

- Second Street (EW)
  - First and second eastbound right turn lanes

I-15 Freeway Northbound Ramps (NS) at:

- Second Street (EW)
  - Westbound right turn lane

The following additional intersection improvements are needed for 2020 with project conditions:

Pipeline Avenue (NS) at:

- Chino Hills Parkway (EW)
  - Eastbound right-turn overlap phasing
  - Third westbound through lane
  - Westbound right-turn overlap phasing

SR-71 Freeway Northbound Ramps (NS) at:

- Pine Avenue (EW)
  - Traffic signal
  - Second eastbound through lane

Central Avenue (NS) at:

- Edison Avenue (EW)
  - Northbound right-turn overlap phasing
  - Second eastbound left turn lane
  - Second westbound left turn lane
- El Prado Road (EW)
  - Second northbound through lane
  - Second southbound left turn lane

El Prado Road (NS) at:

- Kimball Road (EW)
  - Northbound right turn lane
- Pine Avenue (EW)
  - Southbound left turn lane
  - Second eastbound through lane
  - Westbound right turn lane

Mountain Avenue (NS) at:

- SR-60 Freeway Eastbound Ramps (EW)
  - Restripe eastbound all-way lane to a second eastbound left turn lane
  - Second eastbound right turn lane
- Walnut Avenue (EW)
  - Second eastbound through lane
- Riverside Drive (EW)
  - Northbound right turn lane
  - Second southbound left turn lane

Euclid Avenue (NS) at:

- SR-60 Freeway Eastbound Ramps (EW)
  - Eastbound free-right turn lane
- Riverside Drive (EW)
  - Third northbound through lane
  - Second southbound left turn lane
  - Third southbound through lane
  - Southbound right-turn overlap phasing
  - Eastbound left turn lane
  - Westbound left turn lane
- Edison Street (EW)
  - Third northbound through lane
  - Third southbound through lane
  - Second Eastbound left turn lane
  - Second and third eastbound through lanes
  - Second westbound through lane
- Merrill Avenue (EW)
  - Third northbound through lane
  - Third southbound through lane

- Kimball Avenue (EW)
  - Third and fourth northbound through lanes
  - Second southbound left turn lane
  - Third southbound through lane
  - Second eastbound left turn lane
  - Second eastbound through lane
  - Eastbound right turn lane
  - Second westbound through lane
  - Westbound right-turn overlap phasing
- Bickmore Avenue (EW)
  - Third northbound through lane
  - Northbound right turn lane
  - Second southbound left turn lane
  - Third southbound through lane
  - First and second westbound left turn lanes
  - Westbound right turn lane
- Pine Avenue (EW)
  - Third and fourth northbound through lanes
  - Northbound free-right turn lane
  - Second southbound left turn lane
  - Third southbound through lane
  - First and Second Eastbound left turn lanes
  - Second and third eastbound through lanes
  - First, second and third westbound left turn lanes
  - Second and third westbound through lanes
  - Westbound free-right turn lane

Grove Avenue (NS) at:

- SR-60 Freeway Eastbound Ramps (EW)
  - Second eastbound left turn lane

    - Second eastbound right turn lane
- Edison Street (EW)
    - Second northbound through lane
    - Second southbound through lane
- Kimball Avenue (EW)
    - Second eastbound through lane
    - Second westbound through lane
- Pine Avenue (EW)
    - Southbound left turn lane
    - Second westbound through lane

Walker Avenue (NS) at:

- Edison Street (EW)
    - Northbound left turn lane
    - Southbound left turn lane
    - Eastbound left turn lane
    - Second eastbound through lane
    - Westbound left turn lane
    - Second westbound through lane

Hellman Avenue (NS) at:

- Merrill Avenue (EW)
    - Second northbound through lane
    - Northbound right turn lane
    - Second southbound through lane
    - Second westbound left turn lane
- Kimball Avenue (EW)
    - Second northbound left turn lane
    - Second northbound through lane
    - Northbound right turn lane
    - Second southbound left turn lane

  - Southbound right turn lane
  - Second eastbound left turn lane
  - Second eastbound through lane
  - Eastbound right turn lane
  - Second westbound left turn lane
  - Second westbound through lane
- Pine Avenue (EW)
  - Second northbound left turn lane
  - Northbound right turn lane
  - Second southbound left turn lane
  - Southbound right turn lane
  - Second eastbound left turn lane
  - Eastbound right turn lane
  - Second westbound left turn lane
  - Westbound right turn lane
- Chandler Street (EW)
  - Second northbound through lane
  - Second southbound left turn lane
  - Second southbound through lane
  - Second eastbound through lane
  - Second westbound through lane

Vineyard Avenue (NS) at:

- SR-60 Freeway Eastbound Ramps (EW)
  - Eastbound all-way lane

Archibald Avenue (NS) at:

- Riverside Drive (EW)
  - Second eastbound left turn lane
- Edison Avenue (EW)
  - Second northbound left turn lane

  - Northbound right-turn overlap phasing
  - Eastbound right turn lane
  - Eastbound right-turn overlap phasing
  - Second westbound left turn lane
- Merrill Avenue (EW)
  - Second northbound through lane
  - Second southbound through lane
  - Westbound left turn lane
- Cloverdale Road (EW)
  - Second northbound through lane
  - Second southbound through lane
  - First and second eastbound left turn lanes
  - Second eastbound through lane
  - Second westbound through lane
- Pine Avenue (EW)
  - Second northbound through lane
  - Second westbound through lane
- River Road (EW)
  - Second southbound through lane

River Road (NS) at:

- Corydon Street (EW)
  - Southbound right turn lane
  - Second eastbound left turn lane
  - Second eastbound through lane

Haven Avenue (NS) at:

- SR-60 Freeway Eastbound Ramps (EW)
  - Northbound free-right turn lane

Hamner Avenue (NS) at:

- Cloverdale Road (EW)
  - Second northbound through lane
  - Second southbound through lane
  - Eastbound left turn lane
  - Second westbound through lane
- Schleisman Road (EW)
  - Second northbound through lane
  - Second southbound through lane

I-15 Freeway Southbound Ramps (NS) at:

- Galena Street (EW)
  - Second eastbound right turn lane
- Second Street (EW)
  - Second southbound right turn lane

I-15 Freeway Northbound Ramps (NS) at:

- Second Street (EW)
  - Northbound all-way lane

The following additional intersection improvements are needed for Buildout with project conditions:

SR-71 Southbound Ramps (NS) at:

- Chino Hills Parkway (EW)
  - Third Westbound through lane

Central Avenue (NS) at:

- Edison Avenue (EW)
  - Eastbound right turn lane

Mountain Avenue (NS) at:

- SR-60 Freeway Westbound Ramps (EW)
  - Westbound all-way lane

Euclid Avenue (NS) at:

- SR-60 Freeway Eastbound Ramps (EW)
  - Second eastbound left turn lane
- Kimball Avenue (EW)
  - Westbound free-right turn lane

Walker Avenue (NS) at:

- Edison Avenue (EW)
  - Northbound right turn lane
  - Northbound right-turn overlap phasing
  - Eastbound right turn lane

Hellman Avenue (NS) at:

- Pine Avenue (EW)
  - Northbound right-turn overlap phasing
  - Third Southbound through lane
  - Southbound right-turn overlap phasing
  - Second eastbound left turn lane
  - Third eastbound through lane
  - Third westbound through lane
  - Westbound right turn lane
  - Westbound right-turn overlap phasing

Archibald Avenue (NS) at:

- Riverside Drive (EW)
  - Southbound right-turn overlap phasing
  - Second westbound through lane

River Road (NS) at:

- Corydon Street (EW)
  - Second northbound through lane

Haven Avenue (NS) at:

- SR-60 Freeway Eastbound Ramps (EW)
  - Restripe second eastbound left turn lane to an all-way lane

Hamner Avenue (NS) at:

- Cloverdale Road (EW)
  - Northbound right-turn overlap phasing
  - Second southbound left turn lane
  - Second westbound left turn lane
- Schleisman Road (EW)
  - Northbound right turn lane
  - Southbound right turn lane
  - Second westbound left turn lane

I-15 Freeway Southbound Ramps (NS) at:

- Limonite Avenue (EW)
  - Second southbound right turn lane

7.2.3 Transportation System Management Actions

a. Off-Site

As development in the area occurs, transit agencies should consider expanding service within the area.

b. On-Site

To accommodate future bus service on key roadways, transit stops should be anticipated at the far side of major intersections. Pedestrian access to the bus stops should be provided.

FOUR CORNERS
Project Status Summary - Other Projects

Ref. #	Project Description		Coordinating Agency	Project Status
4	SR-57	Add two lanes on SR-57 from SR-60 to SR-22. If new road is developed through Tonner Canyon area, new lanes could terminate in the north where road connects with SR-57.	OCTA	
6	SR-60	Develop HOV drop ramps at Grand Avenue/SR-60	LACMTA	
9	SR-71	Upgrade SR-71 to six-lane freeway from Euclid to SR-91 providing additional wildlife pass-through capability.		
13	SR-91/71	Add toll connector ramps at SR-91/SR-71	RCTC	
14	SR-91/241	Add toll connector ramps at SR-91/SR-241	TCA.	TCA is initiating a preliminary (30%) design study of this connection.
15	New Road	Develop new road from Chino Hills to SR-57 pursuant to results of detailed feasibility and alignment study.	SANBAG	
16	Eucalyptus Avenue	Widen Eucalyptus Avenue if needed, pursuant to results of detailed feasibility and alignment study.	SANBAG	
17	New Road	Develop new road linking Arlington Avenue with SR-71 at Pine Avenue pursuant to results of feasibility study.	RCTC/SANBAG	
18	SR-83	Upgrade to six-lane arterial from SR-60 to SR-71	SANBAG	
21	Arterial Streets	Support arterial road improvements such as street widenings, interchange improvements, and signal synchroninzation programs.	Four Corners Group	
22	Policy	Support development of high occupancy toll lanes as a means of speeding up implementation of freeway improvements, managing demand, encouraging carpooling, and optimizing use of additional highway capacity.	Four Corners Group	
25	SR-55/SR-91	Monitor SR-55/SR-91 interchange performance and analyze Caltrans Route Concept Plans for additional capacity and truck bypass lanes.	OCTA	
26	SR-91	Modify Lakeview/91 interchange to improve weave from Lakeview to westbound SR-91 to southbound SR-55.	Caltrans 12	Caltrans is undertaking a Project Study Report for this improvement. The PSR is scheduled for completion in Spring 2002.
27	SR-91	Add auxiliary lane on WB SR-91 between the truck scales and Imperial Highway, add storage lane on EB SR-91 approaching truck scales.	OCTA	
28	FSP	Implement more Freeway Service Patrols on Four Corners freeways.	OCTA/RCTC/ SANBAG/LACMTA	
29	ITS	Support efforts of state and local agencies to cooperatively implement ITS strategies in a coordinated fashion.	Four Corners Group	
30	Signals	Support efforts of local agencies to cooperatively implement signal synchronization strategies in the Four Corners area.	Four Corners Group	
31	Arterial Streets	Support grade separation efforts to reduce delay at rail lines.	Four Corners Group	
35	Bus	Develop bus transit corridors i.e. from Chino to Ontario Airport	OCTA/ SANBAG/ RCTC/ LACMTA	
36	Rail	Support strategies to improve and increase Metrolink service including: - more frequent Metrolink service - additional connections at destinations - double-tracking or triple-tracking Metrolink lines - implementation of Riverside to Los Angeles Metrolink service	Four Corners Group/SCRRA/ SCAG	Riverside-Fullerton-Los Angeles Metrolink service slated to begin service August 2002.
37	Smart Shuttles	Support implementation of smart shuttles in the Four Corners area in cases where demonstrations show promise of effective transit service.	Four Corners Group	
38	Other	Work with county transportation commissions to update intercounty bus plans and develop implementation strategies.	Four Corners Group	OCTA and RTA working out details of express bus service from Riverside to East Anaheim industrial area.

FOUR CORNERS
Project Status Summary - Active Projects

Ref. #	Project Description		Coordinating Agency	Project Status
1	Feasibility/ alignment study	Tonner Canyon road area	SANBAG/ LACMTA	Corridor included as a prospective corridor for intercounty transportation in the CTP being developed by SANBAG.
2	Feasibility/ impact study	Pine Avenue, Schleisman Avenue, and Arlington Blvd. Corridor	RCTC/ SANBAG	Corridor included as a prospective corridor for intercounty transportation in the CTP being developed by SANBAG.
3	SR-57	Near-term capacity enhancements and operational improvements	OCTA	The NB SR-57 truck climbing lane from Lambert on ramp to Tonner off ramp is 97% complete. The SR-57 NB auxiliary lane lane (Orangethorpe to Lambert) is 10% complete. The SR-57NB auxiliary lane Katella to Lincoln is 40% complete.
5	SR-60/57	Upgrade interchange	LACMTA	PS&E underway for HOV connector. Will start scope by end of 2001; start procurement for feasibility study to ultimate configuration by end of FY
7	SR-71	Upgrade to six-lane freeway from SR-60 to I-10	LACMTA	Project Study Report has been completed. Project Report and Environmental Document will begin in August. Scope was finalized in 02/01. Circulation scheduled for Jan. 02. Final Environmental Document expected by 4/02.
8	SR-71	Upgrade to four-lane roadway from Euclid to SR-91	Caltrans 8	Design complete. Construction should finish in 2004. Widening in Riverside will start 06/2002 and end in 07/2004.
10	SR-71/91	Upgrade existing interchange	RCTC	Construction underway. Scheduled completion: Fall 2001. Green River Interchange improvements scheduled for 2003-04.
11	SR-91	Extend Express Lanes to I-15 (adding a toll lane in each direction and converting the existing SR-91 HOV lanes to HOT lanes)	RCTC/ CPTC	CETAP study of Riverside-Orange County corridor in progress. SR-91 HOT lane study is nearing completion.
12	SR-91	Add two toll lanes between SR-241 and SR-71	RCTC/OCTA CPTC	CETAP study of Riverside-Orange County corridor in progress. SR-91 HOT lane study is nearing completion.
19	SR-91	Eliminate westbound lane drop near Coal Canyon by 2006 or sooner if possible	Caltrans 12 & 8	Nearing design phase. Scheduled to open 1/1/06. OCTA and CPTC are reviewing non-compete issues in relation to opening sooner.
20	SR-91	Add eastbound auxiliary lane from Coal Canyon to Green River when ADT reaches 370,000.	Caltrans 12 & 8	
23	Corridor Study	Evaluate Riverside-Orange County corridor improvement	RCTC	CETAP study of Riverside-Orange County corridor in progress.
24	Truck Lanes	Evaluate the cost-effectiveness of truck lanes on SR-60	SCAG	Final report completed 12/00. The next step is a corridor study for SR-60.
32	Bus	Add Metrolink rail feeder bus service from Chino/Chino Hills to Industry or Pomona.	Omnitrans/ Foothill Transit	
33	Bus	Develop express bus service from Industry Metrolink station to activity centers in Orange County via SR-57.	OCTA/ Foothill Transit	Bus element in next OCTA long-range plan, due to be completed in July 2002.
34	Park/Ride	Develop new park and ride facilities and increase capacity of existing facilities	OCTA/ SANBAG/ RCTC/ LACMTA	SCAG data collection of existing park/ride lot capacity, utilization, services and amenities is complete. Recommendations for improvements follows update of existing facilities data. Project is on target for completion by 6/30/01.
39	Bus	Evaluate potential usage and cost-effectiveness of Metrolink feeder service in areas not presently served such as between Chino Hills/Chino and West Corona	Omnitrans/RTA	(1) Feasibility/route study. (2) Identify funding. (3) Implementation.
47	Marketing	Develop a focused marketing effort to encourage carpooling, vanpooling, and transit ridership.	SCAG/ SANBAG/ RCTC	
48	TDM	Coordinate/improve existing efforts to reduce peak period travel demands and increase mode shifts to transit and carpooling.	SCAG	
51	SR-91	Optimize capacity utilization of Express Lanes.	RCTC/OCTA/ Caltrans 12&8/ CPTC	Caltrans 8 & 12 are studying engineering feasibility of options for improving SR-91. This will be followed by a corridor Major Investment Study.
52	Other	Develop a package of incentives to increase employment in the Inland Empire and increase affordable housing in Los Angeles and Orange Counties.	SCAG/ WRCOG/ SGVCOG/ SANBAG/ OCCOG	WRCOG and OCCOG have received the jobs/housing study grant through the State Dept. of Housing and Community Development. The study will start up by the end of 09/01.
54	Forecasting	Work with SCAG to ensure forecasts are consistent with infastructure; increase employment; provide afordable housing	Four Corners Group	Bob Huff has been appointed as an ex-officio member of SCAG's growth Visioning Task Force representing the Four Corners Group.
55	Four Corners Group	Ongoing operation/chairing/staffing of Four Corners Group.	Four Corners TAC	SANBAG is providing staff coordination for agencies. PB under contract for administrative, monitoring, and technical support through 9/30/01. SCAG funding approved for FY ending 6/2002.
56	Signal Coordination programs	Ongoing operation/chairing/staffing of Four Corners Group.	TBD	Implement traffic signal timing and coordination plans on major arterials in the Four Corners Area.

[ ] Reflects changes in Project Status

APPENDIX D
NOISE ASSESSMENT

Giroux & Associates
Environmental Consultants

NOISE IMPACT ANALYSIS

CHINO SPHERE GENERAL PLAN EIR – SUBAREA 2

CITY OF CHINO, CALIFORNIA

Prepared for:

Michael Brandman Associates
Attn: Tom Holm
220 Commerce, Suite 200
Irvine, California 92602

Date:

January 17, 2003

Project No.: P01-041

17744 Sky Park Circle, Suite 210, Irvine, California 92614 - Phone (949) 851-8609 - Fax (949) 851-8612

NOISE SETTING

Sound is mechanical energy transmitted by pressure waves in a compressible medium such as air. Noise is generally defined as unwanted sound. Sound is characterized by various parameters which describe the rate of oscillation of sound waves, the distance between successive troughs or crests, the speed of propagation, and the pressure level or energy content of a given sound wave. In particular, the sound pressure level has become the most common descriptor used to characterize the loudness of an ambient sound level.

The unit of sound pressure ratioed to the faintest sound detectable by a keen human ear is called a decibel (dB). Because sound or noise can vary in intensity by over one million times within the range of human hearing, a logarithmic decibel scale is used to keep sound intensity numbers at a convenient and manageable level. Since the human ear is not equally sensitive to all sound frequencies within the entire spectrum, noise levels at maximum human sensitivity (middle A and its higher harmonics) are factored more heavily into sound descriptions in a process called "A-weighting" written as dB(A). Any further reference to decibels written as "dB" should be understood to be A-weighted.

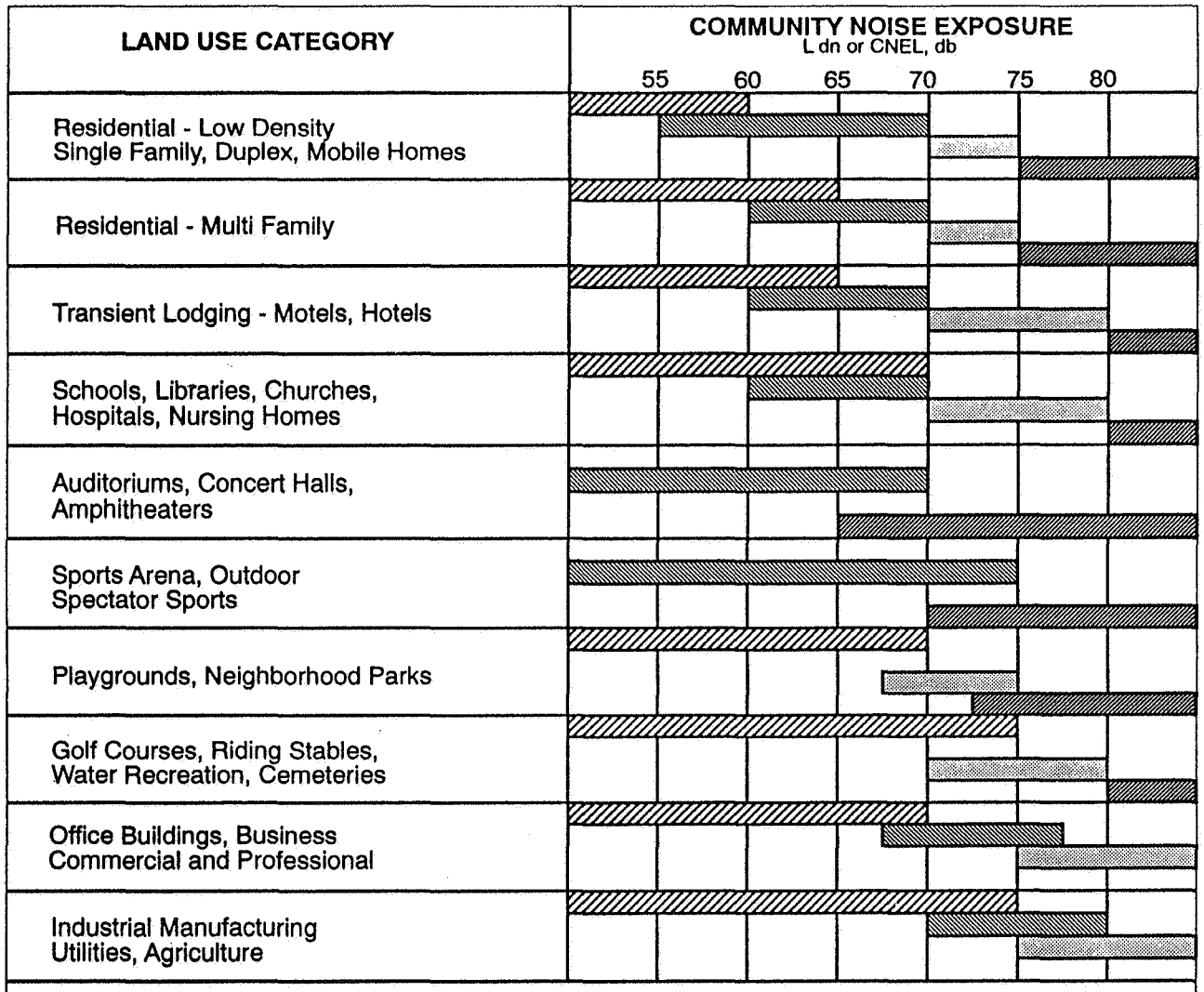
Time variations in noise exposure are typically expressed in terms of a steady-state energy level equal to the energy content of the time varying period (called Leq), or, alternately, as a statistical description of the sound pressure level that is exceeded over some fraction of a given observation period. Finally, because community receptors are more sensitive to unwanted noise intrusion during the evening and at night, State law requires that, for planning purposes, an artificial dB increment be added to quiet time noise levels in a 24-hour noise descriptor called the Community Noise Equivalent Level (CNEL).

An interior CNEL of 45 dB(A) is mandated by the State of California Noise Insulation Standards (CCR, Title 24, Part 6, Section T25-28) for multiple family dwellings and hotel and motel rooms. A weighted noise exposure of 45 dB CNEL is also the guideline level for single family interiors used in most California jurisdictions. Since normal noise attenuation within residential structures with closed windows is about 20-25 dB, an exterior noise exposure of 65 dB CNEL is generally the noise land use compatibility guideline for new residential dwellings in California. Because commercial or industrial uses are not occupied on a 24-hour basis, the exterior noise exposure standard for less sensitive land uses generally is somewhat less stringent.

In many communities where a quiet environment is considered an important asset that enhances the natural scenic values, a somewhat more stringent land use compatibility guideline has often been adopted. In the Noise Element of the City of Chino General Plan, a noise exposure of 50 dB by day and 45 dB at night is shown as most desirable for noise sensitive uses. The City's Noise Element was adopted verbatim from the San Bernardino County Element in effect in 1975. The City's element is outdated. Current noise/ land use planning within the City of Chino uses more realistic noise/land use compatibility standards less stringent than the noise standards shown above. Current/recent noise impact assessments use the State of California Office of Noise Control model element guidelines. Figure A shows the recommended State of California noise/land use compatibility guidelines for land use planning.

FIGURE A

Land Use Compatibility for Community Noise Environments



INTERPRETATION

NORMALLY ACCEPTABLE
Specified land use is satisfactory based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

CONDITIONALLY ACCEPTABLE
New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.

NORMALLY UNACCEPTABLE
New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

CLEARLY UNACCEPTABLE
New construction or development should generally not be undertaken.

SOURCE: State of California, Governor's Office of Planning and Research, *General Plan Guidelines*, 1990

Figure A shows a range of noise compatibility from "normally acceptable" to "clearly unacceptable." Because there is often too much discretion/interpretation in these ranges (with some overlap), the tendency in many noise level standards has been to assign a more clear-cut threshold of acceptability. Figure B shows the noise/land use compatibility criteria for new development in the City of Chino exterior standards for noise-sensitive land uses are 60 dB CNEL, with a possible maximum exposure of 65 dB CNEL if optimal mitigation has been implemented. These levels are consistent with standards used in most other communities in Southern California.

Because of the proximity of Subarea 2 to Chino Airport, aircraft noise is a concern in any sphere of influence development study. Aircraft noise concerns are similar to traffic noise impacts except:

1. Title 21 of the California Code of Regulations contains specific prohibitions against development within noise impact areas that allows for no discretionary variance on the part of any land use planning agency.

2. Aircraft noise propagates downward rather than more horizontally as does traffic noise. Perimeter noise walls to mitigate exterior areas are therefore not effective in noise impacted areas.

Title 21 at Section 5012 defines a noise impact area as one where noise sensitive land uses have more than a 65 dB annual average CNEL noise exposure. Noise sensitive uses which are prohibited inside a 65 dB CNEL airport noise contour include:

a. Residences (except for certain limitations)
b. Public and private schools
c. Hospitals and convalescent homes
d. Churches and other places of worship

The 65 dB CNEL contour has been calculated for future Chino Airport air traffic projections. The current airport noise "footprint" as a basis for future development planning decisions is for the year 2005. Figure C shows the 65 dB CNEL contour as shown in the Chino Airport Comprehensive Land Use Plan (CLUP; 1991).

Figure C shows that Subarea 2 is not noise-constrained by State law. However, the CLUP points out that experience has shown that the single-event character of aircraft noise creates noise complaints at levels well below 65 dB CNEL. The complaint area extends as far as the 55 dB CNEL contour. Extrapolation of the contour in Figure C suggests that noise complaints could extend to almost two miles from the airport if noise sensitive uses are built within the primary flight tracks. A noise related development constraint may exist within the northern portion of Subarea 2 even if adopted noise contours would not prohibit development of noise-sensitive uses anywhere within Subarea 2.

Interior/Exterior Noise Level Standards - Mobile Noise Sources

LAND USE		Ldn (or CNEL), dB	
Categories	**Uses**	**Interior***	**Exterior****
Residential	Single and multi-family, duplex, mobile homes	45	60***
Commercial	Hotel, motel, transient lodging	45	60***
	Commercial retail, bank, restaurant	50	n/a
	Office building, research and development, professional offices	45	65
	Amphitheater, concert hall, auditorium, movie theater	45	n/a
Institutional/Public	Hospital, nursing home, school classroom, church, library	45	65
Open Space	Park	n/a	65

*Indoor environment excluding: bathrooms, kitchens, toilets, closets and corridors.

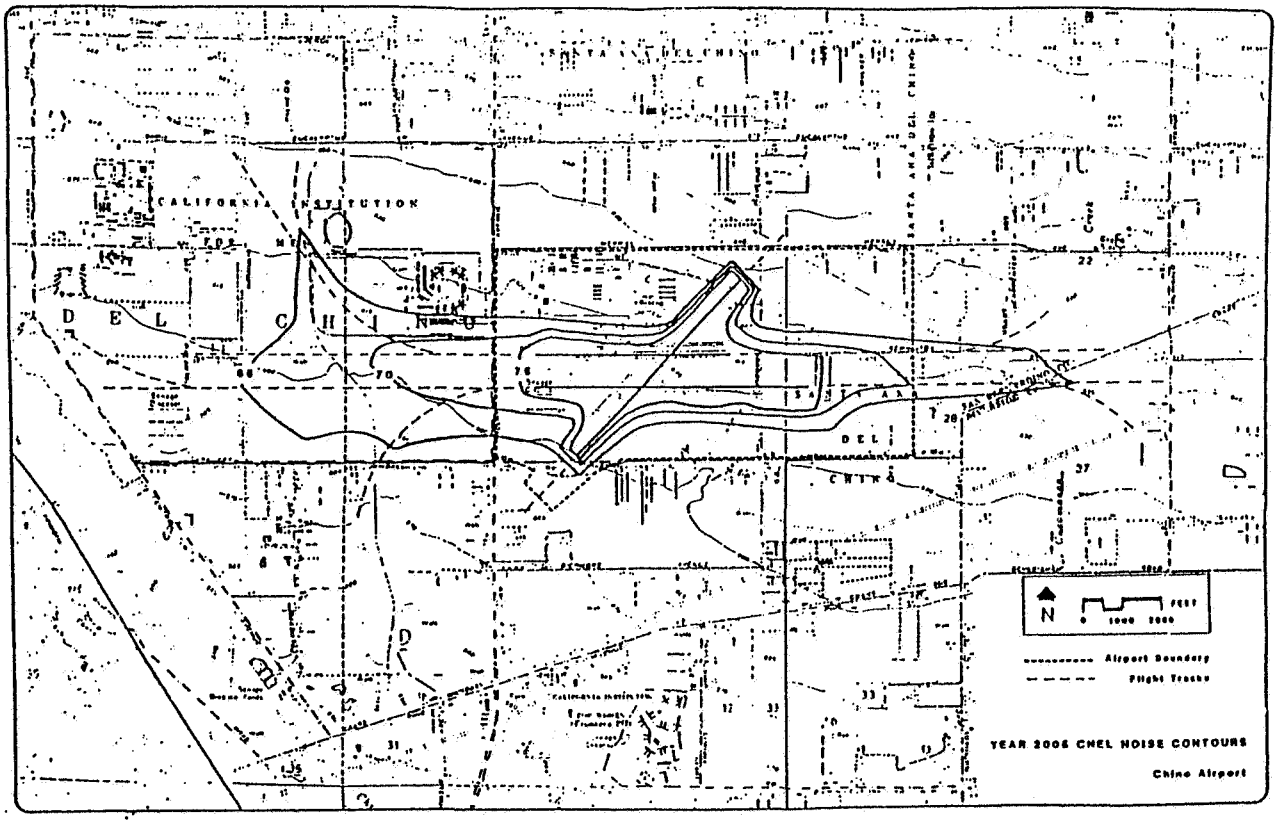
**Outdoor environment limited to:

- Private yard of single-family dwellings
- Multi-family private patios or balconies
- Mobile home parks
- Hospital/office building patios
- Park picnic areas
- School playgrounds
- Hotel and motel recreation areas

***An exterior noise level of up to 65 dB (or CNEL) will be allowed provided exterior noise levels have been substantially mitigated through a reasonable application of the best available noise reduction technology, and interior noise exposure does not exceed 45 dB Ldn (or CNEL) with windows and doors closed. Requiring that windows and doors remain closed to achieve an acceptable interior noise level will necessitate the use of air conditioning or mechanical ventilation.

NOISE EXPOSURE STANDARDS FOR MOBILE SOURCES

FIGURE B



CHINO AIRPORT NOISE CONTOURS

FIGURE C

The adopted noise contours in Figure C do not accurately reflect the scope of airport growth currently envisioned. The greater anticipated future volume of jet aircraft traffic is expected to create some expansion of the 65 dB CNEL contour. The 65 dB CNEL contour is the noise-sensitive land use exclusion boundary (except under special circumstances). While land use decisions regarding airport noise are required to be based upon adopted noise contours, there may be future liabilities if those decisions are made upon contours known to not be adequately representative. Even if there is no legal liability, the potential for land use conflict looms large if residential uses are approved in an environment where future airport noise is likely to exceed 65 dB CNEL.

The aircraft fleet mix and associated "noise footprint" from Chino Airport have been changing in conjunction with the addition of more business jets and the extension of Runway 8R-26L. The Airport Master Plan update is currently in progress. The update will evaluate airport expansion, use of surplus airport properties, projected changes in fleet mix, and potential growth in flight and passenger activity. A revision of the adopted noise and safety "exclusion" contours is likely to result from this study. Because the results of the update process are unknown, any constraints analysis would be speculative. The anticipated release of the revised Master Plan is December, 2002.

Preliminary evaluation of noise contour changes suggests that a noise constraint to sensitive development may occur in the future in the northernmost portion of Subarea 2. In the absence of any definitive information on the likely extent of any possible constraint, use of an airport activity overlay is suggested for the northern portion of Subarea 2 that would require additional analysis for proposed future noise-sensitive development when revised noise contours will likely have been adopted.

Mobile (aircraft and vehicular traffic) noise generation discussed above is generally preempted from local control. Discretionary actions to control such impacts are in terms of land use decisions. Stationary sources (industrial plants, etc.) are governed by local ordinance. The City of Chino does have specific noise standards in its municipal code that regulate non-preempted (stationary equipment, off-road traffic, commercial activities, etc.) noise sources. The noise ordinance governs the noise exposure of any residentially zoned properties. Ordinance criteria are stated in terms of allowable noise for a given period of time. Noise standards at night, and those consisting of impulse, simple tone, music or speech noises are more heavily penalized. Table 1 shows the acceptable levels at residential land uses during the daytime and nighttime. If the ambient noise level exceeds the Table 1 standards, the ambient becomes the standard for that exposure period.

Existing noise levels throughout Subarea 2 derive mainly from vehicular sources on the highways and secondary roads in the area. Chino Airport aircraft noises constitute an occasional short-term noise intrusion, but the integrated contribution of aircraft flight activities over a 24-hour CNEL exposure period is small except in close proximity to the airport. Agricultural activity noise and dairy operations sometimes have audible noise, but again only in close proximity to each individual activity. Large swarms of birds near dairy farms can be unusually noisy, but their noise generation seems less intrusive than mechanical equipment such as cars, planes or tractors.

Table 1

City Of Chino Exterior Noise Ordinance
Criteria for Residential Properties

		Noise Levels Not to Exceed	
Maximum Time of Exposure	**Noise Metric**	**7 a.m. to 10 p.m. (dBA)**	**10 p.m. to 7 a.m. (dBA)**
30 min/hr	L50	55	50
15 min/hr	L25	60	55
5 min/hr	L8.3	65	60
1 min/hr	L1.7	70	65
Any period of time	Lmax	75	70

Source: Ordinance 95-10, Section 9.40.040.

Short-term noise level measurements were conducted on April 25, 2000 at four locations in the project area. Table 2 summarizes the results of these measurements. Although the data in Table 2 are short-term (20 minute) Leqs while the noise compatibility standard is for CNEL, daytime Leq and weighted 24-hour CNEL are often seen in measurement data to be almost identical. Table 2 shows that roadway noise is in the mid-60 dB range at the edge of several area roadways. Increase in noise is to be expected from anticipated growth. Some offset will occur as the number of trucks declines, and travel speeds become constrained from signalized intersections and greater volumes. Almost no aircraft activity was observed during these measurements. Any constraints on development imposed by the current noise environment are confined to a fairly narrow corridor near local roadways. Traffic growth and a change in flight activities at the airport may expand the noise incompatibility zone in the future.

The measurements were made in April, 2000. No substantial growth has occurred since then that would have measurably changed the existing noise environment. Noise is logarithmically proportional to source activity (cars, airplanes, etc.). A clearly perceptible noise increase for humans is around +3 dB. It requires a doubling of noise generators to create a +3 dB increase (= 10 X log (2) = 3.0). There has been no development activity that would have caused such a doubling since the noise data were taken.

Three of the four measurement sites were near existing dairy operations. The low noise levels generally found in agricultural areas of Chino are reflected in the generally low "L50" or "L90" levels. Dairies are not substantial noise generators except for early morning truck activities to deliver feed or haul away milk. Noise is generally not a constraint to siting residential uses near ongoing dairies because traffic noise mitigation is generally a greater issue, in developing residential communities in formerly semi-rural environments.

Table 2

On-Site Noise Monitoring Survey

	Leq	L_{max}	L_{min}	L_{10}	L_{50}	L_{90}
Frontera Women's Colony	68	75	49	72	58	50
Kimball Avenue/Sultana	66	82	50	68	62	56
Bickmore/Grove	64	80	50	62	54	52
Pine/Hellman	58	74	50	64	52	49

Source: Larsen-Davis Labs Model 700B Noise Dosimeter; April 25, 2000, 1430-1635 (20 minutes/site).

NOISE IMPACTS

Two characteristic noise sources are typically identified with land use intensification such as that proposed for Subarea 2. Construction activities, especially heavy equipment, will create short-term noise increases near the project site. Such impacts may be important if project development occurs near the interface with an off-site, noise-sensitive land use.

Upon completion, project-related traffic will cause an incremental increase in area-wide noise levels throughout western San Bernardino County. Traffic noise impacts are generally analyzed both to insure that the project will not adversely impact the acoustic environment of the surrounding community, as well as to insure that the project site is not exposed to an unacceptable level of noise resulting from the ambient noise environment acting upon the project.

The adopted airport land use compatibility plan shows no airport activity noise constraint upon Subarea 2, but that plan is subject to future revision. Noise complaints may arise due to single-event noise nuisance even if the integrated 24-hour weighted average (CNEL) is within acceptable limits. The proposed Subarea 2 land use development plan places least noise-sensitive land uses closest to the airport even though residential use is currently not prohibited anywhere within the developable area because of noise. Creation of a noise overlay within the area of possible noise constraint is recommended so that noise issues are revisited in the future if/when specific development proposals are finalized.

Standards of Significance

Noise impacts are significant if:

1. they cause noise standards to be exceeded where they are currently met, or,

2. they cause noise levels to measurably worsen in an environment already exceeding standards.

"Measurably worsen" is not defined in CEQA guidelines. Most people can not distinguish noise level differences of less than 3 dB. However, because of the logarithmic nature of noise, it requires a doubling of traffic volumes to increase noise levels by 3 dB. Few projects of themselves would cause traffic volumes to double where existing volumes are already high enough to cause elevated noise levels. The threshold of accuracy for monitoring or modeling of ambient noise is + 1 dB. A 1 dB increase in noise levels, even if not perceptible by people under ambient conditions, is therefore a more appropriate significance threshold if noise levels already exceed established compatibility guideline levels and noise-sensitive land uses are directly exposed to project-related impacts.

Construction Noise Impacts

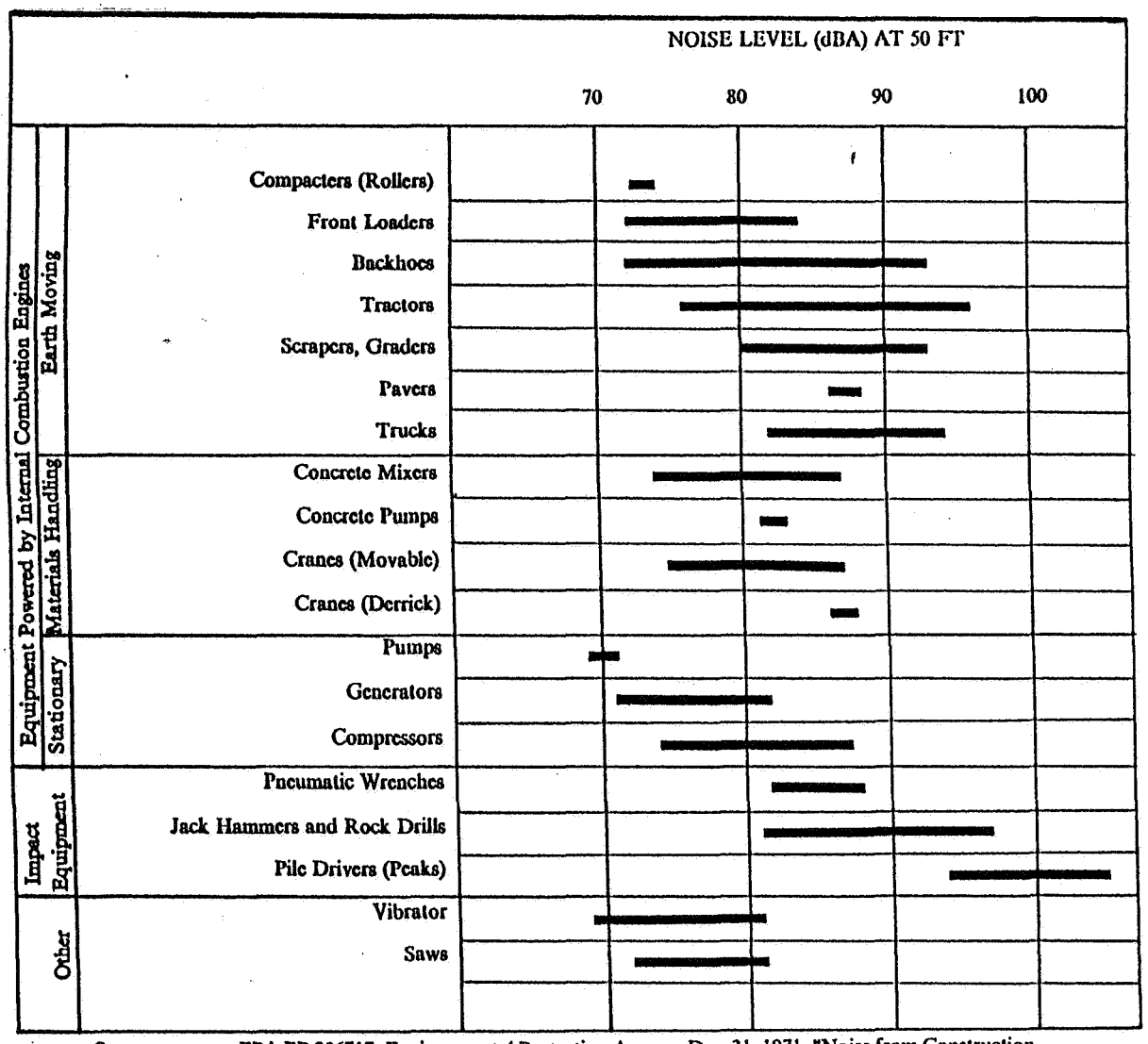
Temporary construction noise impacts vary markedly because the noise strength of construction equipment ranges widely as a function of the equipment used and its activity level. Short-term construction noise impacts tend to occur in discrete phases dominated initially by earth-moving sources, then by foundation and roadway construction, and finally by finish construction. Figure D shows the typical range of construction activity noise generation as a function of equipment used in various building phases. The earth moving sources are seen to be the noisiest with equipment noise ranging up to about 90 dB(A) at 50 feet from the source.

Spherically radiating point sources of noise emissions are atmospherically attenuated by a factor of 6 dB per doubling of distance, or about 25 dB in 1000' of propagation. The loudest earth-moving noise sources will therefore sometimes be as high as 65 dB(A) out to a distance of 1000' from the construction area. A detectability radius of 1000' or more pre-supposes no other machinery or equipment noise that would mask project construction noise. As intensification of the project vicinity increases, the assumption of a "clean" baseline may not be realized. An extensive noise impact envelope also requires a clear line of sight from source to receiver that will not be realized as various project parcels have completed structures. Both the masking effects of other noise sources (cars and trucks or Chino Airport aircraft) and screening effects of completed structures will reduce the zone of construction noise audibility. Construction noise could at times be perceivable at sensitive receptors at an adjacent parcel to a given construction project, but the noise envelope around any construction site will generally be confined to the immediate vicinity of any individual construction area. Any construction activity noise nuisance potential is therefore generally localized and temporary.

Construction noise sources are not strictly relatable to a noise standard because they occur only during selected times and the source strength varies sharply with time. Further, noise-intensive construction of any individual development is limited in duration to a period of a few months. If construction activities occurred at night, they could create a short-term significant impact because of sleep disturbance at sensitive receivers beyond the construction site. If noise-sensitive uses are located near a construction area, then time limits on grading and other equipment operations are established to minimize nuisance potential. For construction near (within 500') of scattered existing residences, the hours from 7 a.m. to 7 p.m. on weekdays should be the times allowed for construction activities. With such time limits, and with the relatively low noise sensitivity of proposed project development most likely exposed to construction noise on an adjacent parcel, construction activity noise impacts are anticipated to be less than significant.

Project-Related Vehicular Noise Impacts

Long-term noise concerns from the increased urbanization of the project area center primarily on mobile source emissions on area roadways. These concerns were addressed using the California specific vehicle noise curves (CALVENO) in the federal roadway noise model (the FHWA Highway Traffic Noise Prediction Model, FHWA-RD-77-108). The model calculates the LEQ noise level for a particular reference set of input conditions, and then makes a series of adjustments for site-specific traffic volumes, distances, speeds, or noise barriers.



Source: EPA PB 206717, Environmental Protection Agency, Dec. 31, 1971, "Noise from Construction Equipment & Operations"

TYPICAL CONSTRUCTION EQUIPMENT
NOISE GENERATION LEVELS

FIGURE
D

Traffic noise levels will change substantially for future conditions versus existing levels on several roadways. These changes are due to cumulative growth independent of development within Subarea 2. This same growth of traffic and associated noise will generally mask any project-related contributions except within Subarea 2 itself where traffic growth would not occur without project implementation.

Traffic noise was calculated along 137 roadway segments throughout the City of Chino, within and surrounding Subarea 2 for existing and interim years 2010 and 2020, (no-project and future with-project) conditions. The additional post-2020 traffic growth of 27 percent will increase noise levels by an additional 1.0 dB. Such a difference is imperceptible from Year 2020 data. Since the traffic study did not project ADT on the Chino roadway system for post-2020 conditions (required for noise impact calculations), the 2020 data, adjusted upward by +1 dB for additional growth, was assumed to be an accurate project impact characterization. The results of the traffic noise analysis are included in the appendix to this report. Potential significance was previously defined as noise increase that was clearly perceptible (+3 dB) in an area of noise sensitive land uses, or a +1 dB increase if there were noise sensitive uses adjacent to the roadway and "no project" exposures already exceeded 65 dB CNEL without the proposed action. Because of substantial forecast area growth, a large number of area roadways will experience a potentially significant noise level increase from existing conditions. Such increases are primarily due to cumulative growth, especially outside Subarea 2. Increases of +3 dB CNEL are forecast to occur along 17 roadway segments, with another 8 experiencing a measurable (+1 dB CNEL) increase where existing levels already exceed 65 dB CNEL as far away as 100 feet from the roadway centerline.

However, these substantial increases from existing conditions are primarily due to cumulative growth (2020 no-project versus existing), except within Subarea 2 or near the planning area perimeter. Potentially significant noise level differences between the no-project and project are predicted to occur along the following roadway links:

Perceptible Increase (3 dB CNEL)	**"Measurable" in already noisy conditions (1 dB if CNEL already 65 dB)**
Merrill Avenue: E of Euclid Ave. Hellman Ave. – Eucalyptus	Edison Ave: W of Mountain Archibald-Haven Avenue
Kimball Avenue: E of El Prado Rd. Euclid - Archibald Ave.	Cloverdale Road: Milliken Avenue - I-15
Cloverdale Road: Archibald Ave.-Milliken Ave.	Euclid Avenue: SR-60 - Eucalyptus Avenue N of SR-71
Bickmore Avenue: E of Euclid Avenue W of Grove Avenue	Grove Avenue: SR-60 - Walnut Avenue
Pine Avenue: SR-71 - W of Archibald Ave.	River Road: Corydon Street - 2nd Street

Perceptible Increase (3 dB CNEL)	"Measurable" in already noisy conditions (1 dB if CNEL already 65 dB)
Schliesman Road: Archibald Ave.-Haven Avenue	Haven Avenue: SR-60 - Riverside Drive
Chandler Street: Hellman Ave.-Archibald Ave.	
Euclid Avenue: Eucalyptus Ave.-Kimball Ave.	
Grove Avenue: Schaefer Ave. - Edison Ave. Eucalyptus - Pine Avenue	
Walker Avenue: Edison Ave. - Cloverdale Rd.	
Hellman Avenue: Cloverdale Rd. - S of Chandler St.	
Archibald Avenue: Edison Ave.- Eucalyptus Ave.	
River Road: N of Archibald Ave,-Corydon St.	

Aircraft Noise Exposure

The currently adopted land use compatibility plan shows no airport activity noise constraint upon Subarea 2, but that plan is subject to future revision. The Specific Plan includes an airport overlay zone to assure compatibility with any adopted Airport Comprehensive Land Use Plans. Residential use is currently not prohibited anywhere within the developable area because of noise. Although the proposed Subarea 2 land use development plan places least noise-sensitive land uses closest to the airport, noise complaints may still arise due to single-event aircraft noise nuisance even if the integrated 24-hour weighted average (CNEL) is within acceptable limits.

Near airports, even at noise exposures well outside the 65 dB CNEL contour, there may be single flyover events that are perceived as intrusive even if the 65 dB CNEL standard is met with a large margin of safety. Although the airport pre-dates future development, the complaint frequency will rise as more homes are developed. Buyer/resident awareness through notification during real estate transactions (purchase or lease) can somewhat reduce future noise complaints, but not eliminate them. Buyer notification is suggested for any Subarea homes within one mile of the airport boundary that an airport is nearby and that aircraft may occasionally be audible even though the property is well outside the airport noise impact zone as defined by the State of California.

MITIGATION

Potential construction noise nuisance was identified as a possibly adverse impact. This potential impact will be mitigated to a less than significant impact as follows:

- All construction activities conducted within 500 feet of any occupied dwelling, hotel or other noise-sensitive land use shall not occur from 7 p.m. to 7 a.m. the following day, and at any time on Sundays or universally observed holidays.
- All construction equipment will use properly operating mufflers.
- All staging areas shall be located away from occupied dwellings where feasible.
- The City of Chino will approve construction truck access routes that minimize noise intrusion into sensitive areas.

Roadway noise may exceed 65 dB CNEL along a number of area roadways in usable exterior spaces such as yards or patios. If exterior levels exceed 65 dB CNEL, then typical structural attenuation of 10 dB with open windows or 20 dB with windows closed would be insufficient to meet interior standards of 45 dB CNEL in habitable rooms. A supplemental noise impact analysis will this be required at the tentative tract level to insure that:

- Usable exterior space meets noise standards of 65 dB CNEL through a combination of setback or barriers.
- Habitable interior rooms along any project perimeter near noise-impacted roadways meet the interior standard of 45 dB CNEL through dual-paned windows, central air conditioning and other structural upgrades.

Future aircraft noise exposure is currently uncertain because the adopted airport land-use compatibility plan is under revision, but no new plan has been adopted. A revised plan will likely be adopted by the end of 2002. The proposed project places less noise-sensitive land uses close to the airport as a buffer use for residential and other sensitive uses farther away from the airport boundary. In order to insure that noise exposure be considered in final design plans, and in acknowledgement of possible single-event audibility even if standards are not exceeded, the following mitigation is recommended:

- A noise overlay shall be created within one-fourth mile south of the Kimball Avenue centerline.
- All real estate transactions within Subarea 2 within 1.0 mile of the airport boundary will contain advisory language that aircraft may be periodically audible even though the subject property is exposed to noise levels due to aviation activities that are well within State guidelines.

APPENDIX

Subarea 2 Traffic Noise Impact Analysis

Traffic Noise Analysis Detail
(CNEL in dB[A] at 100 feet to roadway centerline)

	2002	Year 2010		Year 2020	
	Existing	No Project	With Project	No Project	With Project
Walnut Ave.					
Benson Ave.-Mountain Ave.	64.0	64.0	64.0	64.0	64.0
Mountain Ave.-San Antonio	64.1	64.1	64.1	64.1	64.1
San Antonio Ave.-Euclid Ave.	64.3	64.8	64.8	65.3	65.3
Euclid Ave-Campus Ave.	65.0	65.4	65.4	65.4	65.7
Riverside Dr.					
Benson Ave.-Mountain Ave.	66.0	66.7	66.9	67.7	67.7
Mountain Ave.-San Antonio Ave.	65.5	66.4	66.9	67.2	67.3
San Antonio Ave.-Euclid Ave.	64.7	65.8	65.9	66.8	67.0
Euclid Ave-Campus Ave.	65.2	65.7	65.7	66.1	66.2
Vineyard Ave.-Archibald Ave.	65.7	66.4	66.4	67.1	67.1
Archibald Ave.-Haven Ave.	65.6	66.0	66.0	66.3	66.4
Edison Ave.					
Monte Vista Ave.-Central Ave.	64.9	67.0	67.1	68.4	68.7
East of Central Ave.	65.7	67.4	67.5	68.6	68.9
West of Mountain Ave.	65.3	66.2	67.0	66.9	68.3
Mountain Ave.-San Antonio Ave.	64.4	66.1	66.3	67.5	67.8
Fern Ave.-Euclid Ave.	64.0	65.5	65.8	66.3	67.2
East of Euclid Ave.	62.2	64.9	64.9	66.9	66.7
West of Grove Ave.	60.9	63.8	64.3	65.5	66.4
Grove Ave.-Walker Ave.	60.9	64.4	64.4	65.6	66.4
Walker Ave.-Vineyard Ave.	59.1	63.9	64.4	64.9	66.4
Vineyard Ave.-Archibald Ave.	61.5	64.3	64.3	65.9	65.9
Archibald Ave.-Haven Ave.	60.8	63.2	63.9	63.1	65.9
Galena St.					
West of I-15	-	-	66.7	68.6	68.8
East of I-15	-	-	63.6	65.7	65.7
Chino Hills Parkway					
Peyton Dr.-Pipeline Ave.	68.8	68.8	68.8	68.8	68.8
Pipeline Ave. - SR-71	68.7	69.0	69.0	69.4	69.4
SR-71 - Ramona Ave.	65.1	68.0	68.2	69.9	70.2
Monte Vista Ave.-Central Ave.	63.3	65.3	65.5	66.6	67.0
Merrill Ave.					
East of Euclid Ave.	58.7	59.7	60.9	59.2	62.4
West of Grove Ave.	58.1	60.5	60.5	62.3	62.3
Grove Ave.-Hellman Ave.	57.9	58.4	59.8	60.5	61.2
Hellman Ave.-Eucalyptus Ave.	58.1	58.5	61.9	59.3	64.1
Eucalyptus Ave.-Archibald Ave.	58.1	58.5	61.9	61.9	61.9
Archibald Ave.-Sumner Ave.	-	-	-	59.1	59.1

	2002	Year 2010		Year 2020	
	Existing	No Project	With Project	No Project	With Project
Kimball Ave.					
East of El Prado Road	55.3	60.0	61.6	60.9	64.2
West of Euclid Ave.	58.5	61.4	62.5	62.0	64.8
East of Euclid Ave.	54.4	54.8	62.4	54.8	66.3
West of Grove Ave.	55.3	55.9	62.1	55.9	64.8
Grove Ave.-Hellman Ave.	54.1	54.4	63.4	54.4	66.6
Hellman Ave.-Archibald	-	-	62.6	56.7	67.1
Cloverdale Road					
Archibald Ave.-Sumner Ave.	61.2	61.8	64.0	61.6	65.9
Sumner Ave.-Milliken Ave.	61.4	62.3	64.5	62.2	66.6
Milliken Ave. - I-15	63.1	64.1	65.9	65.1	67.8
I-15 - Wineville Ave.	66.2	66.6	66.8	66.9	67.4
Bickmore Ave.					
West of Euclid Ave.	43.3	43.3	43.3	43.3	43.3
East of Euclid Ave.	43.3	43.3	60.5	43.3	63.6
West of Grove Ave.	48.1	48.1	60.5	48.1	63.6
Pine Ave.					
West of SR-71	59.1	64.6	66.3	67.7	68.4
SR-71 - El Prado Road	48.1	60.6	66.1	64.6	68.4
East of El Prado Road	56.9	60.0	63.6	57.3	66.4
West of Euclid Ave.	58.7	61.6	64.9	59.2	67.6
East of Euclid Ave.	62.8	63.3	66.2	63.3	68.3
West of Grove Ave.	61.8	62.2	65.4	62.2	67.5
East of Grove Ave.	62.3	62.7	64.7	62.7	66.3
West of Hellman Ave.	61.8	62.2	64.5	62.2	66.3
East of Hellman Ave.	60.2	60.7	64.9	61.4	67.0
West of Archibald Ave.	61.2	61.6	64.5	61.9	66.5
Schleisman Road					
Archibald Ave.-Haven Ave.	56.9	57.3	61.2	57.3	63.6
Haven Ave.-Hamner Ave.	57.1	61.2	62.5	63.3	65.0
East of Hamner Ave. 58.1	58.1	61.9	62.4	63.9	64.7
Chandler St.					
Hellman Ave.-Archibald Ave.	54.8	55.1	60.6	55.1	63.2
Corydon Street					
West of River Road	63.6	64.4	64.6	64.9	65.5
East of River Road	60.2	60.6	60.6	61.2	61.2
2nd Street					
River Road-Parkridge Ave.	63.7	64.4	64.7	64.9	65.6
Hamner Ave. - I-15	67.6	68.6	68.6	69.4	69.6
East of I-15	65.7	66.3	66.3	66.3	66.9
Pipeline Ave.					
North of Chino Hills Parkway	67.4	67.4	67.4	67.4	67.4
South of Chino Hills Parkway	67.1	67.2	67.2	67.2	67.2

	2002	Year 2010		Year 2020	
	Existing	No Project	With Project	No Project	With Project
Central Ave.					
Schaefer Ave.-Edison Ave.	66.3	67.3	67.3	68.2	68.2
Edison Ave.- Eucalyptus Ave.	65.8	66.7	66.7	67.6	67.6
Eucalyptus Ave.-Chino Hills Pkwy.	65.5	66.7	66.9	67.6	68.0
Chino Hills Pkwy-El Prado Road	63.2	65.3	65.7	66.5	67.4
El Prado Road - SR-71	62.2	64.6	64.8	67.5	67.8
South of SR-71	64.9	66.5	66.5	67.7	68.0
El Prado Road					
South of Central Ave.	60.2	62.8	63.7	63.7	65.8
North of Kimball Ave.	59.5	62.4	63.4	63.4	65.6
South of Kimball Ave.	57.6	60.9	60.9	62.8	62.8
North of Pine Ave.	56.5	58.1	60.0	59.3	62.1
Mountain Ave.					
Philadelphia Street- SR-60	69.0	69.3	69.3	69.6	69.6
SR-60 - Walnut Ave.	68.0	68.6	68.7	69.1	69.4
Walnut Ave.-Riverside Dr.	66.9	67.6	67.7	68.1	68.4
Riverside Dr.-Chino Ave.	66.0	66.7	66.9	67.3	67.7
Schaefer Ave.-Edison Ave.	61.3	62.2	62.7	62.7	63.8
Euclid Ave.					
Philadelphia St. - SR-60	67.7	68.1	68.4	68.4	69.0
SR-60 - Walnut Ave.	67.8	68.3	68.9	68.3	69.8
Walnut Ave. - Riverside Dr.	66.4	67.1	68.0	66.8	69.3
Riverside Dr. - Chino Ave.	66.0	66.6	67.6	66.5	68.8
Schaefer Ave.-Edison Ave.	65.6	66.0	66.9	66.0	68.1
Edison Ave.-Eucalyptus Ave.	64.9	65.3	66.5	65.3	67.8
Eucalyptus Ave.-Merrill Ave.	64.4	64.8	66.5	64.8	68.0
Merrill Ave.-Kimball Ave.	64.3	64.8	66.6	64.8	68.2
Kimball Ave.-Bickmore Ave.	63.9	64.3	65.5	64.3	66.8
Bickmore Ave.-Pine Ave.	63.6	64.0	65.2	64.0	66.3
South of Pine Ave.	64.2	64.6	65.5	64.2	66.6
North of SR-71	64.6	65.1	66.5	65.1	67.9
South of SR-71	60.8	61.2	61.2	61.2	61.6
Grove Ave.					
Philadelphia Street- SR-60	68.6	69.0	69.2	69.3	69.8
SR-60 - Walnut Ave.	67.1	67.5	68.1	67.6	68.9
Schaefer Ave.-Edison Ave.	57.6	58.2	62.8	59.5	65.3
Edison Ave.-Eucalyptus Ave.	54.4	56.1	59.2	61.6	61.6
Eucalyptus Ave-Kimball Ave.	53.3	53.7	56.9	53.7	59.0
Kimball Ave.-Bickmore Ave.	55.9	56.3	61.4	60.1	64.2
Bickmore Ave.-Pine Ave.	55.1	55.6	63.1	55.6	66.1

	2002	Year 2010		Year 2020	
	Existing	No Project	With Project	No Project	With Project
Walker Ave.					
Edison Ave.-Eucalyptus Ave.	48.1	59.4	59.4	54.1	62.5
Eucalyptus Ave-Merrill Ave.	-	-	-	55.6	63.7
Merrill Ave-Cloverdale Road	-	-	63.7	43.3	67.0
Hellman Ave.					
Cloverdale Road-Pine Ave.	-	43.3	62.2	43.3	65.4
South of Pine Ave.	57.8	58.2	61.8	58.2	64.0
North of Chandler Street	58.2	58.6	62.1	58.6	64.3
South of Chandler Street	58.1	59.4	62.6	58.5	64.9
Vineyard Ave.					
Philadelphia Street - SR-60	65.0	65.0	65.0	67.0	67.0
SR-60 - Walnut Ave.	66.5	67.8	67.9	68.7	69.0
Schaefer Ave.-Edison Ave.	-	-	-	62.9	65.4
Archibald Ave.					
Philadelphia St. - SR-60	65.7	66.1	66.1	66.1	66.6
South of SR-60	66.8	67.2	67.3	67.4	67.9
North of Riverside Drive	65.9	66.6	66.8	67.1	67.7
Riverside Drive-Chino Ave.	64.8	65.1	65.1	65.2	65.3
Schaefer Ave.-Edison Ave.	62.0	62.4	62.7	62.4	63.5
Edison Ave.-Eucalyptus Ave.	62.1	64.1	65.2	63.5	67.2
Eucalyptus Ave.-Merrill Ave.	62.4	63.5	65.4	64.7	67.3
Merrill Ave.-Cloverdale Road	63.4	65.3	65.3	65.2	65.2
South of Cloverdale Road	63.2	64.0	64.7	65.4	65.9
North of Schliesman Road	62.4	62.8	64.0	64.0	65.3
Schliesman Road-Chandler St.	62.3	62.7	62.7	62.7	63.1
Chandler Street-River Road	62.3	63.4	63.7	64.1	64.8
River Road					
North of Archibald Ave.	60.0	62.2	64.6	61.9	66.7
Archibald Ave.-Bluff St.	64.1	65.6	66.8	65.5	68.6
Bluff Street-Corydon St.	64.3	65.4	66.6	65.2	68.2
Corydon Street-2nd St.	65.0	65.9	66.7	65.7	68.0
2nd Street-Lincoln Ave.	64.3	64.9	65.6	64.9	66.8
Haven Ave.					
Philadelphia Street - SR-60	67.7	67.7	67.7	70.6	70.6
SR-60 - Riverside Drive	66.1	68.0	68.6	69.2	70.3
Milliken Ave.					
Merrill Ave.-Cloverdale Road	62.3	63.8	63.8	64.9	64.9
South of Cloverdale	61.8	64.0	64.3	65.9	65.9
North of Schliesman Road	61.8	64.0	64.3	66.0	66.0
South of Schliesman Road	63.1	65.4	65.6	66.8	67.3

- = Does not exist.

APPENDIX E
AIR QUALITY EVALUATION

Giroux & Associates
Environmental Consultants

AIR QUALITY IMPACT ANALYSIS

CHINO SPHERE GENERAL PLAN EIR – SUBAREA 2

CITY OF CHINO, CALIFORNIA

Prepared for:

Michael Brandman Associates
Attn: Tom Holm
220 Commerce, Suite 200
Irvine, California 92602

Date:

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Project No.: P01-041

17744 Sky Park Circle, Suite 210, Irvine, California 92614 - Phone (949) 851-8609 - Fax (949) 851-8612

METEOROLOGY/CLIMATE

The climate of the Chino area, as with all of Southern California, is governed largely by the strength and location of the semi-permanent high pressure center over the Pacific Ocean and the moderating effects of the nearby vast oceanic heat reservoir. Local climatic conditions are characterized by very warm summers, mild winters, infrequent rainfall, moderate daytime on-shore breezes, and comfortable humidities. Unfortunately, the same climatic conditions that create such a desirable living climate combine to severely restrict the ability of the local atmosphere to disperse the large volumes of air pollution generated by the population and industry attracted in part by the climate.

Chino is situated in an area where the pollutants generated in coastal portions of the Los Angeles basin undergo photochemical reactions and then move inland across the project site during the daily sea breeze cycle. The resulting smog at times gives western San Bernardino County some of the worst air quality in all of California. Despite dramatic improvement in air quality in the local area throughout the 1980s, the project site is, nevertheless, expected to continue to experience some unhealthful air quality for at least two more decades.

Temperatures in the project vicinity average 62 degrees Fahrenheit annually with summer afternoons in the low 90s and winter mornings in the low 40s. Temperatures much above 100 or below 30 degrees occur infrequently only under unusual weather conditions and even then these limits are not far exceeded.

In contrast to the slow annual variation of temperature, precipitation is highly variable seasonally. Rainfall in the far western portions of San Bernardino County averages 17 inches annually and falls almost exclusively from late October to early April. Summers are almost completely dry with frequent periods of 4-5 months of no rain at all. Because much of the rainfall comes from the fringes of mid-latitude storms, a shift in the storm track of a few hundred miles can mean the difference between a very wet year and a year with drought conditions.

Winds across the project area are an important meteorological parameter because they control both the initial rate of dilution of locally generated air pollutant emissions as well as their regional trajectory. Wind across Chino, as determined from long-term wind data at Ontario Airport, show a very unidirectional daytime onshore flow from the SW-NW with a very weak offshore return flow from the

NE that is strongest on winter nights when the land is cooler than the ocean. The onshore winds during the day average 6-8 mph, while the offshore flow is often calm or drifts slowly westward at 1-3 mph.

During the daytime, any locally generated air emissions are thus transported eastward toward San Bernardino and Cajon Pass without generating any localized air quality impacts. The drainage winds which move slowly across the area have some potential for localized stagnation. Fortunately, these winds have their origin in the San Gabriel Mountains where background pollution levels are low such that any localized contributions do not create any unhealthful impacts. The wind distribution is such that nominal project-related air quality impacts occur more on a regional scale rather than in the immediate Chino area.

One other important wind condition occurs when a high pressure center forms over the western United States with sinking air forced seaward through local canyons and mountain passes. The air warms by compression and relative humidities drop dramatically. The dry, gusty winds from the N-NE create dust nuisance potential around areas of soil disturbance such as construction sites and sometimes create serious visibility and safety problems for vehicles on area freeways.

In conjunction with the two dominant wind regimes that affect the rate and orientation of horizontal pollutant transport, there are two similarly distinct types of temperature inversions that control the vertical depth through which pollutants are mixed. The summer on-shore flow is capped by a massive dome of warm, sinking air which caps a shallow layer of cooler ocean air. These marine/ subsidence inversions act like a giant lid over the basin. They allow for local mixing of emissions, but they confine the entire polluted air mass within the basin until it escapes into the desert or along the thermal chimneys formed along heated mountain slopes.

In winter, when the air near the ground cools while the air aloft remains warm, radiation inversions are formed that trap low-level emissions such as automobile exhaust near their source. As background levels of primary vehicular exhaust rise during the seaward return flow, the combination of rising non-local baseline levels plus emissions trapped locally by these radiation inversions creates micro-scale air pollution "hot spots" near freeways, shopping centers and other traffic concentrations. Because the incoming air draining off the mountains during nocturnal radiation inversion conditions is relatively clean, the summer subsidence inversions are a far more critical factor in determining Chino area air quality than the winter time local trapping inversions.

AIR QUALITY SETTING

Ambient Air Quality Standards (AAQS)

In order to gauge the significance of the air quality impacts of the proposed Subarea 2 development, those impacts, together with existing background air quality levels, must be compared to the applicable ambient air quality standards. These standards are the level of air quality considered safe, with an adequate margin of safety, to protect the public health and welfare. They are designed to protect those people most susceptible to further respiratory distress such as asthmatics, the elderly, very young children, people already weakened by other disease or illness and persons engaged in strenuous work or exercise, called "sensitive receptors." Healthy adults can tolerate occasional exposure to air pollutant concentrations somewhat above these minimal standards before adverse effects are observed. Recent research has shown, however, that there may even be adverse respiratory effects from chronic exposure to ozone at levels that only marginally exceed or even meet national clean air standards.

National AAQS were established in 1971 for six pollution species with states retaining the option to add other pollutants, require more stringent compliance, or to include different exposure periods. The initial attainment deadline of 1977 was extended to 1987 for national AAQS and was subsequently further extended in air quality problem areas like Southern California. An extension of the federal Clean Air Act with revised attainment deadlines was adopted in 1990 with a more realistic attainment deadline of 2010 now established for ozone which is the pollutant that exceeds standards by the widest margin. Because California had established AAQS several years before the federal action and because of unique air quality problems introduced by the restrictive dispersion meteorology, there is considerable difference between state and national clean air standards. Those standards currently in effect in California are shown in Table 1.

The federal Clean Air Act Amendments (CAAA) of 1990 required that the U.S. Environmental Protection Agency (EPA) review all national AAQS in light of all current health data. EPA was charged with modifying existing standards or promulgating new ones where appropriate. EPA subsequently developed standards for chronic ozone exposure (8+ hours per day) and for very small diameter particulate matter (called "PM-2.5"). New national AAQS were adopted on July 17, 1997. California standards for PM-10, which includes PM-2.5, are more stringent than the federal PM-2.5 standard.

Planning and enforcement of the new federal standards for PM-2.5 and for ozone (8-hour) were put on hold through a decision by the U.S. Court of Appeals. The Appeals Court ruled that EPA did not have discretionary authority to adopt national clean air standards without specific congressional approval. An appeal filed on behalf of EPA by the Department of Justice was heard by the U.S. Supreme Court in early November, 2000. In a unanimous decision published at the end of February 2001, the Court ruled the EPA did have authority to promulgate standards without specific congressional authority, and that a cost-benefit analysis was not required for health-based standards. The Court also ruled, however, that there was an attainment schedule inconsistency between "old" and "new" standards. This inconsistency must be resolved before the new standards are considered fully implemented. Data collection for these standards is on-going, but no additional attainment action can be taken until all legal issues are resolved.

TABLE 1

Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards		Federal Standards		
		Concentration	Method	Primary	Secondary	Method
Ozone (O_3)	1 Hour	0.09 ppm (180 µg/m³)	Ultraviolet Photometry	0.12 ppm (235 µg/m³)	Same as Primary Standard	Ethylene Chemiluminescence
	8 Hour	—		0.08 ppm (157 µg/m³)		
Respirable Particulate Matter (PM_{10})	Annual Geometric Mean	30 µg/m³	Size Selective Inlet Sampler ARB Method P (8/22/85)	—	Same as Primary Standard	Inertial Separation and Gravimetic Analysis
	24 Hour	50 µg/m³		150 µg/m³		
	Annual Arithmetic Mean	—		50 µg/m³		
Fine Particulate Matter ($PM_{2.5}$)	24 Hour	No Separate State Standard		65 µg/m³	Same as Primary Standard	Inertial Separation and Gravimetic Analysis
	Annual Arithmetic Mean			15 µg/m³		
Carbon Monoxide (CO)	8 Hour	9.0 ppm (10 mg/m³)	Non-dispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m³)	None	Non-dispersive Infrared Photometry (NDIR)
	1 Hour	20 ppm (23 mg/m³)		35 ppm (40 mg/m³)		
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m³)		—		
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	—	Gas Phase Chemiluminescence	0.053 ppm (100 µg/m³)	Same as Primary Standard	Gas Phase Chemiluminescence
	1 Hour	0.25 ppm (470 µg/m³)		—		
Lead	30 days average	1.5 µg/m³	AIHL Method 54 (12/74) Atomic Absorption	—	—	High Volume Sampler and Atomic Absorption
	Calendar Quarter	—		1.5 µg/m³	Same as Primary Standard	
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	—	Fluorescence	0.030 ppm (80 µg/m³)	—	Pararosoaniline
	24 Hour	0.04 ppm (105 µg/m³)		0.14 ppm (365 µg/m³)	—	
	3 Hour	—		—	0.5 ppm (1300 µg/m³)	
	1 Hour	0.25 ppm (655 µg/m³)		—	—	
Visibility Reducing Particles	8 Hour (10 am to 6 pm, PST)	In sufficient amount to produce an extinction coefficient of 0.23 per kilometer—visibility of ten miles or more (0.07—30 miles or more for Lake Tahoe) due to particles when the relative humidity is less than 70 percent. Method: ARB Method V (8/18/89).		No Federal Standards		
Sulfates	24 Hour	25 µg/m³	Turbidimetric Barium Sulfate-AIHL Method 61 (2/76)			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m³)	Cadmium Hydroxide STRactan			

Evaluation of the most current data on the health effects of inhalation of fine particulate matter prompted the California Air Resources Board to recommend adoption of a statewide PM-2.5 standard that is much more stringent than its federal counterpart. This standard was adopted on June 20, 2002. The State PM-2.5 standard is more of a goal in that it does not have specific attainment planning requirements like a federal clean air standard. Widespread violations of the more stringent State PM-2.5 standard will, however, be a constant reminder that major progress needs to be made to protect the health of those citizens most sensitive to airborne small-diameter particulate pollution.

Baseline Air Quality

Existing levels of ambient air quality and historical trends and projections in the Chino area are well documented from measurements made by the South Coast Air Quality Management District (SCAQMD). Although there are no measurements made in Chino, measurements are made at nearby monitoring stations in Pomona, Upland and Ontario Airport. From these data, one can readily infer that baseline air quality levels near the project site are occasionally very unhealthful, but there are some encouraging signs that the air is slowly, but surely, getting better. Attainment may still be many years away but the frequency of smog alerts, especially those considered unhealthy for all people, has dropped dramatically in the last decade. Available SCAQMD monitoring data around Chino shows a fairly similar air quality pattern. In terms of Chino's relationship to weather and air pollution patterns in the local area, the data from Pomona are likely most representative of the Subarea 2 project site. Table 2 summarizes the monitoring history from the Pomona monitoring station for the last 7 years of published data. Ozone, the primary ingredient in photochemical smog, is obviously the biggest pollution problem in the area. Since 1995, less than ten percent of all days of the year experience a violation of the State hourly ozone standard. There have been no first-stage smog alerts since 1995. No second-stage alert levels of 0.35 ppm for one hour have been called in the last 10 years near the project site.

Throughout the last decade, there has been a marked trend in lower maximum concentrations and a significant reduction in the frequency of standard violations. Some of that improvement may be due, in part, to year-to-year variations in weather patterns that affect smog levels but a good portion of that trend is due to reductions in emissions from stationary sources and from smog control equipment on cars. In particular, the noticeable decrease in first-stage smog alerts in the Pomona area from 30 days per year at mid-decade to only 10 per year by the end of the 1980s and none since 1995 is dramatic evidence of the benefits of aggressive pollution control programs. Violations of the State one hour ozone standard have declined from over 100 days per year in 1993-94 to an average of less than 20 per year in 1999-2001. Violations of the federal one-hour ozone standard have declined from near 50 per year during this time period to an average of 2 per year over the last 3 years of reported data.

Table 2

Chino Area
Air Quality Monitoring Summary -- 1995-2001
(Days Standards Were Exceeded and Maximum Observed Levels)

Pollutant/Standard	1995	1996	1997	1998	1999	2000	2001
Ozone							
1-Hour > 0.09 ppm	87	44	30	41	19	18	12
1-Hour > 0.12 ppm	47	16	7	18	2	3	1
1-Hour ≥ 0.20 ppm	2	0	0	0	0	0	0
8- Hour > 0.08 ppm	55	22	10	20	8	5	3
Max 1-Hour Conc. (ppm)	0.22	0.19	0.16	0.18	0.14	0.15	0.14
Carbon Monoxide							
1-Hour > 20. ppm	0	0	0	0	0	0	0
8- Hour > 9. ppm	0	0	0	0	0	0	0
Max 1-Hour Conc. (ppm)	8.	8.	8.	10.	10.	7.	5.
Max 8-Hour Conc. (ppm)	6.1	5.0	5.1	7.3	6.7	4.9	3.4
Nitrogen Dioxide							
1-Hour > 0.25 ppm	0	0	0	0	0	0	0
Max 1-Hour Conc. (ppm)	0.18	0.18	0.15	0.15	0.16	0.14	0.13
Particulate Sulfate							
24-Hour ≥ 25. $\mu g/m^3$	0/59	0/58	0/61	0/62	0/60	0/56	0/60
Max. 24-Hr. Conc. ($\mu g/m^3$)	12.5	13.6	9.7	10.1	12.4	11.5	10.7
Inhalable Particulates (PM-10)							
24-Hour > 50 $\mu g/m^3$	31/62	34/64	21/59	20/59	32/57	26/58	34/60
24-Hour > 150 $\mu g/m^3$	3/62	0/64	1/59	0/59	0/57	0/58	0/60
Max. 24-Hr. Conc. ($\mu g/m^3$)	167.	129.	208.	92.	112.	124.	106.
Ultra-Fine Particulates (PM-2.5)							
24-Hour > $\mu g/m^3$	-	-	-	-	2/96	2/111	4/114
Max. 24-Hour Conc.	-	-	-	-	85.9	73.4	74.8

Source: South Coast AQMD - Pomona Air Monitoring Station Data Summaries, supplemented by Ontario and/or Upland data for particulate species.

While the secondary pollution levels of ozone and to a certain extent particulates are high from transport of pollution into the area, the primary vehicular pollution levels of such species as carbon monoxide (CO) and nitrogen oxides (NOx) are quite low. Standards for these species are violated infrequently in Pomona and by inference in Chino. The levels of CO and NOx at or below allowable standards suggest that there is adequate dispersive capacity to accommodate the additional vehicular emissions to be generated by the proposed Subarea 2 development without any significant local air quality degradation.

Air Quality Management Planning

The Federal Clean Air Act (1977 Amendments) required that designated agencies in any area of the nation not meeting national clean air standards must prepare a plan demonstrating the steps that would bring the area into compliance with all national standards by December 31, 1987. The South Coast Air Basin (SCAB) could not meet the deadline for ozone, nitrogen dioxide, carbon monoxide, or PM-10. In the SCAB, the agencies designated by the Governor to develop regional air quality plans are the SCAQMD and the Southern California Association of Governments (SCAG). The two agencies first adopted an Air Quality Management Plan (AQMP) in 1979 and revised it several times subsequently as earlier attainment forecasts were shown to be overly optimistic.

In 1988, because of uncertainty in federal Clean Air Act reauthorization, the California Legislature enacted the California Clean Air Act (CCAA). The CCAA requires that regional emissions be reduced by 5 percent per year, averaged over 3-year periods, until attainment can be demonstrated. Each area that did not meet a national or state ambient air quality standard was required to prepare a plan which demonstrated how the 5 percent reductions were to be achieved. In July 1991, the SCAQMD adopted a revised AQMP which was designed to meet the CCAA requirements. The 1991 AQMP deferred the attainment date to 2010, consistent with the 1990 federal Clean Air Act.

The 1990 federal Clean Air Act Amendments (CAAA) required that all states with airsheds with "serious" or worse ozone problems submit a revision to the State Implementation Plan (SIP). The 1991 AQMP was modified/adapted and submitted as the South Coast Air Basin (SCAB) portion of the SIP. The 1991 SIP submittal estimated that an 85% basinwide reduction in volatile organic compound (VOC) emissions and a 59% reduction in oxides of nitrogen (NOx) between 1990 to 2010 was needed to meet federal clean air standards. About 40% of these reductions were to come from existing pollution control programs. The rest would come from new rules, technologies, or other reduction programs.

In 1996, EPA approved the 1994 submittal of the SCAB portion of the SIP. The plan was finally approved after considerable debate on the contingency measures that should be implemented if progress is not as rapid as anticipated in the 1994 SIP. The federal Clean Air Act required that an updated plan be submitted by February 8, 1997, which included attainment plans for all pollutants exceeding federal standards. The CCAA requires an update of the State-mandated clean air plan every three years. The last update was due December 31, 1997.

An updated 1997 AQMP was locally adopted. The California Air Resources Board (ARB) forwarded this plan on to EPA for its consideration and recommended approval. The 1997

AQMP was designed to meet both federal (EPA) and State (ARB) air quality planning guidelines. Components of the 1997 plan update included:

- Demonstration of attainment for ozone, CO, and PM-10
- Updated emissions inventories (1993 base year) of VOC, NOx, CO, SOx and PM-10
- Emissions budgets for future years of the inventoried compounds.
- An updated pollution control strategy
- Contingency measures if the plan as presently proposed fails to meet stated timetables.

Additional research and photochemical computer modeling, as well as improved emissions estimates, now suggest that formerly predicted emissions reductions required to meet standards need not be quite as severe as thought earlier. Table 3 summarizes the currently proposed regional attainment planning for ozone (VOC and NOx) and for carbon monoxide (CO). Emissions reductions of around 66 percent for VOC, 56 percent for NOx and 66 percent for CO are anticipated from the currently proposed AQMP update. Within the plan, some measures considered "long-term reductions" require additional technological development whose development schedule is uncertain. There is therefore no clear scientific consensus that the 1997 AQMP update will be able to achieve its mandatory clean air objectives by the end of 2010.

The Draft 1997 AQMP was challenged by several environmental organizations as not being consistent with the 1990 federal CAAA on rates of progress toward attaining the ozone standard. The Ninth Circuit Court found for these organizations. A 1999 Amendment to the proposed SIP Revisions was developed that accelerates the schedule for a number of new SCAQMD rules and regulations. The 1999 SIP Amendment is believed to meet the court-ordered acceleration of the rate of progress. The 1999 Amendments were approved by the California ARB on January 27, 2000. EPA staff approved the amendments with additional minor changes. Formal EPA approval of the 1999 SIP Amendment was granted in 2000.

A large-scale regional development such as Subarea 2 relates to the AQMP through the land use and growth assumptions used to forecast automotive air pollution emissions. The basinwide AQMP is based on the designated land use for the project site contained in the City of Chino and San Bernardino County General Plans. To the extent that the now proposed development represents a level of growth anticipated in these general plans, it is, by inference, consistent with the AQMP. Implementation of planned growth will not delay the timely attainment of regional clean air standards. However, SCAQMD's position is that consistency with the AQMP alone is not a sufficient basis for a finding of an insignificant air quality impact. Impact significance is therefore determined by a direct project analysis.

Table 3

South Coast Air Basin Attainment Plan
(Emissions in tons/day)

	VOC*	NOx*	CO**
Current Inventory[a]			
Stationary + Area Sources	410	144	363
On-Road Mobile	562	761	5,826
Off-Road Mobile	120	303	1,008
Total	1,092	1,208	7,197
2010 Forecast[b]			
Stationary + Area Sources	531	98	337
On-Road Mobile	163	360	1,913
Off-Road Mobile	144	269	1,643
Total	838	727	3,893
Short-term + Intermediate Reductions	< 221>	< 120>	<1,468>
Long-term Reductions	< 204>	< 77>	< 0>
2010 Remaining [c]	413	530	2,425

[a]Year 2000 Estimate
[b]With current emissions reduction programs and adopted growth forecasts.
[c]Levels at which all federal air quality standards will be met.
*Summer ozone precursors
**Winter CO "hot spot" precursors

Source: California Air Resources Board, "2001, California Almanac of Emission & Air Quality," and SCAQMD Draft Final 1997 AQMP (October 1996).

AIR QUALITY IMPACT

Residential, institutional, commercial, business, light industrial, recreational, as well as limited continuation of agricultural activities in Subarea 2 potentially impact air quality almost exclusively through increased automotive emissions. Any single project typically does not cause enough traffic and associated air pollutants to be generated as to individually threaten clean air standards. It is the cumulative effect of hundreds of such developments that causes the small incremental impact from any one development to become cumulatively significant. Minor secondary emissions during construction, from increased fossil-fueled energy utilization and from small miscellaneous sources will also be generated, but these are usually much smaller in both duration and volume than the mobile source emissions.

Dairy operations in Subarea 2 will eventually be phased out. Until then, the dairy operations may constitute a development constraint because of air emissions. These are existing emissions and are not an impact created by the project. However, existing dust and especially odor may create an impact upon the project. Manure odor may reduce the attractiveness of the area for residential and other nuisance-sensitive land uses. It has recently been discovered that the dairy industry's contribution to airborne ammonia which reacts to form very tiny light-scattering particulates has traditionally been overstated. These very small particles are linked to adverse health effects. The actual dairy industry impact to human health is minimal. However, the perceived impact from odor and/or large diameter soiling nuisance dust may be a temporary impediment in attracting highly desirable development within the planning area. Adoption of the plan will accelerate the departure of dairies from the area, and therefore, eliminate their negative impact on the area.

Standards of Significance

Air quality impacts generally occur on two scales of motion. Near an individual source of emissions or a collection of sources, such as a crowded intersection or parking lot, levels of those pollutants that are emitted in their already unhealthful form will be highest. Such pollutants are called primary pollutants. Carbon monoxide (CO) is an example of such a pollutant.

Many pollutants, however, require time to transform from a more benign form to a more unhealthful contaminant. These are called secondary pollutants and their impact occurs regionally far from the source. Their incremental regional impact is minute on an individual project basis and can not be quantified except through complex photochemical computer models. Analysis of the significance of such emissions is thus based on a specified amount of emissions (pounds, tons, etc.) even though there is no way to explicitly translate those emissions into a corresponding ambient air quality impact.

The South Coast AQMD recommends that projects in the SCAB with daily emissions that exceed any of the following emission thresholds should be considered to be significant:

55 lb per day of ROC (75 lb per day during construction)
55 lb per day of NOx (100 lb per day during construction)
550 lb per day of CO
150 lb per day of PM-10
150 lb per day of SOx

Source: SCAQMD CEQA Air Quality Handbook, November, 1993 Rev.

The South Coast AQMD, however, only has an advisory capacity relative to general development and its associated air pollution emissions. Responsibility for a finding of air quality impact (in)significance rests with the Lead Agency. Because air quality is a regional issue, growth and its related air pollution emissions must be evaluated within a regional context. A project's positive contribution to jobs-housing balance, access to multiple transportation control measures are all considerations that would lessen the regional impact of planned growth. Exceeding the above SCAQMD thresholds is not necessarily a completely sufficient condition to support a finding of a significant air quality impact. There is clearly discretionary leeway to find for a less than significant impact even for large new general developments. Conversely, these same arguments may be used to find the impact significant and then use the above consideration as part of the statement of overriding considerations. As a conservative approach, emissions magnitude was used to evaluate project air quality impact significance. Any air quality positive features of the proposed development are recommended for inclusion in the appropriate findings.

Besides the emissions magnitude, the SCAQMD recommends that other indicators should be used as screening criteria to determine the need for further analysis with respect to air quality. These additional indicators are as follows:

- Project could interfere with the attainment of the federal or state ambient air quality standards by either violating or contributing to an existing or projected air quality violation.
- Project could result in population increases within the regional statistical area which would be in excess of that projected in the AQMP for the project's build-out year.
- Project could generate vehicle trips that cause a CO hot spot.

Construction Activity Impacts

Project development will create temporary emissions of fugitive dust from soil disturbance and combustion emissions from on-site construction equipment and from off-site trucks moving dirt, delivering construction materials, and from worker travel. Emissions from such activities are difficult to estimate because project-specific emission characteristics vary from site to site within the project area. In general, the most significant source of air pollution from project construction will be the dust generated during clearing, excavation and site preparation.

The average uncontrolled dust emission rate during construction is about 1.2 tons per acre per month of disturbance. This factor is for total suspended particulates (TSP). The SCAQMD

"CEQA Air Quality Handbook" (1993) states that the PM-10 fraction of TSP is about one-half, or 55 pounds of PM-10 per workday in the absence of any dust control. This is a universal factor that may not necessarily be completely applicable to specific soil conditions at the Subarea 2 project site. Because there is no way to accurately estimate site-specific modification to the generic dust generation factor, the approach by most air pollution regulatory jurisdictions has been to require a very aggressive program of dust control during construction to compensate for any uncertainty in the possible particulate air quality impact from project construction. Dust control measures required by the South Coast AQMD under its nuisance abatement and fugitive dust rules (Rules 402 and 403) can reduce dust emissions from 50-80 percent of their uncontrolled rate. An additional dust control rule regulating unpaved roads and sweeping of paved roads was adopted in 1997 (Rule 1186).

Project emissions were calculated by assuming that, at worst case, five percent (5%) of the 2448.7 acres that are proposed for development would be under simultaneous heavy construction during the buildout lifetime of the project. While the actual daily rate will depend on individual project phasing, the total PM-10 generation could be as high as 3.37 tons per day for the assumed 122 acre maximum daily disturbance area. Dust control as required by SCAQMD Rule 403 will reduce PM-10 emissions by around 50 percent using water or similar dust palliatives. A more successful dust control program using multiple techniques (chip sealing access roads, hydroseeding exposed surfaces, adding chemical binders or surfactants to the water) may achieve up to a 80 percent reduction.

At 50 percent ("standard") control, daily dust emissions during an intensive disturbance event would be around 3,220 pounds per day. With maximally effective measures (up to 80 percent control), daily PM-10 emissions could be reduced to 1280 pounds per day compared to the daily emissions significance threshold of 150 pounds per day. Daily PM-10 emissions would exceed the significance threshold by a wide margin. In order to achieve a less-than-significant emission, it will require maintaining the individual daily disturbance area at a reasonably small level (approximately 15 acres/day).

In addition to fine particles that remain suspended in the atmosphere semi-indefinitely, construction activities generate many larger particles with shorter atmospheric residence times. This dust is comprised mainly of large diameter inert silicates that are chemically non-reactive and are further readily filtered out by human breathing passages. These fugitive dust particles are therefore more of a potential soiling nuisance as they settle out on parked cars or landscape foliage rather than any adverse health hazard. With a low current population density in and around Subarea 2, dust nuisance potential for this project is not considered individually significant.

Exhaust emissions will result from on- and off-site heavy equipment. The types and numbers of equipment will vary among contractors such that these emissions can not be quantified with certainty. Typical emission rates for a single diesel powered scraper were obtained from the SCAQMD Air Quality Handbook and are provided in Table 4. Diesel scrapers are the most common equipment used for grading activities. A typical large project in Subarea 2 may utilize 20-30 pieces of heavy equipment at any one time during mass grading operations. Assuming that 25 pieces of heavy equipment were operated an average of eight hours per day, the emissions that would be anticipated are also shown in Table 4.

Table 4

Typical Construction Equipment Emissions

Pollutant	Emission Rate (lb/hr.)	Emissions* (lb/day)	Signif. Threshold
Carbon Monoxide	1.25	250	550
Nitrogen Oxides	3.84	768	100
Combustion PM-10	0.41	82	150
Sulfur Dioxide	0.46	92	150
Reactive Organic Compounds	0.27	54	75

*25 pieces of equipment, 8 hours/day

Source: SCAQMD CEQA Handbook (1993); Table A9-3-A

Although the NOx emissions substantially exceed the SCAQMD significance threshold, the mobile nature of the on-site construction equipment and off-site trucks will prevent any local violation of the NOx or other standards. There may be localized instances when the characteristic diesel exhaust odor is noticeable from passing trucks or nearby heavy equipment, but such transitory exposure is a brief nuisance and will not threaten air quality standards. Truck exhaust impacts can be minimized by controlling construction routes to reduce interference with non-project traffic patterns and to preclude truck queuing or idling near sensitive receptor sites.

Some mitigation in the form of anticipated future emission standards for heavy, off-road equipment have been passed by the California ARB to be phased in later in this decade. Until such mandatory standards are promulgated, the South Coast AQMD urges the inclusion of control measures for construction activities as part of any local discretionary actions that are comparably effective as the future mandatory measures. Recommended measures abstracted from the AQMD "menu" of possible control options are detailed in the mitigation section of this report. With mitigation to keep equipment in good tune (low-NOx tuneups), average daily construction equipment emissions can be reduced, but not to less than significant levels during maximum grading activity days.

Construction activities also involve mobile source emissions from construction workers. The number of workers commuting to Chino on any given day 10-20 years from now is highly speculative. As an approximation of the addition of this emissions increment, approximately 400 worker trips were assumed to be driven in 2020. The inclusion of this small emissions increment does not change any conclusions regarding impact significance, seen as follows:

	Construction Activity Emissions (lb/day)				
Source	**ROG**	**NOx**	**CO**	**PM-10**	**SOx**
Construction Equipment	54.	768.	250.	82	92
Worker Commuting	1	1	8	3	<1
Grading Dust	-	-	-	3,220.	-
Total	**55.**	**769.**	**258.**	**3,305.**	**92**
SCAQMD Threshold	75.	100.	550.	150.	150.

Construction activity air quality impacts occur mainly in close proximity to individual disturbance areas. There may, however, be some "spill-over" into the surrounding community. That spill-over may be physical as vehicles drop or carry out dirt or silt which is washed into public streets. Passing non-project vehicles then pulverize the dirt to create off-site dust impacts. Spill-over may also occur via congestion effects. Construction may entail roadway encroachment, detours, lane closures and competition between construction vehicles (trucks and contractor employee commuting) and ambient traffic for available roadway capacity. Emissions controls require good housekeeping procedures and a construction traffic management plan that maintains such "spill-over" effects at a less-than-significant level.

Operational Impacts

By far, the greatest project-related air quality concern centers on vehicle trips. In 2010 (interim analysis year), there will be 71,500 vehicle trips per day. By 2020 there will be 192,500 daily trips generated. At buildout (year not specified), daily trip-making will increase to almost 245,000 trips per day. For typical western San Bernardino County trip lengths of 10 miles per trip, additional vehicle travel from project implementation will increase from about 766,000 vehicle miles traveled (VMT) at the 2010 interim analysis year, and at project buildout there will be about 2.4 million VMT per day.

Secondary impact potential will derive from energy consumption in power plants or on-site heaters, stoves, water heaters, etc. Although individual sources will generate emissions at well below significance threshold levels, combined emissions from all Subarea 2 development could be substantial. In the absence of specific development proposals, anticipating the magnitude of such emissions would be speculative. Except for more readily quantifiable energy consumption, small miscellaneous sources are typically not quantified on a single project basis. Because of electricity deregulation, there is no direct linkage between the locations of power generation and power consumption. This lack of a direct energy consumption/generation relationship precludes providing an accurate stationary source emissions estimate. Because the mobile source emissions from over two million VMT per day far exceed the SCAQMD's threshold of significance for all pollutants analyzed, the omission of power consumption emissions does not affect the project impact findings.

The California Air Resources Board has developed a land use and air pollution emissions computer model that allows one to reliably calculate the daily emissions increase associated with the proposed project. This model, called URBEMIS - 2001, was run for interim years of 2010 and 2020 and for a horizon buildout year of 2040. The project-related emissions burden, along with a comparison of SCAQMD recommended significance thresholds, are shown in Table 5.

The project clearly contributes to the regional inability to attain the ozone standard based on SCAQMD's recommended significance levels. Project-related emission levels for the three primary exhaust pollutants (CO, NOx and ROG) for the year 2020 exceed the SCAQMD threshold over 3000 percent for CO, and over 1000 percent for NOx and ROG.

As previously noted, the question of impact significance from growth-associated emissions should not be solely related to the size of a project or the magnitude of its emissions, but rather whether such growth has been properly anticipated in the air quality planning process. The growth assumptions for the most recent update of the 1994 Regional Comprehensive Plan (RCP) calls for an increase of over 1,000,000 residents in San Bernardino County between 2000-2025 housed in 365,000 new homes, along with an increase of 520,000 new jobs. The conversion of agricultural/ranch land to more transportation-intensive land use is therefore anticipated. Subarea 2 will provide a measurable fraction of the forecast job and housing growth. Project size alone and its associated emissions should therefore not be the sole basis for a finding of a significant impact because the growth-related impact from hundreds of small projects at sub-threshold levels is not different than from one large development such as Subarea 2.

Table 5

Project-Related Emissions Burden
(pounds/day)

	Analysis Year			
Pollutant	**2010**	**2020**	**Buildout**	**SCAQMD Threshold**
ROG	788.	1,358.	305.	55.
NOx	611.	1,021.	240.	55.
CO	6,618.	17,209.	4,016.	550.
PM-10	493.	1,357.	1,613.	150.
SOx	4.	11.	29.	150.

Source: URBEMIS-2001 (Ver. 6.2.2)

The basic conclusion from the above discussion is that regional air quality impact significance from general development can not be properly evaluated on any single project basis. Subarea 2 emissions do substantially exceed the SCAQMD's significance thresholds but the project contributes positively to jobs/housing (J/H) or vehicle miles traveled/vehicle trips (VMT/VT) goals. The regional air quality management plan has concluded that this planned level of growth can be accommodated while clean air standards will be met. Both a finding that the project's air quality impact is individually significant with overriding considerations or a finding that the impact is less than significant because the project is consistent with growth projections and with J/H or VMT/VT goals are equally defensible findings.

The regional jobs/housing ratio is 1.3 jobs per residence. Western San Bernardino is housing rich and jobs poor. Subarea 2 will create 40,000 jobs in approximately one million square feet of industrial, offiee, business park and retail space. The project includes slightly under 10,000 homes. The J/H ratio for Subarea 2 is 4.0 or higher (with airport, prison, schools, etc. included). This will measurably offset the existing jobs deficit, and is air quality positive. It could thus be argued that project implementation will have a lesser regional air quality impact than the no-project alternative. Because of the sheer size of this development and because of the very large percentage of emissions exceeding thresholds, it is recommended that a finding of a significant impact be made with the positive J/H contribution included in the statement of overriding considerations.

In addition to regional air quality concerns which focus on the photochemical conversion of air pollution emissions to more harmful forms, vehicular exhaust may impact air quality immediately adjacent to the roadway travel lanes. Such impacts occur during periods of maximum traffic congestion and minimum atmospheric dispersion.

In order to determine whether any possible traffic congestion may contribute to localized air pollution standard violations, a screening procedure based upon the California roadway dispersion model CALINE4 was run on a large number of roadways surrounding Subarea 2. Carbon monoxide (CO) was used as an indicator pollutant to determine "hot spot" potential. Rush hour traffic was combined with minimum dispersion conditions in order to create a theoretical worst-case impact estimate for existing conditions, the near-term future (2010), and for buildout conditions. Because Co emissions data is less reliable beyond the year 2020, emissions data from 2020 were assigned to buildout conditions even though buildout would occur somewhat later than 2020. The results of these calculations are shown in Table 6. Because the formation of possible CO "hot spots" requires heavy local congestion, only those intersections operating at a level of service (LOS) of "D" or worse were analyzed. Of the 63 intersections evaluated in the project traffic study, 49 intersections operate at LOS=D or worse during either the a.m. or p.m. peak traffic hour now or in the future.

Table 6

Micro-scale Air Quality Impact Analysis
(Hourly CO Concentrations (ppm) Above Background)

		Interim Year 2010			Buildout Year		
Intersection	**Exist. 2001**	**No. Proj.**	**With Proj.**	**With Proj. Improve.**	**No. Proj.**	**With Proj.**	**With Proj. Improve.**
A.M. Peak Traffic Hour							
Pipeline Avenue/Chino Hills Pkwy.	4.6	2.3	2.3	2.3	2.4	2.6	1.9
SR-71 Fwy SB Ramps/Pine Avenue	-	-	-	-	-	-	-
SR-71 Fwy NB Ramps/Pine Avenue	-	-	-	-	0.6	2.1	-
Central Avenue/Edison Avenue	-	2.0	2.0	2.2	1.8	1.9	1.9
Central Avenue/El Prado Road	-	1.9	2.0	-	1.9	2.3	-
El Prado Road/Kimball Avenue	-	-	0.8	-	1.1	1.7	-
El Prado Road/Pine Avenue	-	-	-	-	-	2.1	-
Mountain Avenue/SR-60 Fwy WB Ramps	4.8	2.4	2.4	2.4	1.8	1.8	-
Mountain Avenue/SR-60 Fwy EB Ramps	-	-	2.2	-	-	1.7	-
Mountain Avenue/Walnut Avenue	6.7	4.5	4.6	2.6	3.3	3.5	2.0
Mountain Avenue/Riverside Drive	-	-	2.1	-	-	1.7	1.6
Euclid Avenue/SR-60 Fwy WB Ramps	4.0	2.0	2.1	2.1	2.5	3.0	1.7
Euclid Avenue/SR-60 Fwy EB Ramps	-	-	-	-	-	3.2	-
Euclid Avenue/Walnut Avenue	-	-	-	-	-	-	-
Euclid Avenue/Riverside Drive						2.2	2.1
Euclid Avenue/Edison Street	-	-	2.1	-	1.5	4.0	2.3
Euclid Avenue/Merrill Avenue	-	-	-	-	-	3.6	2.1
Euclid Avenue/Kimball Avenue	-	-	2.0	-	-	4.7	-
Euclid Avenue/Bickmore Avenue	-	-	2.5	1.6	-	3.7	-
Euclid Avenue/Pine Avenue	-	-	2.1	2.1	-	5.1	3.0
Grove Avenue/SR-60 Fwy WB Ramps	-	2.1	2.2	2.2	1.6	3.3	-
Grove Avenue/SR-60 Fwy EB Ramps	-	-	1.9	-	1.3	1.7	-
Grove Avenue/Edison Street	-	2.0	2.1	-	2.0	2.5	1.4
Grove Avenue/Merrill Avenue							
Grove Avenue/Kimball Avenue	-	-	1.8	-	-	2.2	-
Grove Avenue/Bickmore Avenue	-	-	1.0	-	-	1.1	-
Grove Avenue/Pine Avenue	-	-	1.9	-	-	3.3	-
Walker Avenue/Edison Avenue	-	2.1	2.0	-	2.0	2.6	-
Hellman Avenue/Merrill Avenue	-	-	0.9	-	-	2.2	1.4
Hellman Avenue/Kimball Avenue	-	-	1.1	-	-	3.0	1.7
Hellman Avenue/Pine Avenue	-	1.5	3.0	-	1.4	3.2	2.0
Hellman Avenue/Chandler Street	-	-	1.6	-	0.4	2.4	-
Vineyard Avenue/SR-60 Fwy WB Ramps	-	-	-	-	-	1.5	-
Vineyard Avenue/SR-60 Fwy EB Ramps	-	-	-	-	-	-	-
Archibald Avenue/Riverside Drive	-	1.4	1.4	1.5	1.4	1.2	1.2
Archibald Avenue/Edison Avenue	-	1.0	1.3	1.2	1.2	2.9	1.6
Archibald Avenue/Merrill Avenue	-	-	1.6	-	1.2	1.8	-
Archibald Avenue/Cloverdale Road	-	-	-	-	-	2.2	1.3
Archibald Avenue/Pine Avenue	-	-	1.6	1.3	0.8	1.9	1.2
Archibald Avenue/River Road	-	2.2	2.7	1.7	1.6	2.9	1.8
River Road/Corydon Street	-	1.4	1.4	1.6	1.0	1.9	1.5
River Road/Second Street	2.6	1.5	-	1.7	1.2	1.6	1.7
Haven Avenue/SR-60 Fwy. EB Ramps	-	-	-	-	-	2.3	-

Table 6
(continued)

		Interim Year 2010			Buildout Year		
Intersection	**Exist. 2001**	**No. Proj.**	**With Proj.**	**With Proj. Improve.**	**No. Proj.**	**With Proj.**	**With Proj. Improve.**
A.M. Peak Traffic Hour							
Hamner Avenue/Cloverdale Road	-	1.1	1.8	1.3	1.1	2.8	-
Hamner Avenue/Schleisman Road	2.8	2.2	2.3	-	2.2	2.5	-
I-15 Fwy SB Ramps/Galena Street	-	-	0.7	-	-	1.1	-
I-15 Fwy SB Ramps/Limonite Avenue	-	-	1.5	-	-	1.3	1.2
I-15 Fwy SB Ramps/Second Street	-	-	1.8	-	2.4	2.1	-
I-15 Fwy NB Ramps/Second Street	2.6	2.4	2.5	1.4	1.9	2.1	1.2
P.M. Peak Traffic Hour							
Pipeline Avenue/Chino Hills Pkwy	6.8	5.4	5.5	3.3	3.7	3.9	2.3
SR-71 Fwy SB Ramps/Pine Avenue	-	-	-	-	-	-	1.1
SR-71 Fwy NB Ramps/Pine Avenue	-	-	-	-	-	2.2	-
Central Avenue/Edison Avenue	-	2.3	2.3	2.4	3.9	4.0	2.3
Central Avenue/El Prado Road	-	2.1	2.4	-	1.7	2.4	-
El Prado Road/Kimball Avenue	-	-	1.4	-	1.0	1.7	-
El Prado Road/Pine Avenue	-	-	1.2	-	-	2.0	-
Mountain Avenue/SR-60 Fwy WB Ramps	-	-	2.6	-	-	1.9	-
Mountain Avenue/SR-60 Fwy EB Ramps	6.5	2.2	4.3	2.6	3.3	3.6	2.1
Mountain Avenue/Walnut Avenue	-	-	-	2.2	-	-	1.8
Mountain Avenue/Riverside Drive	-	-	2.3	2.3	1.9	3.5	2.0
Euclid Avenue/SR-60 Fwy WB Ramps	-	-	2.3	2.3	1.5	3.4	2.0
Euclid Avenue/SR-60 Fwy EB Ramps	4.6	-	3.5	3.0	3.4	3.8	-
Euclid Avenue/Walnut Avenue	-	-	-	-	1.5	-	2.4
Euclid Avenue/Riverside Drive	-	-	2.5	2.5	1.7	2.1	2.6
Euclid Avenue/Edison Street	-	-	2.5	2.5	3.2	5.2	3.1
Euclid Avenue/Merrill Avenue	-	-	-	-	-	4.9	-
Euclid Avenue/Kimball Avenue	-	-	3.7	-	-	5.6	3.3
Euclid Avenue/Bickmore Avenue	-	-	3.1	-	-	5.2	3.1
Euclid Avenue/Pine Avenue	-	-	2.2	2.2	-	6.6	3.9
Grove Avenue/SR-60 Fwy WB Ramps	-	-	-	-	-	3.4	2.0
Grove Avenue/SR-60 Fwy EB Ramps	-	2.2	2.4	2.4	2.9	3.5	2.0
Grove Avenue/Edison Street	-	2.4	2.6	-	2.5	2.8	1.7
Grove Avenue/Merrill Avenue	-	-	1.3	-	-	0.6	-
Grove Avenue/Kimball Avenue	-	-	2.2	-	-	2.9	1.7
Grove Avenue/Bickmore Avenue	-	-	1.3	-	-	1.3	-
Grove Avenue/Pine Avenue	-	-	2.2	-	-	3.7	-
Walker Avenue/Edison Avenue	-	2.3	2.0	-	2.3	2.7	1.7
Hellman Avenue/Merrill Avenue	-	-	1.3	-	-	3.7	2.2
Hellman Avenue/Kimball Avenue	-	-	2.3	1.6	-	4.1	2.7
Hellman Avenue/Pine Avenue	-	1.2	3.7	2.2	1.1	4.4	2.6
Hellman Avenue/Chandler Street	-	-	2.2	-	-	3.4	-
Vineyard Avenue/SR-60 Fwy WB Ramps	-	-	-	-	-	1.4	1.4
Vineyard Avenue/SR-60 Fwy EB Ramps	-	2.0	2.0	2.0	2.9	3.0	1.8
Archibald Avenue/Riverside Drive	3.0	2.2	1.7	2.2	2.8	2.4	2.1
Archibald Avenue/Edison Avenue	-	-	1.7	1.7	1.8	3.7	2.1
Archibald Avenue/Merrill Avenue	-	1.0	2.2	-	1.3	2.3	-
Archibald Avenue/Cloverdale Road	-	-	-	-	-	2.7	1.9

Table 6
(continued)

		Interim Year 2010			Buildout Year		
Intersection	**Exist. 2001**	**No. Proj.**	**With Proj.**	**With Proj. Improve.**	**No. Proj.**	**With Proj.**	**With Proj. Improve.**
P.M. Peak Traffic Hour							
Archibald Avenue/Pine Avenue	-	-	2.1	1.6	0.7	2.7	1.6
Archibald Avenue/River Road	-	1.5	2.4	-	0.9	3.0	-
River Road/Corydon Street	-	1.3	1.8	1.7	1.0	3.0	1.8
River Road/Second Street	-	-	-	-	-	1.9	-
Haven Avenue/SR-60 Fwy. EB Ramps	-	-	-	-	4.4	4.6	2.7
Hamner Avenue/Cloverdale Road	-	1.3	2.4	1.4	2.4	2.6	1.6
Hamner Avenue/Schleisman Road	1.9	2.0	2.2	-	2.5	2.6	-
I-15 Fwy SB Ramps/Galena Street	-	-	-	-	3.0	3.4	-
I-15 Fwy SB Ramps/Limonite Avenue	-	-	1.3	-	-	1.3	-
I-15 Fwy SB Ramps/Second Street	-	4.0	4.1	-	3.2	3.7	-
I-15 Fwy NB Ramps/Second Street	-	1.3	1.3	1.3	1.5	1.9	-

- = LOS=C or better

Source: Screening procedure based upon CALINE4 model for any intersection with LOS=D or worse.

Localized one-hour CO contributions at 25 feet from the edge of the 49 area intersections with LOS=D or more were calculated using a Caltrans roadway pollution screening model. Such local contributions must be superimposed upon any regional background level relative to meeting the ambient air quality standard. If the worst case, one-hour local exposure were to occur at the same hour as the highest non-local CO concentration, the following localized impacts would be required to equal the allowable one-hour level of 20 ppm:

Year	**2002**	**2010**	**Beyond 2020**
Background (ppm)	6.4	5.1	5.1
Max. Allowable Local (ppm)	13.6	14.9	14.9
Total (1-Hr. Standard)	20.0	20.0	20.0

Source: SCAQMD CEQA Air Quality Handbook Update (scaqmd.ca.gov), 2002.

Maximum hourly CO levels of 6.8 ppm over background are currently found near the Pipeline and Chino Hills Parkway intersection. In 2010, the peak one-hour exposure of 3.0 ppm will occur at the Euclid Avenue/SR-60 EB Ramps off-ramp in Norco. For ultimate area buildout, cars will be so "clean" such that peak local exposures will be less than 4.0 ppm even at the most congested intersections.

Table 6 shows that the maximum project-related CO increment (with project minus no project) is less than 2.0 ppm at any intersection if recommended roadway improvements are constructed in concert with project development. This small increment will not cause the hourly standard to be exceeded. All "with-project" CO increments are dominated by the no-project area growth of traffic and congestion. Micro-scale air quality impacts are not considered significant.

Although Subarea 2 represents a major intensification of current agricultural/dairy uses, existing land uses themselves generate potentially significant levels of emissions. Development of Subarea 2, as proposed, would displace up to 31 existing dairies that create a variety of air pollution. Although agricultural activity emissions are more "natural" than those associated with vehicular auto exhaust, they are no less important in terms of local and regional air quality issues. Whereas some of the mobile source emissions from project (Subarea 2) residents and employees will be released outside the immediate Chino area, the existing dairy activity emissions are released almost exclusively within the local area.

The types of air pollutants generated by dairy operations include:

- PM-10 emissions from cattle movement on unpaved surfaces.
- Reactive organic gases, ammonia, hydrogen sulfide and methane generated by manure decomposition.
- Methane generated during digestion in multi-chamber cattle stomachs.
- Equipment exhaust used in dairy operations (tractors, etc.).

- On-road vehicle exhaust from dairy-related traffic (feed, milk, cattle and support trucks and dairy worker commuting).

Existing dairy-related emissions were calculated based upon reasonable assumptions and generally accepted emission factors. The most current state-of-the-art emissions data was generally used, where available. Many emission factors associated with the operation of a dairy are not accurately known. For those dairy activities with ambiguous or poorly defined emissions data, regulatory agency (SCAQMD or ARB) estimation data were generally used.

A recent extensive review of air pollution estimation from concentrated animal feeding operations (CAFO) was published by the U.S. Dept. of Agriculture (USDA "White Paper," June 19, 2000). This document was used, where feasible, to estimate air pollution emissions from 28,730 existing milking cattle (51,300 total herd size), and 940 acres of croplands used for nutrient disposal.

Emissions calculations include the following:

PM-10

Corrals:	4.0 lb/1000 head/day X 51,300 head	=	205. lb/day
Unpaved Roads:	10 mi/day X 4.54	=	45. lb/day
Cropland:	940 acres X 0.0044 lb/ac/day	=	4. lb/day
Windblown:	940 acres X 0.0039 lb/ac/day	=	4. lb/day
	TOTAL	=	258. lb/day

Methane

Digestion:	28,730 mature cows X 0.72 lb/animal/day	=	20,686 lb/day
	11,285 yearlings X 0.13 lb/animal/day	=	1,467 lb/day
	11,285 non-milkers X 0.37 lb/animal/day	=	4,175 lb/day
Manure:	51,300 animals X 0.38 lb/animal/day	=	19,454/lb/day
	TOTAL	=	45,822 lb/day
Ammonia:	51,300 animals X 0.0822 lb/animal/day	=	4,216 lb/day

On-Site Equip:	10,000 BHP-HR/day	CO	=	19 lb/day
		ROG	=	6 lb/day
		NOx	=	86 lb/day
		PM-10	=	3 lb/day
Off-Site Trucks:	5,000 mi/day	CO	=	123 lb/day
		ROG	=	32 lb/day
		NOx	=	137 lb/day
		PM-10	=	25 lb/day

Total daily air pollution emissions from existing Chino dairy activities are as follows:

	Emissions (lb/day)			
Source	**CO**	**ROG**	**NOx**	**PM-10**
Operational Dust	-	-	-	258.
Digestion & Manure	-	4,582[a]	-	-
Ammonia	-	-	-	4,216[b]
On-Site Equipment	19	6	86	3
Off-Site Trucks	123	32	137	25
Total	**142**	**4,260**	**223**	**4,502**

[a]Assume 10 percent of total organic gases (mainly methane) is reactive.
[b]Assume all ammonia gas is converted to microscopic particulates.

Replacement of dairy operations with more urbanized development will cause some emissions to increase, and some to decline, seen as follows:

	Emissions (lb/day)			
Source	**CO**	**ROG**	**NOx**	**PM-10**
Existing Dairies	142	4,620	223	4,502
Subarea 2 Traffic (2020)	17,209	1,358	1,021	1,357
Net Change	+17,067	-3,262	+798	-3,245
SCAQMD Threshold	550.	55.	55.	150.

Project implementation will thus create significant increases in CO and NOx levels due to traffic exhaust emissions. However, displacement of dairy operations will cause a significant reduction in reactive organic gases and in particulates. There is no basis for comparing pollutants as one type being better or worse than another. However, the basin is in attainment for CO, but not for

ozone (created by ROG + NOx + sunlight), or for particulates. The net effect of project implementation is that two non-attainment pollutants or precursors (ROG and PM-10) will be significantly reduced, while one non-attainment precursor (NOx) and one attainment pollutant (CO) will be increased significantly.

The ROG fraction of dairy-related gaseous emissions contains a number of complex organic molecules that are detectable in very low concentration. Organic nitrates and sulfides from manure, plus ammonia from urea, and hydrogen sulfide (rotten egg) gases give dairy operations a characteristic pungent odor. Odors would be dramatically reduced with the gradual displacement of dairy operations within Subarea 2 and other existing dairy operations in the Chino/Norco area.

Development of Subarea 2 may also lead to the relocation of the existing IEUA Co-Composting Facility east of the women's correctional facility. IEUA has begun a search for a replacement site, but various jurisdictions are concerned about possible odors, flies and other impacts from such a facility. With the decline of dairy operations, the loss of manure as a co-composting medium may also require the import of wood waste or agricultural crop residues to be mixed with sewage sludge as a compost material.

The Subarea 2 Specific Plan establishes a 300 foot overlay zone around the perimeter of the existing composting plant in case the facility is not relocated prior to nearby residential phasing. The adequacy of this distance buffer in minimizing possible odor nuisance is unknown because daytime winds from the west and nocturnal winds from the northeast do not currently blow toward any substantial number of people as a basis for judging odor from the current operation.

The current siting study for a replacement facility establishes 500 feet (0.1 mile) as the minimum desirable separation from residences, and does not consider the buffer distance to be completely optimal until it reaches two miles. The use of 300 feet as an overlay distance is clearly an indication of possible odor nuisance conflict if residential development occurs in close proximity to the IEUA Co-Composting Facility. The transition zone between an unacceptable versus acceptable buffer distance is not precisely defined, but occurs somewhere between the 0.1 mile probable odor impact and 2 mile probable no odor impact source-receiver separation. For purposes of analysis, residential development within 0.5 mile of the IEUA Co-Composting Facility is considered to likely have a potentially significant odor exposure.

MITIGATION

The fact that the proposed development may cumulatively contribute to continued regional air quality degradation places a special responsibility on project proponents and local regulatory agencies to develop effective impact mitigation. However, since almost all the project impacts derive from mobile source emissions beyond the control of project sponsors, there is only a limited potential for reducing any large percentage of project impacts. Some "standard" mitigation measures such as using dust control measures during construction mandated by the SCAQMD and using energy efficient design practices required by Title 24 of the California Code of Regulations will be adopted, but they fail to address the basic transportation air quality impact issues.

Effective emissions reduction of mobile source emissions requires a unified transportation system management (TSM) approach where a wide variety of transportation control measures (TCMs) are integrated into a comprehensive system of procedures and goals. An effective TSM program as a means for reducing vehicular traffic and its associated environmental effects (air pollution, noise, energy consumption, etc.) is difficult to achieve in practice because of the dependence on the low (mainly single) occupant vehicle as the primary means of transportation. The difficulties inherent in TCM implementation notwithstanding, San Bernardino County is committed to identify effective and feasible tactics to improve air quality for local government implementation. The components of any mobile source emissions reduction program should include:

1. Cooperation with the SCAQMD to implement regional strategies and tactics.

2. Development of park-and-ride facilities.

3. Encouragement of bicycle and pedestrian circulation alternatives.

4. Express transit access from the Chino area to other regional employment centroids.

5. Encouragement of local job-intensive uses to reduce the existing and growing jobs-housing imbalance that promotes long commutes in and out of the local area.

Given the existing pattern of land use in the region, the effectiveness of mitigation efforts cannot reduce project-related emissions to levels considered as less than significant by the SCAQMD. As noted, however, project consistency with regional growth projections and a highly favorable project contribution to existing jobs/housing imbalance provides an adequate basis for finding air quality impacts as individually and cumulatively less than significant.

Construction activity impact mitigation should also be incorporated into the development approval process. Specific measures should include:

1. Use of dust control during clearing, grading and construction. If fresh-water resources are too precious to waste on dust control, availability of brackish or reclaimed water sources should be investigated. Soil disturbance should be terminated when high winds (>25 mph) make dust control extremely difficult.

2. Minimization of construction interference with regional non-project traffic movement. Measures recommended for inclusion are:

   a. Scheduling receipt of construction materials to non-peak travel periods.
   b. Routing construction traffic through areas of least impact sensitivity.
   c. Limiting lane closures and detours to off-peak travel periods.
   d. Providing ride-share incentives for contractor and subcontractor personnel.

3. Reducing "spill-over" effects by preventing soil erosion, washing vehicles entering public roadways from dirt off-road project areas, and washing/sweeping project access to public roadways on an adequate schedule.

4. Requiring emissions control from on-site equipment through a routine mandatory program of low-emissions tune-ups.

5. Limiting grading/soil disturbance to no more than 15 acres at any one time.

The technology does not exist to build out 2450 acres in a semi-arid climate without creating some dust and equipment exhaust. These temporary impacts can, however, be maintained at less than significant levels if a commitment is made to pursue available impact mitigation as aggressively as possible.

Odor exposure for new developments downwind of on-going dairy operations may be temporarily adverse unless a large block of land develops simultaneously to reduce the patchwork quilt of individual new tracts surrounded by dairies that have not yet relocated. This represents an impact of the environment upon the project, and not of the project upon the ambient environment. Simultaneous development of larger sub-tracts in encouraged to minimize local odor nuisance potential.

The IEUA Co-Composting Facility is expected to relocate prior to adjacent residential development. Residential development within 0.5 mile of the facility property line may create an odor constraint to such development prior to facility relocation.

APPENDIX A

URBEMIS2001, Version 6.2.2

Computer Model Output

URBEMIS 2001 For Windows 6.2.2

File Name: <Not Saved>
Project Name: Chino TIA
Project Location: South Coast Air Basin (Los Angeles area)

SUMMARY REPORT
(Pounds/Day - Summer)

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	PM10	SO2
TOTALS(lbs/day,unmitigated)	17,075.93	40.33	75.97	7.70	0.00
TOTALS (lbs/day, mitigated)	17,075.93	40.33	75.97	7.70	0.00

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	PM10	SO2
TOTALS(lbs/day,unmitigated)	172.28	45.31	66.61	0.19	1.34
TOTALS (lbs/day, mitigated)	172.22	44.50	66.29	0.19	1.34

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	PM10	SO2
TOTALS (ppd, unmitigated)	787.50	611.03	8,617.91	493.02	4.10
TOTALS (ppd, mitigated)	787.50	611.03	8,617.91	493.02	4.10

URBEMIS 2001 For Windows 6.2.2

File Name: <Not Saved>
Project Name: Chino TIA
Project Location: South Coast Air Basin (Los Angeles area)

DETAIL REPORT
(Pounds/Day - Summer)

Total Land Use Area to be Developed (Estimated): 759 acres
Retail/Office/Institutional Square Footage: 2815800
Single Family Units: 3084 Multi-family Units: 250

CONSTRUCTION EMISSION ESTIMATES

Source	ROG	NOx	CO	PM10	SO2
Demolition	-	-	-	0.00	-
Site Grading	0.00	0.00	-	0.00	0.00
Const. Worker Trips	28.31	40.06	75.97	7.68	-
Stationary Equip	0.34	0.27	-	0.02	0.00
Mobile Equip. - Gas	0.00	0.00	-	0.00	0.00
Mobile Equip. - Diesel	0.00	0.00	-	0.00	0.00
Architectural Coatings	17,047.02	-	-	-	-
Asphalt Offgassing	0.26	-	-	-	-
TOTALS(lbs/day,unmitigated)	17,075.93	40.33	75.97	7.70	0.00

AREA SOURCE EMISSION ESTIMATES (Summer Pounds per Day, Unmitigated)

Source	ROG	NOx	CO	PM10	SO2
Natural Gas	3.44	44.76	18.94	0.09	-
Wood Stoves - No summer emissions					
Fireplaces - No summer emissions					
Landscaping	5.73	0.55	47.67	0.11	1.34
Consumer Prdcts	163.11	-	-	-	-
TOTALS(lbs/day,unmitigated)	172.28	45.31	66.61	0.19	1.34

UNMITIGATED OPERATIONAL EMISSIONS

	ROG	NOx	CO	PM10	SO2
Single family housing	350.41	268.05	3,815.81	219.23	1.83
Apartments low rise	19.21	13.31	189.41	10.88	0.09
Prison	39.45	34.22	495.15	28.35	0.24
Commercial/retail	127.43	98.95	1,329.05	72.09	0.60
Office park	22.49	18.55	263.34	15.18	0.13
General light industry	228.51	177.95	2,525.16	147.30	1.22
TOTAL EMISSIONS (lbs/day)	787.50	611.03	8,617.91	493.02	4.10

Includes correction for passby trips.
Does not include double counting adjustment for internal trips.

OPERATIONAL (Vehicle) EMISSION ESTIMATES

Analysis Year: 2010 Temperature (F): 90 Season: Summer

EMFAC Version: EMFAC2001 (10/2001)

Summary of Land Uses:

Unit Type	Trip Rate	Size	Total Trips
Single family housing	9.57 trips / dwelling units	3,084.00	29,513.88
Apartments low rise	5.86 trips / dwelling units	250.00	1,465.00
Prison	25.45 trips / acre	122.00	3,104.90
Commercial/retail	100.00 trips / 1000 sq. ft.	190.30	19,030.00
Office park	12.76 trips / 1000 sq. ft.	149.50	1,907.62
General light industry	6.96 trips / 1000 sq. ft.	2,415.00	16,808.40

Vehicle Assumptions:

Fleet Mix:

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	61.40	4.70	94.50	0.80
Light Truck < 3,750 lbs	9.30	11.00	88.90	0.10
Light Truck 3,751- 5,750	16.70	1.80	97.60	0.60
Med Truck 5,751- 8,500	7.20	12.50	79.20	8.30
Lite-Heavy 8,501-10,000	1.10	18.20	72.70	9.10
Lite-Heavy 10,001-14,000	0.30	0.00	66.70	33.30
Med-Heavy 14,001-33,000	1.10	9.10	27.30	63.60
Heavy-Heavy 33,001-60,000	0.70	0.00	0.00	100.00
Line Haul > 60,000 lbs	0.00	0.00	0.00	100.00
Urban Bus	0.00	0.00	0.00	100.00
Motorcycle	1.40	90.90	9.10	0.00
School Bus	0.10	0.00	0.00	100.00
Motor Home	0.70	0.00	100.00	0.00

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	11.5	4.9	6.0	10.3	5.5	5.5
Rural Trip Length (miles)	11.5	4.9	6.0	10.3	5.5	5.5
Trip Speeds (mph)	35.0	40.0	40.0	40.0	40.0	40.0
% of Trips - Residential	20.0	37.0	43.0			

% of Trips - Commercial (by land use)

Prison	90.0	5.0	5.0
Commercial/retail	2.0	1.0	97.0
Office park	48.0	24.0	28.0
General light industry	50.0	25.0	25.0

URBEMIS 2001 For Windows 6.2.2

File Name: <Not Saved>
Project Name: Chino TIA
Project Location: South Coast Air Basin (Los Angeles area)

SUMMARY REPORT
(Pounds/Day - Summer)

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	PM10	SO2
TOTALS(lbs/day,unmitigated)	49,032.77	116.45	220.33	22.30	0.00
TOTALS (lbs/day, mitigated)	49,032.77	116.45	220.33	22.30	0.00

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	PM10	SO2
TOTALS(lbs/day,unmitigated)	501.72	137.22	164.71	0.50	3.04
TOTALS (lbs/day, mitigated)	501.66	136.41	164.38	0.49	3.04

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	PM10	SO2
TOTALS (ppd, unmitigated)	305.33	240.04	4,016.37	1,613.27	28.60
TOTALS (ppd, mitigated)	305.33	240.04	4,016.37	1,613.27	28.60

URBEMIS 2001 For Windows 6.2.2

File Name: <Not Saved>
Project Name: Chino TIA
Project Location: South Coast Air Basin (Los Angeles area)

DETAIL REPORT
(Pounds/Day - Summer)

Total Land Use Area to be Developed (Estimated): 2006 acres
Retail/Office/Institutional Square Footage: 10266700
Single Family Units: 6971 Multi-family Units: 2808

CONSTRUCTION EMISSION ESTIMATES

Source	ROG	NOx	CO	PM10	SO2
Demolition	-	-	-	0.00	-
Site Grading	0.00	0.00	-	0.00	0.00
Const. Worker Trips	82.12	116.18	220.33	22.28	-
Stationary Equip	0.34	0.27	-	0.02	0.00
Mobile Equip. - Gas	0.00	0.00	-	0.00	0.00
Mobile Equip. - Diesel	0.00	0.00	-	0.00	0.00
Architectural Coatings	48,950.05	-	-	-	-
Asphalt Offgassing	0.26	-	-	-	-
TOTALS(lbs/day,unmitigated)	49,032.77	116.45	220.33	22.30	0.00

AREA SOURCE EMISSION ESTIMATES (Summer Pounds per Day, Unmitigated)

Source	ROG	NOx	CO	PM10	SO2
Natural Gas	10.37	135.98	57.16	0.26	-
Wood Stoves - No summer emissions					
Fireplaces - No summer emissions					
Landscaping	12.92	1.24	107.54	0.24	3.04
Consumer Prdcts	478.42	-	-	-	-
TOTALS(lbs/day,unmitigated)	501.72	137.22	164.71	0.50	3.04

UNMITIGATED OPERATIONAL EMISSIONS

	ROG	NOx	CO	PM10	SO2
Single family housing	91.39	71.76	1,217.94	492.44	8.23
Apartments low rise	24.59	17.70	300.41	121.46	2.03
Elementary school	3.40	1.01	16.70	6.60	0.13
Junior high school	3.27	1.25	20.68	8.24	0.16
Aviation	0.63	0.47	7.93	3.18	0.05
Agriculture	2.37	1.24	21.10	8.46	0.14
Open Space/Recreation	10.18	8.93	144.32	59.54	1.08
Hotel	3.68	2.68	43.30	17.46	0.35
Prison	4.61	4.05	70.38	28.17	0.41
Commercial/retail	55.88	45.55	720.21	276.99	7.11
Office park	28.83	24.27	412.74	166.50	2.61
General light industry	76.49	61.13	1,040.64	424.22	6.30
TOTAL EMISSIONS (lbs/day)	305.33	240.04	4,016.37	1,613.27	28.60

Includes correction for passby trips.
Does not include double counting adjustment for internal trips.

OPERATIONAL (Vehicle) EMISSION ESTIMATES

Analysis Year: 2040 Temperature (F): 90 Season: Summer

EMFAC Version: EMFAC2001 (10/2001)

Summary of Land Uses:

Unit Type	Trip Rate	Size	Total Trips
Single family housing	9.57 trips / dwelling units	6,971.00	66,712.47
Apartments low rise	5.86 trips / dwelling units	2,808.00	16,454.88
Elementary school	1.02 trips / students	1,200.00	1,224.00
Junior high school	1.45 trips / students	1,000.00	1,450.00
Aviation	6.00 trips / acre	69.20	415.20
Agriculture	2.00 trips / acre	552.50	1,105.00
Open Space/Recreation	20.00 trips / acre	482.65	9,653.00
Hotel	8.23 trips / rooms	400.00	3,292.00
Prison	25.45 trips / acre	122.00	3,104.90
Commercial/retail	100.00 trips / 1000 sq. ft.	736.00	73,600.00
Office park	12.76 trips / 1000 sq. ft.	1,650.00	21,054.00
General light industry	6.96 trips / 1000 sq. ft.	6,998.00	48,706.08

Vehicle Assumptions:

Fleet Mix:

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	61.40	4.70	94.50	0.80
Light Truck < 3,750 lbs	9.30	11.00	88.90	0.10
Light Truck 3,751- 5,750	16.70	1.80	97.60	0.60
Med Truck 5,751- 8,500	7.20	12.50	79.20	8.30
Lite-Heavy 8,501-10,000	1.10	18.20	72.70	9.10
Lite-Heavy 10,001-14,000	0.30	0.00	66.70	33.30
Med-Heavy 14,001-33,000	1.10	9.10	27.30	63.60
Heavy-Heavy 33,001-60,000	0.70	0.00	0.00	100.00
Line Haul > 60,000 lbs	0.00	0.00	0.00	100.00
Urban Bus	0.00	0.00	0.00	100.00

Motorcycle	1.40	90.90	9.10	0.00
School Bus	0.10	0.00	0.00	100.00
Motor Home	0.70	0.00	100.00	0.00

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	11.5	4.9	6.0	10.3	5.5	5.5
Rural Trip Length (miles)	11.5	4.9	6.0	10.3	5.5	5.5
Trip Speeds (mph)	35.0	40.0	40.0	40.0	40.0	40.0
% of Trips - Residential	20.0	37.0	43.0			

% of Trips - Commercial (by land use)

Elementary school	20.0	10.0	70.0
Junior high school	20.0	10.0	70.0
Aviation	50.0	25.0	25.0
Agriculture	50.0	25.0	25.0
Open Space/Recreation	2.0	1.0	97.0
Hotel	5.0	2.5	92.5
Prison	90.0	5.0	5.0
Commercial/retail	2.0	1.0	97.0
Office park	48.0	24.0	28.0
General light industry	50.0	25.0	25.0

URBEMIS 2001 For Windows 6.2.2

File Name: <Not Saved>
Project Name: Chino TIA
Project Location: South Coast Air Basin (Los Angeles area)

SUMMARY REPORT
(Pounds/Day - Summer)

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	PM10	SO2
TOTALS(lbs/day,unmitigated)	45,972.02	108.20	204.70	20.72	0.00
TOTALS (lbs/day, mitigated)	45,972.02	108.20	204.70	20.72	0.00

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	PM10	SO2
TOTALS(lbs/day,unmitigated)	501.19	129.98	161.81	0.48	3.04
TOTALS (lbs/day, mitigated)	501.13	129.17	161.49	0.48	3.04

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	PM10	SO2
TOTALS (ppd, unmitigated)	1,358.31	1,021.32	17,209.20	1,356.97	11.27
TOTALS (ppd, mitigated)	1,358.31	1,021.32	17,209.20	1,356.97	11.27

URBEMIS 2001 For Windows 6.2.2

File Name: <Not Saved>
Project Name: Chino TIA
Project Location: South Coast Air Basin (Los Angeles area)

DETAIL REPORT
(Pounds/Day - Summer)

Total Land Use Area to be Developed (Estimated): 1919 acres
Retail/Office/Institutional Square Footage: 8367690
Single Family Units: 6971 Multi-family Units: 2808

CONSTRUCTION EMISSION ESTIMATES

Source	ROG	NOx	CO	PM10	SO2
Demolition	-	-	-	0.00	-
Site Grading	0.00	0.00	-	0.00	0.00
Const. Worker Trips	76.30	107.93	204.70	20.70	-
Stationary Equip	0.34	0.27	-	0.02	0.00
Mobile Equip. - Gas	0.00	0.00	-	0.00	0.00
Mobile Equip. - Diesel	0.00	0.00	-	0.00	0.00
Architectural Coatings	45,895.12	-	-	-	-
Asphalt Offgassing	0.26	-	-	-	-
TOTALS(lbs/day,unmitigated)	45,972.02	108.20	204.70	20.72	0.00

AREA SOURCE EMISSION ESTIMATES (Summer Pounds per Day, Unmitigated)

Source	ROG	NOx	CO	PM10	SO2
Natural Gas	9.85	128.74	54.27	0.24	-
Wood Stoves - No summer emissions					
Fireplaces - No summer emissions					
Landscaping	12.92	1.24	107.54	0.24	3.04
Consumer Prdcts	478.42	-	-	-	-
TOTALS(lbs/day,unmitigated)	501.19	129.98	161.81	0.48	3.04

UNMITIGATED OPERATIONAL EMISSIONS

	ROG	NOx	CO	PM10	SO2
Single family housing	485.29	368.80	6,257.12	495.15	4.12
Apartments low rise	133.66	90.97	1,543.34	122.13	1.02
Elementary school	21.19	5.17	85.85	6.64	0.06
Junior high school	19.88	6.41	106.40	8.28	0.07
Aviation	3.40	2.40	40.71	3.20	0.03
Agriculture	13.79	6.37	108.34	8.50	0.07
Open Space/Recreation	45.23	38.74	632.85	50.74	0.42
Hotel	10.03	6.84	111.74	8.78	0.07
Prison	23.57	20.92	360.96	28.33	0.24
Commercial/retail	138.78	109.57	1,768.33	133.03	1.11
Office park	115.69	95.98	1,628.11	128.50	1.07
General light industry	347.78	269.14	4,565.46	363.70	3.01
TOTAL EMISSIONS (lbs/day)	1,358.31	1,021.32	17,209.20	1,356.97	11.27

Includes correction for passby trips.
Does not include double counting adjustment for internal trips.

OPERATIONAL (Vehicle) EMISSION ESTIMATES

Analysis Year: 2020 Temperature (F): 90 Season: Summer

EMFAC Version: EMFAC2001 (10/2001)

Summary of Land Uses:

Unit Type	Trip Rate	Size	Total Trips
Single family housing	9.57 trips / dwelling units	6,971.00	66,712.47
Apartments low rise	5.86 trips / dwelling units	2,808.00	16,454.88
Elementary school	1.02 trips / students	1,200.00	1,224.00
Junior high school	1.45 trips / students	1,000.00	1,450.00
Aviation	6.00 trips / acre	69.20	415.20
Agriculture	2.00 trips / acre	552.50	1,105.00
Open Space/Recreation	20.00 trips / acre	409.00	8,180.00
Hotel	8.23 trips / rooms	200.00	1,646.00
Prison	25.45 trips / acre	122.00	3,104.90
Commercial/retail	100.00 trips / 1000 sq. ft.	351.49	35,149.00
Office park	12.76 trips / 1000 sq. ft.	1,266.50	16,160.54
General light industry	6.96 trips / 1000 sq. ft.	5,967.00	41,530.32

Vehicle Assumptions:

Fleet Mix:

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	61.40	4.70	94.50	0.80
Light Truck < 3,750 lbs	9.30	11.00	88.90	0.10
Light Truck 3,751- 5,750	16.70	1.80	97.60	0.60
Med Truck 5,751- 8,500	7.20	12.50	79.20	8.30
Lite-Heavy 8,501-10,000	1.10	18.20	72.70	9.10
Lite-Heavy 10,001-14,000	0.30	0.00	66.70	33.30
Med-Heavy 14,001-33,000	1.10	9.10	27.30	63.60
Heavy-Heavy 33,001-60,000	0.70	0.00	0.00	100.00
Line Haul > 60,000 lbs	0.00	0.00	0.00	100.00
Urban Bus	0.00	0.00	0.00	100.00

APPENDIX F
CULTURAL RESOURCES

CULTURAL RESOURCES INVENTORY FOR THE CITY OF CHINO SUBAREA 2 (CHINO VALLEY DAIRY PRESERVE), SAN BERNARDINO COUNTY

by:

Laurie S. White
Robert S. White
David M. Van Horn

Archaeological Associates
P.O. Box 180
Sun City, CA 92586

(909) 244-1783
(FAX) 244-0084

April 14, 2000

for:

Michael Brandman Associates
15901 Red Hill Avenue, Suite 200
Tustin, CA 92780

Study Area USGS 7.5' Topographic Quadrangles:

Prado Basin
Corona North

I. INTRODUCTION

This cultural resources inventory of the City of Chino Subarea 2 (Chino Valley Dairy Preserve) was compiled by Archaeological Associates at the request of Michael Brandman Associates. The preserve area comprises approximately 5,200 acres within the City of Chino's Sphere of Influence. The purpose of the study was to gather available information regarding previously recorded prehistoric and historic resources located within the boundaries of the planning area into a single document. Other than a windshield survey, no fieldwork was conducted in conjunction with the study.

The value of this document for general planning purposes lies in the fact that it identifies those areas where known resources exist. However, it is to be emphasized that this study will not serve as an appropriate substitute for the individual technical studies which are normally components to project-specific EIR's.

II. STUDY AREA LOCATION AND ENVIRONMENT

Regionally, the Chino Valley Dairy Preserve lies just inside the San Bernardino County line north of the Prado Flood Control Basin. More specifically, the 5,200 acre preserve area
lies southeast of the City of Chino and northeast of the City of Chino Hills in unincorporated San Bernardino County. Legally, the planning area is situated within portions of Townships 2 and 3 South, Range 7 West, San Bernardino Base Meridian as shown on portions of the USGS Prado Dam and Corona North 7.5' Topographic Quadrangles.

Subarea 2 is irregular in shape with the majority of the western boundary adjoining Euclid Avenue/State Highway 83. The northern boundary is delineated by portions of Kimball and Merrill Avenues. The entire eastern boundary abuts Hellman and Carpenter Avenues which parallel the Riverside/San Bernardino County line. The southern project limits abut the San Bernardino/Riverside County line. Pine Avenue bisects the study area from southwest to northeast.

The study area includes a large portion (approximately 1500 acres) of Prado Regional Park. Some of the recreational activities offered by the park include fishing and

boating on Prado Park Lake, camping, horseback riding, and a dog training facility. Outside the park to the northeast lies The California Institution for Women. The remainder of the study area comprises dairy and farmland.

Topographically, Subarea 2 lies east of the Chino Hills at the southern end of the Chino Plain. Major watercourses through the region comprise sections of Chino and Mill Creeks. These tributaries to the Santa Ana River flow to the southeast and southwest respectively bordering the southern tip of the Chino Plain. Immediately south of the study area, the plain terminates at the confluence of Chino and Mill Creeks with the Santa Ana River. The taking line or future high water line for the Prado Flood Control Basin comprises all land falling below the 566' MSL elevation. This area encompasses at least one-third of the southern portion of Subarea 2.

The native plant zone of the Chino Plain is characterized as Coastal Sage Scrub. However, since the 1800s, this plant community has been greatly impacted by historic activity (i.e. dry farming and cattle grazing). Today, dairies occupy much of the plain bordering the Prado Basin. Wetland/Willow Woodland habitat comprising willow, cottonwoods and sycamores can be found in the lower elevations of the Basin. Increasingly, these trees are being replaced by non-native eucalyptus trees.

II. CULTURAL SETTING

The Prado Basin has been a focal point for human activity during prehistoric times and as well as in the more recent past. The availability of a permanent water source supplied by the Santa Ana River and its tributaries has resulted in the presence of numerous prehistoric and historic archaeological sites in the Basin. Sites range in age from 8,000-5,000 years B.P. (Milling Stone Horizon) to the mid 1900s (American Period). For a comprehensive discussion of the prehistory of the region, the reader is referred to Langenwalter and Brock (1985); Goldberg and Arnold (1988); and Greenwood and Foster (1990).

Creation of the Prado Flood Control Basin during the late 1930's and early 40's eventually led the U.S. Army Corps of Engineers to sponsor a number of cultural resource studies focusing on both the prehistory and history of the basin. Over the last three

decades, a surprisingly large body of data has been gathered, particularly with regard to pre-WWII small farms and dairies. That information is briefly summarized here.

Much of what follows is based on a single work, *The Dairy Industry of the Prado Basin*, by Mark T. Swanson and Roger G. Hatheway (1989). A second key study, heavily drawn upon by Swanson and Hatheway, is Paul Langenwalter and James Brock's *Phase II Archaeological Studies of Prado Basin and the Lower Santa Ana River* (1985). The reader is referred to these studies for other references and additional information on the farms and dairy operations within the study area.

A. Ranchero Range Land (Pre-1850)

Although agricultural enterprises, including raising cattle, were established in southern California during the Mission era, these activities were concentrated in the vicinities of the missions at San Gabriel and San Juan Capistrano and it is doubtful that they had any effect on the Chino/Prado Basins. However, in 1810 José Antonio Yorba, a Cataloñian volunteer who had come to California with Portolá in 1769, acquired possession of the Rancho Santiago de Santa Ana west of Santa Ana Canyon. Antonio's son, the famed Don Bernardo Yorba, received the Mexican grant to Rancho Cañon de Santa Ana in 1834. Don Bernardo immediately established a fully self-sufficient ranching operation at the western end of the canyon near modern day Yorba Linda. Although not technically Yorba land, it was probably Don Bernardo who was the first to range cattle in the Chino Basin.

The earliest ranchero to acquire formal possession of a portion of the Chino Basin was Juan Lorenzo Bruno Bandini who received El Rincon ("the Corner) grant in 1839. His new land included the entire study area south of Pine Avenue. Bandini, who had acquired the Jurupa grant to the northeast the year before, preferred El Rincon and proceeded to build a two-story adobe near the confluence of Chino and Mill Creeks, just south of the study area. The adobe, which was said to be the largest ranch house in the entire valley, was completed in 1841.

Rural life proved not to suit Bandini who moved to Los Angeles, selling El Rincon to David W. Alexander in 1843 (Johnson and Buchel 1983:68). Only a year later, the

rancho was said to range some 4,000 head of cattle. However, the land passed quickly through a number of owners until 1849 when it was finally purchased by Don Bernardo Yorba who is believed to have been ranging his cattle on El Rincon for many years (Swanson and Hatheway 1989:6). In 1850, Don Bernardo gave title to Bandini's adobe to one of his many children, a daughter who had just married Leonardo Cota. Thus, the oldest structure in the Chino Basin came to be known as the "Bandini-Cota Adobe."

In the meantime, the Rancho Santa Ana del Chino, which included the study area north of Pine Avenue, had been granted to Antonio María Lugo, owner of the Rancho San Bernardino, back in 1841. Thus, the entire study area became the property of rancheros during the 1840's and it seems safe to assume that it was ranged by thousands of cattle. Although the Bandini-Cota adobe was the only well-established residence, it was soon followed when Raymundo Yorba, a son of Don Bernardo, built a new adobe just west of the study area at the base of the Chino Hills (1850-1853; *ibid.*). Purchased by Fenton Slaughter many years later, Raymundo's home became known a the "Yorba-Slaughter" adobe.

B. Americanization (1850-1886)

The decade of the 1850's saw the beginning of the end of the Hispanic rancho system. The Mexican War, the Gold Rush, California Statehood, and, most important locally, the purchase of Rancho San Bernardino by the Mormons (1851) all combined to create a flood of Anglos into southern California. At first, most of the new settlers moved into Rancho San Bernardino territory, leaving the study area open for grazing by Yorba and Cota cattle.

Although cattle were still the dominant grazing animal during the 1850's, sheep were becoming more popular. Disastrous flooding occurred in 1862, seriously damaging the great cattle herds. The floods were followed by severe drought between 1862 and 1864, a condition which virtually wiped out the cattle. By the late 1860's sheep herding had become the dominant ranch activity in study area. It was also during this period that Anglo-Americans, spurred by the settlement at San Bernardino, finally began to filter into the Basin.

The first was Isham Fuqua, who, before 1860, had acquired 30 acres of land east of the Cota place, just south of the point were Mill Creek crosses the southern boundary of the study area. Whereas the Hispanic rancheros had always raised beef cattle exclusively, Fuqua is recorded as having 16 dairy cows (traditionally called "milch" cows; *ibid.* 10) which yielded 100 lb. of butter in 1859-60. Fuqua was a true diversified farmer in that he also had a horse, three mules, nine beef cattle, and five pigs. In addition, he grew wheat, corn and barley.

The first farmer within our study area appears to have been George Sparks who acquired property on the west side of Mill Creek south of Chino-Corona Road. The 1860 census shows that Sparks owned 30 milk cows but we have no other direct information regarding his operation. In all probability, it closely resembled Fuqua's.

The new Anglo-American diversified farming tradition entering the Basin was founded upon two factors. First, the Americans had a dairy tradition whereas the Hispanic rancheros did not. The old demand for olive oil was replaced by demand for butter, and, to a lesser extent, cheese. The second major contributing factor was that the farmers had control of relatively small amounts of land which created the need for a more efficient agricultural system. Significant numbers of milk cows could be raised on small parcels, fed on grain raised on small parcels, and produce butter which could augment the farm's cash income. In addition, the skim milk which remained after the butterfat and curd (for cheese) had been removed, was fed to the pigs (people didn't drink much milk in those days and they didn't drink any skim milk whatsoever).

Yet sheep grazing remained by far the most important agricultural activity in the Basin throughout the 1860's. The California 1870 census shows that Raymundo Yorba, a traditional ranchero, owned 2000 sheep producing 9000 lb. of wool. Even so, the effects of nascent farming are evident from other facts relating to Raymundo's operation. He grew 20 tons of hay, probably to sell to neighboring farmers and had, himself, acquired one milk cow and one pig.

Another early farmer in the area was Samuel Pine, who operated on 230 acres of public land a half mile north of the Yorba-Slaughter adobe. Pine may have been the first to operate anything resembling a full fledged dairy. By 1871, he owned a herd of 50 milk

cows producing a phenomenal (for the time) 3,000 lb. of butter, making Pine the largest butter producer in San Bernardino County.

During the late 1860's and early 1870's, acquisition of land in the El Rincon portion of the study area was complicated by disagreement among the heirs of Isaac Williams, who had come into possession of Rancho Santiago del Chino. One heiress, Francisca A. Carlisle, believed that she also owned El Rincon. One local resident, Jesse Mayhew, who had apparently squatted on land on the west side of Mill Creek as early as 1866, acquired 2200 acres at that location from Carlisle. By 1875, Mayhew was operating the first water-powered grist mill in the area.

Other Mormons from San Bernardino either purchased land from Carlisle or simply "squatted". However, in 1879, the El Rincon grant litigation finally terminated with the decision that the rancho belonged to the Cotas. Confirmed possession by the Cotas led to an exodus of the squatters, some of whom moved west across Chino Creek to the public land around the Yorba-Slaughter adobe, now owned by Fenton Slaughter who owned one of the area's largest sheep herds. There, they found a small community known as "Rincon" (not to be confused with the Rincon/Prado townsite to the south). Aside from the Yorba-Slaughter adobe, the town consisted of another residential adobe, a house, and Goldsmith's store.

From the village of Rincon, settlement began to expand once again, both along Pomona-Rincon Road and Pine Avenue. The former crossed public land and the latter formed the northern boundary of the contentious El Rincon Rancho. The names of some of these families became prominent in local history. They include McCarty, Mayhew, Pine, Slaughter, Goldsmith, Richenberger, Cavanaugh, Scully, Lester, and Fuqua among others.

C. Family Farm & Early Dairy Operations (1886-1929)

In March of 1886, the California Southern Railroad, a subsidiary of the Santa Fe, completed tracks through Santa Ana Canyon (Bynon & Son 1894:24). This event spurred development of the town of Prado/Rincon along the tracks south of the study area. Back in 1882, Raymundo Yorba had sold the townsite to developer J. Newberry and associates (Greenwood *et al.* 1987:88). The presence of the railroad combined with the real estate

boom of 1887 contributed to Newberry's selling of $80,000 worth of land in only a few days.

Almost the entire town was built in that year. It included a railroad station, post office, retail stores, and a school. Prado also had a newspaper and a hotel (the only two-story structure; Greenwood *et al.* 1990:75). However, the economic base of the new town was entirely agricultural and, with the passing of the land boom, its importance was quickly eclipsed by Corona. The Prado/Rincon region was destined to remain primarily agricultural in character.

By the 1890's only about 10 structures stood in Prado but there were another 50 standing in the Rincon Prado area. Many of these buildings were concentrated along the Pomona-Rincon Road and along Pine Avenue at the north end of El Rincon within our study area. In the southeaster sector, Cornelius McCarty established a ranch in 1880. This ranch expanded slowly during the ensuing decade but was to become one of the first Holstein dairy farms in the region by the turn-of-the-century. In this sense, the development of the McCarty Ranch was symbolic of the trend toward family farming in general, and the dairy industry in particular.

During the 1880's, the small family farmers typically had only a few milk cows and, since there were no creameries or cheese factories in the area, concentrated chiefly on production of butter for home consumption. This changed in 1889 when Daniel Durkee purchased some Cota bottomland and established a creamery, complete with steam-powered cream separator (Langenwalter and Brock 1985-8.61-62). By 1892, Durkee's "Rincon Creamery" was the largest such operation in San Bernardino County and many of the local farmers were traveling there daily to separate their milk, selling the cream to Durkee for butter manufacture and returning to their farm with the skim milk which was fed to the pigs. Durkee sold his ranch to the Anaheim Union and Santa Ana Valley Irrigation companies around 1900 but by then, the precedent had been set.

About the same time as Durkee's creamery closed, Louis Richenberger, whose ranch was at the southwestern corner of our study area, opened the area's first cheese factory. Local farmers could then sell their milk to Richenberger's "Rincon Cheese Factory" located in the village of Rincon (Swanson and Hatheway 1989:48). Specializing

in "Rincon Cheese," the factory's output is said to have averaged 200 lb. per day. In 1904, the local farmer's market for milk expanded further when E.R. Alter purchased the Yount property in Rincon and set up the "Greenfield Ranch and Rincon Cheese Factory" which also had a creamery.

Given this auspicious beginning, one would think that the future dairy industry of the Basin would have focused on cheese but this was not the case. In fact, cheese dominated for only about a decade. Several factors seem to have been behind the change in focus. One was the development of silos to store animal feed, thereby enabling smaller properties to house more cows. Another was the introduction of small, inexpensive separators which enabled farmers to process milk in their own farm creameries. Finally, government regulation of dairy industry standards had begun, thereby elevating the public's confidence. A market for whole milk was beginning to develop.

Thus, the family farm in El Rincon flourished during the first quarter of the 20th century. Milk houses and milking barns became commonplace as the focus upon dairying grew. Milk production in San Bernardino and Riverside Counties became millions of gallons per year and the effects of demand from the "Los Angeles milkshed" began to be felt. The new two-story frame house built on the McCarty Ranch in 1907 serves to illustrate the prosperity of local farms during this period.

During the 1920's, Jesse McCarty's ranch was becoming dairy-specialized. The ranch boasted 200 Holsteins and six milkers in addition to a milk house and milking barn set on concrete foundations, an indication that the facility was meeting current sanitation standards. Similarly prosperous ranches in or near the study area during this period included Flowers/Mayhew, Edward Pine, and Richenberger.

It was during the 20's that corporate dairy operations first moved into the area. The Excelsior Creamery Company, based in Santa Ana, purchased several hundred acres of bottom land at the bottom of the Prado Basin next to the Santa Ana River. There, Excelsior grew corn and alfalfa which fed its 200 cows. The presence of this corporate establishment forecast the rapid changes which were about to take place in the regional dairy industry. By 1930, the growing network of paved roads and accompanying changes in transportation, dairy and refrigeration equipment, and most important of all, the increase

in public demand for whole milk, combined to bring the Rincon into the greater Los Angeles milkshed.

D. Decline of the Diversified Family Farm (1929-1940)

During the 1930's several factors worked to make the small family farm less competitive. The first problem was growing government regulation, the requirements of which were becoming increasingly expensive to meet. Second, the stock market crash of 1929 led to a dramatic fall in dairy prices during the early years of the decade. Local cheese factories collapsed and some farmers went so far as to withhold milk from the market in a desperate attempt to stabilize prices. By 1935, the Milk Stabilization Act of California helped the financial situation but the cost of new licensing and inspection was becoming prohibitive for the small dairyman.

The most successful dairies during the 30's were corporate operations, the closest of which was Excelsior. Although some of the farms within the study area continued to operate (e.g., McCarty), many of the smaller farmers moved out, renting their property to others with the predictable decline in maintenance. This problem was compounded by the fact that it became well-known that the U.S. Army Corps of Engineers planned to create a flood control catchment in the Prado/Rincon basin. No habitable structures would be permitted below the elevation of the "taking line."

In 1938, a flood of the Santa Ana River caused millions of dollars in damage to residents and businesses in Orange County. This provided the government with the necessary resolve to pass the Flood Control Act of 1938 and the Army Corps began assessing the properties below the taking line. During the early 1940's, many of the dairies in the Prado Basin were dismantled as a result.

E. Post-World War II

While hard times had fallen upon the small farms in the Prado/Chino Basins, dairies operated by Dutch immigrants in the milkshed closer to Los Angeles continued to prosper. These dairies, which were concentrated in the Artesia-Hynes area, soon came under pressure from urban expansion of the city. Lacking pasturage, they became "dry-lot"

operations whereby alfalfa was brought in from as far away as the Imperial and San Joaquin Valleys. But during the 1950's, urban growth became too great and an attempt at creating "agricultural cities" to protect the dairies failed. In 1958, the first of the Los Angeles County dairies was moved. By 1966, there were so few dairies remaining that the County abandoned agricultural zoning in the area.

Many of the Los Angeles dairies moved to the Chino Basin which was the closest agricultural land remaining. This land, including the northern portion of our study area, became the new heart of the Los Angeles milkshed. In order to insure this use, the County of San Bernardino zoned the entire area for agricultural use, designating it the "Chino Agricultural Preserve." Much of the northern portion of our study area is included in this zone which is occupied by dairies with strong large dairy corporation connections.

In 1952, the central study area, after a century and a half of agricultural land-use, became home to an entirely new use. In that year, the California Institution for Women (CIW) first opened at 16656 Chino-Corona Road. Designed to house about 900 but currently housing 1500, CIW was California's only prison for female felons up until 1987. Originally called *Frontera*, a feminine derivative of the word "frontier," its campus-like layout was designed in keeping with the 1950's "progressive" notion of rehabilitation.

III. CULTURAL RESOURCES RECORDS SEARCH

A records search of Subarea 2 (ChinoValley Dairy Preserve) was conducted in person at the Archaeological Information Center, San Bernardino County Museum by Robert S. White and Laurie S. White with the assistance of Ms. Robin Laska, Assistant Center Coordinator. The search entailed a review of all previously recorded prehistoric and historic archaeological sites within the planning area. The roles of the National Register of Historic Places, California Historic Landmarks, California Points of Historical Interest, and the Historic Properties Directory (Office of Historic Preservation) were also reviewed for the purpose of identifying any heritage properties.

A. Previously Recorded Archaeological Sites

A total of fifty-three archaeological sites (8 prehistoric, 45 historic) have been recorded within Subarea 2. With the exception of only a few historic sites, all prehistoric and historic resources are situated below the taking line or future high water line for the Prado Flood Control Basin (566' MSL elevation). Fourteen of the sites have permanent trinomials (identification number) prefixed with "SBR-" (San Bernardino County). However, the vast majority of sites are regarded as "Pending Sites". Pending sites are those sites whose existence and location have yet to be confirmed. Generally, their presence is based upon early maps, historic references and hearsay. These sites begin with the letter "P". More specifically, the "P" followed by a number designates sites that fall within a single USGS 7.5' Topographic Quadrangle.

The prehistoric sites comprise: habitation site (1), bedrock milling station (1), artifact scatters (1), lithic scatters (1), groundstone scatters (2), lithic and groundstone scatter (2). With the exception of one site (SBR-5274), all prehistoric sites are located adjacent to permanent watercourses within the southern half of the study area.

The forty-five historic resources largely consist of agricultural property dating from the mid to late 19th century. These sites comprise ranches (12), residences (10) and farms (7). Other resource categories include trash dumps, homesteads, barns, grist mill, schools, irrigation ditches, dairies, cemeteries, and service stations. Most of the historic sites are also concentrated near reliable water sources. Each of the recorded sites is listed and characterized in the following table.

Table 1. Cultural Resources situated within Subarea 2 (Chino Valley Dairy Preserve)

Site Number	Site Description
SBR-1543	Habitation site (The Pate Mesa Site)
SBR-1571/H	Historic trash dump. Prehistoric groundstone feature comprising a foundation remnant of the Pate Ranch
SBR-2259	Mano & bowl fragment (location now covered by park headquarters)
SBR-2260	Bedrock milling station
SBR-2845	Light lithic and groundstone scatter (Bandini Mountain site)

SBR-5241	projectile points and lithics reported by informant (site believed to be destroyed)
SBR-5243	Large light artifact scatter (Corral Site)
SBR-5244	Groundstone scatter reported by informant (site destroyed during construction of Vander Laan Dairy)
SBR-5274	Mortars, pestles, and projectile points reported by informant. Site destroyed by pumping station (Altadena Dairy site)
SBR-5573H	Britski Ranch site (1933)
SBR-7136H	Hartshorn Farm site (1890's)
SBR-7676H	Ross Ranch site (1899)
SBR-7679H	Olive grove at Le Gaye Ranch (1883)
SBR-8091H	Lester Homestead (1870's)
P871-1H	McCarty Ranch (1878)
P871-2H	Payne Hog Farm (1878)
P871-3H	Farm site (1899)
P871-4H	Kirby Farm site (1899)
P871-5H	The Songer Place (1899)
P871-6H	Ben Fugua Ranch site (1880's)
P871-8H	Remington Ranch (1900's)
P871-9H	Ranch House site (1926)
P871-10H	House site (1926)
P871-11H	Barn site (1926)
P871-12H	Chino Valley Grist Mill (1875)
P871-13H	The Brown Place (1899)
P871-14H	Arborn Ranch and Raab Farm (1857)
P871-15H	Willow Springs Ranch (1860's)
P871-16H	Mayhew House (1866)
P871-17H	Valley School (1887)
P871-18H	Eva J. Hall farm (1890's)
P871-19H	Spring Valley/Mayhew/Fugua Ditch (1875)
P871-20H	Cline Homestead (1870's)
P871-21H	Aguada Guapas House (1850's)
P871-22H	Mary Race Farm/Dairy (1900's)
P872-9H	unknown
P872-10H	Pioneer School/Cemetery (1887)
P872-11H	Cavanagh House site (1890's)
P872-12H	Richenberger Ranch (1898)
P872-22H	Cavanagh Ranch (1890's)
P872-24H	Moreno Ranch (1890's)
P872-25H	Aramousby Farm site (1900)
P872-27H	Stockwell Service Station and Store (1920's)
P872-41H	Indian/Grange Cemetery (1902)
P872-43H	House site (1920)

P872-44H	Maguire Ranch (1892)
P872-45H	Cavanagh Residence (1899)
P872-46H	Cavanagh House (1933)
P872-49H	Blinn Property
P872-52H	Farm site
P872-58H	Taylor Ditch (pre-1888)
P872-76H	Wilkinson Dairy (1900's)
P872-81H	Reichmuth Dairy (mid 1930's)

B. Isolated Finds

In addition to the aforementioned recorded sites, seven other locations contained a total of 8 isolated finds. Officially, an isolate consists of less than 3 artifacts in association. They are designated with an "A" followed by a map number for the specific USGS 7.5' quadrangle and then an artifact number. All of the isolates are prehistoric in nature and comprise mano/mano fragments (4), metate/metate fragments (2), flaked tools (1), and waste flakes (1).

C. Heritage Properties

1. National Register of Historic Places (NRHP)

According to the records search, no National Register listed properties exist within Subarea 2. However, in 1988, Infotec Research Incorporated (IRI), under contract with the U.S. Army Corps of Engineers (COE), Los Angeles District, evaluated the significance of numerous prehistoric sites in the Prado Basin area for the purpose of determining National Register of Historic Places (NRHP) eligibility (Goldberg and Arnold 1988:98f.). They recommended that 22 prehistoric sites located in the Prado Basin be considered as part of a **proposed** archaeological district (the Prado Basin Archaeological District). Eight of the twenty-two sites are located within Subarea 2. They comprise SBR-1543, 1571/H, 2259, 2260, 2845, 5241, 5243, and 5244. With the exception of SBR-2259, 2260, and 5244, all of these sites were tested by Langenwalter and Brock in 1985. According to the COE, the status of the proposed district is presently in a state of limbo as concurrence with regard to eligibility has yet to be sought (Dibble 2000:pers. comm.).

2. California Historical Landmarks (CHL)

No California Historical Landmarks (CHL) are located within Subarea 2.

3. California Points of Historical Interest (CPHI)

No California Points of Historical Interest lies within Subarea 2.

4. Historic Property Directory (Office of Historic Preservation)

According to the Historic Property Directory, no standing structures or buildings within Subarea 2 have been evaluated for historical significance.

D. Previous Research within Subarea 2

The records search revealed that approximately 85% of Subarea 2 has been previously surveyed for cultural resources. Collectively, these surveys date from 1975 to the present. With the exception of a few hundred acres, the entire area south of Pine Avenue (encompassing approximately 2/3 of Subarea 2) has been previously investigated. Furthermore, much of the northeastern portion of the study area has been studied in conjunction with the proposed expansion of the Chino Airport.

The types of surveys conducted within the study area have included several linear surveys (roads, power lines, and pipelines), acreage surveys (e.g. Prado Regional Park and Prado Regional Golf Course) , and several large scale flood control projects. The vast majority of prehistoric and historic studies were associated with the Prado Flood Control Basin sponsored by the U.S. Army Corps of Engineers, Los Angeles District. The most comprehensive investigation conducted within the southern portion of the study area included Paul Langenwalter and James Brock's *Phase II Archaeological Studies of Prado Basin and the Lower Santa Ana River* (1985). This study included background research, survey, test excavation, and evaluations for NRHP eligibility for numerous Prado Basin sites (including several within Subarea 2 [see Section C]). Two other important studies undertaken for the COE which included excavation and evaluations of sites within the study area (P871-1H, SBR-5573H, 7136H, 7676H, and 7679H) comprise *The McCarty Ranch: History, Architecture, and Archaeology* (Foster *et al.* 1987) and *Archaeological and Historical Investigations of Seven Sites in the Prado Basin* (Foster *et al.* 1995). For

additional information on the study area, the reader is referred to the following works: *Prehistoric Sites in the Prado Basin, California: Regional Context and Significance Evaluation* (Goldberg and Arnold 1988), *Archival Research and Site Documentation, Prado Basin, California* (Hatheway 1989), *The Dairy Industry of the Prado Basin* (Swanson and Hatheway 1989), and *Context and Evaluation of Historical Sites in the Prado Basin* (Greenwood and Foster 1990).

III. MANAGEMENT CONSIDERATIONS

It is likely that as yet unidentified prehistoric and historic resources are present within the Chino Subarea 2 planning area. Historic resources are generally situated in the southern half of the study area since that area was settled first. By in large, prehistoric archaeological resources are found in the vicinity of areas that contain any water source which existed during antiquity. The problem is that some watercourses have been filled in to accommodate modern land-use. Thus, many indications of old water sources are no longer visible on the surface.

Doubtless there are undiscovered prehistoric sites within Subarea 2 which could shed a good deal of light on prehistoric life in the region. In the case of most undeveloped properties, it is not possible to determine whether they include prehistoric or historic archaeological resources without conducting a survey in the field. However, there are some cases where the usefulness of such a survey is obviated by circumstances. Developed areas or properties which have been used as borrow areas or have been filled might represent good examples. The only sensible way to determine which properties should be surveyed and which should not is to consider each property on a case-by-case basis.

Furthermore, such consideration seems to be mandated by CEQA which requires that prehistoric and historic resources subject to adverse effects as a result of a development must be identified and assessed. Thus, the lead agency has an obligation to determine whether such archaeological sites are present on a property. In other words, the fact that a property is not likely to contain cultural resources does not excuse the lead agency from determining whether or not such resources exist. Theoretically, discovery of

such resources after they have been adversely affected could lead to liability on the part of the overseeing agency.

On the other hand, it makes no sense to conduct a cultural resources survey of a paved area or a borrow pit since no resources could be seen at the former and none could survive at the latter. Therefore, in order to insure that no important resources are overlooked without subjecting the public to needless studies, we suggest the following: as a matter of policy, the lead agency should require cultural resources surveys of all properties for which development applications are submitted. However, if the lead agency believes that particular circumstances peculiar to the property obviate the need for such a survey, the lead agency should waive the requirement.

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CHINO SUBAREA 2
PALEONTOLOGICAL RESOURCES

1.0 INTRODUCTION

This brief report summarizes the results of a paleontologic field survey of Chino Subarea 2, located adjacent to the on the northeast side of the Chino Hills at the Prado Flood Control Basin, San Bernadino County, California. A records search on April 27 preceded this field assessment. Prior geologic mapping and the current field assessment indicate that the geologic units exposed on the project site are late Pleistocene and Holocene alluviums. The only unit of paleontologic concern is the older (Pleistocene) alluvium, which comprises about one-quarter of the site and is mostly confined to the southern half of it. The older alluvium is best exposed along the banks of Mill Creek and on the northeast side of State Route 71 (Corona/Chino Hills Expressway). Elsewhere, a veneer of soil and vegetation obscures the alluvium. Late Pleistocene alluviums elsewhere in San Bernadino and adjacent have yielded significant fossils. Thus, mitigation monitoring for paleontologic resources is recommended for the Chino Subarea 2 project.

2.0 ENVIRONMENTAL SETTING

Chino Subarea 2 is located in the southeastern part of the City of Chino Hills, at the Prado Flood Control Basin. It is in S½ Sections 21, 29, and 30 and all of Sections 28, 31, 32, and 33, T2S, R7W, and N½ Sections 7, 8, and 9 and all of Sections 4, 5, and 6, and T3S, R7W, San Bernadino Base and Meridian (USGS 7.5 minute series topographic map).

2.1 Geology

This area is within the Peninsula Ranges geomorphic province. The geology of Chino Subarea 2 is detailed on a map (1:24,000 scale) produced by Psomas (3/16/00) and in a report by Wilson Geosciences (4/18/00).

Most of Chino Subarea 2 is underlain by 300-800 feet of alluvial sands, but soil and vegetation currently obscure nearly all of its surface expression. Detailed surface mapping by Cox and Morton (1978) identified four units on the site (see Psomas 3/16/00 map), differentiating them by grain size and age:

Medium-Grained Holocene Alluvium
Fine-Grained Holocene Alluvium
Medium-Grained Pleistocene Alluvium
Fine-Grained Pleistocene Alluvium

Only the two late Pleistocene (>12,000 years old) units are old enough to have paleontologic potential. The late Miocene bedrock of the Puente Formation, which is exposed in the southwest-adjacent Eastern Puente Hills, is deeply buried by alluvium in Chino Subarea 2.

2.2 Paleontologic Literature and Record Searches

On April 27, 2000, Eric Scott, Curator of Paleontology at the San Bernadino County Museum, conducted a records search in the Regional Paleontologic Locality Inventory (RPLI). Although the museum has no record of paleontological resources recovered from Chino Subarea 2, Scott notes that "late Pleistocene alluvium has demonstrated a high potential to yield significant nonrenewable paleontologic resources subject to adverse impact during development related excavation throughout the Inland Empire." Thus, Scott assigns a high paleontologic sensitivity to this site.

Pleistocene land mammals have been recovered from stream deposits in Chino Hills, Jurupa, Rancho Cucamonga, Fontana, Riverside, and other areas within the northern margin of the Peninsular Range (Reynolds and Reynolds, 1991). In western San Bernadino County, including Chino off Highway 71, Pleistocene vertebrates have been uncovered at relatively shallow depths of 5-15 feet below the surface. This Pleistocene fauna includes mammoth (*Mammuthus* sp.), grazing ground sloth

(*Paramylodon harlani*), camel (*Camelops* sp.), bison (*Bison* cf. *B. antiquus*), horse (*Equus* sp.), and deer (*Odocoileus* sp.). In the Diamond and Domenigoni Valleys, four miles southwest of Hemet in Riverside County, near-surface late Pleistocene alluvium recently yielded a diverse assemblage of vertebrate fossils (Spinger and Scott, 1994; Pajak et al., 1996), Scott, 1997; Springer et al., 1998, 1999). It includes two kinds of grazing ground sloth (*Paramylodon harlani*), flat-footed ground sloth (*Megalonx jeffersoni*), dire wolf (*Canis dirus*), American lion (*Panthera atrox*), sabre-toothed cat (*Smilodon fatalis*), American mastodon (*Mammut americanum*), Columbian mammoth (*Mammuthus columbi*), two species of horse (*Equus* "*occidentalis*" and *E. conversidens*), peccary (*Platygonus compressus*), large camel (*Camelops hesternus*), and two species of bison (*Bison antiquus* and *B. latifrons*?).

2.3 Paleontologic Field Survey

MBA's Project Scientist and Certified Paleontologist, Dr. Kenneth L. Finger, conducted a paleontologic field survey on April 28 and May 2, 2000. Most of the Chino Subarea 2 site consists of farms (primarily dairy cattle), Prado Regional Park, and the relatively undeveloped portions of the Prado Flood Control Basin. In the flatlands of the northern sector, farming is extensive and alluvial deposits are mostly young and rarely exposed. Proceeding southward, the terrain has more relief, but soil and abundant vegetation usually obscure the alluvial substratum. Vertical sections are short and few, and confined to excavated areas (e.g., road cuts, borrow pits). The most extensive outcrops of Pleistocene alluvium flank Mill Creek, but high streamflow and steep cutbanks rendered most of them inaccessible for close examination.

No fossils were observed during this paleontologic field survey.

3.0 CONCLUSIONS

Late Pleistocene vertebrates are known from numerous localities throughout southern California (e.g., Jefferson, 1991). Although the world's richest finds have been in the asphalt deposits of Rancho La Brea (a National Historic Site), most vertebrate-bearing sites consist of alluvial sands. Hence, both late Pleistocene alluvial units underlying Chino Subarea 2 have high paleontologic sensitivity ratings.

Vegetation, soil, and younger alluvium obscure most of this older alluvium that accounts for nearly one-quarter of the surficial geology of the project site. The paleontologic field study did not observe and fossils on Chino Subarea 2.

Excavations anywhere on the site could encounter the older alluvial units that are buried just a few feet below the surface. Thus, Chino Subarea 2 may yield significant vertebrate fossils during earth disturbing construction activities. In his records search report, Scott liberally referred to the site as

having a high paleontologic potential, which implies a high likelihood of encountering fossils. However, most alluvial sediments are devoid of fossils, and without documented finds on or immediately adjacent to the site, the real potential of the late Pleistocene units of Chino Subarea 2 is currently unknown.

4.0 OPPORTUNITIES AND CONSTRAINTS

Paleontological resources do not pose any constraints to development however, mitigation is recommended during all earth-disturbing activities in an effort to avoid any adulteration to possible unknown or unidentified paleontological resources.

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APPENDIX G
GEOLOGY AND SOILS/HAZARDS

TABLE OF CONTENTS

METHODS AND INTRODUCTION 1
Scope 1
Data Sources 1
Organization 1
EXISTING GEOLOGIC CONDITIONS 1
Geology 1
Surficial Geologic Units 1
Medium-Grained Holocene Alluvium (Qhm) 2
Fine-Grained Holocene Alluvium (Qhf) 2
Medium-Grained Late Pleistocene Alluvium (Qpm) 2
Fine-Grained Late Pleistocene Alluvium (Qpf) 3
Bedrock Formation 3
Faulting 3
Central Avenue Fault 3
Other Possible Late Quaternary or Younger Faults 4
Seismicity 5
Soils and Slope 7
Groundwater 8
Subsidence 9
GEOLOGIC HAZARDS, CONSTRAINTS, AND OPPORTUNITIES SUMMARY 10
Geology 10
Constraints 10
Concerns 10
Slope Instability 10
Unsuitable Engineering Characteristics 11
Unique Geologic Formations 11
Faulting 11
Constraints 11
Concerns 12
Seismicity 12
Constraints 12
Severe Groundshaking 12
Liquefaction 12
Soils and Slope 13
Constraints 13
Concerns 14
Groundwater 14
Constraints 14
Concerns 14
Subsidence 14
Constraints 14
Concerns 15
Conclusions 15
REFERENCES CITED 16

METHODS AND INTRODUCTION

Scope

The scope of this opportunities and constraints analysis investigation is outlined in the Wilson Geosciences Inc. proposal dated February 26, 2000 and appended to the March 14, 2000 Subcontractor Authorization for Professional Services from Michael Brandman Associates. The scope elements are related to Subarea 2 for the City of Chino Sphere of Influence General Plan. These elements are:

- Gather, review, evaluate and analyze readily available data and maps for the subject area that deal with geology, soils and seismicity.
- Prepare this technical report establishing conditions in Subarea 2, describing potential affects on development and illustrating possible opportunities and constraints to land use alternatives.
- Prepare a geologic map and a geologic hazards map as adjuncts to the report.

Data Sources

Primary data sources are listed in the References Cited section of this report. Data from state and Federal agencies provide the main source of geologic unit mapping (Cox and Morton, 1978; Weber, 1977; Fife, et al, 1976), soils (considered by Cox and Morton, 1978 from Soil Conservation Service, 1971), fault (Cox and Morton, 1978; Weber, 1977; Fife, et al, 1976; Jennings, 1994) and seismicity information (Blake, 1989). Regional planning and EIR studies provided supplementary data, and the topographic maps provided slope information. The Chino Basin Watermaster (1999) provided a groundwater elevation contour map.

Geologic hazards categories (fault rupture, ground shaking, liquefaction, foundation suitability, and slope stability) and constraints classifications were developed based on commonly used criteria. These criteria are discussed in the section on constraints and opportunities.

Organization

Following the introduction, the existing geologic, seismic and soils conditions are presented. These conditions are then analyzed and discussed in the context of opportunities and constraints that may impact future development. This discussion relies on a map of the geologic units and faults (Plate 1), and a map of the associated geologic hazards (Plate 2). Last, the summary provides a means of evaluating possible land use alternatives.

EXISTING GEOLOGIC CONDITIONS

Geology

One hundred percent of Subarea 2 is underlain by Pleistocene and Holocene (recent) alluvial deposits. Only a small area of bedrock is exposed just west of the western boundary (Cox and Morton, 1978).

Surficial Geologic Units

The surface geology of Subarea 2 has been mapped in greatest detail by Cox and Morton (1978). They identified four distinct geologic units, two are recent (Holocene; < 12,000 years old) alluvium and two are late Pleistocene (>12,000 years old) in age. Weber's mapping (1977) is different than that of Cox and Morton (1978), however the geologic conditions of the basin area were not the main focus of Weber's study, which was oriented more toward fault identification than to mapping of surficial deposits. This is why the Cox and Morton mapping was used for this study. Very approximate estimates of the areal coverage of each unit are given below.

Medium-Grained Holocene Alluvium (Qhm)

The youngest surficial unit is a medium-grained Holocene alluvium (map symbol Qhm) present in the alluvial stream valleys that trend northeast-southwest to northwest-southeast (mainly in the southern one-half of the subarea) and as an alluvial fan deposit in the far northeast corner of the subarea (Plate 1). These are unconsolidated deposits of fine-to-coarse-grained sand with interbeds of gravel and silt. As such these sand deposits are moderately to highly permeable and subject to erosion.

Qhm covers roughly 30 percent of the subarea. The edges of the Qhm deposits merge with and overlie the older fine-grained Holocene alluvium (Qhf), described below, in the northeast corner of the subarea. Qhm in the alluvial valleys overlies the much older fine- and medium-grained Pleistocene alluvium (Qpf and Qpm), which together make up nearly one-half of the subarea. Engineering characteristics of the Qhm unit are expected to be variable, but generally will require precautions. It is expected that the materials will be relatively porous, compressible, and subject to consolidation under structural loads. Erosion potential should be moderate to high. Foundation and backfill suitability should be satisfactory with proper over-excavation and compaction.

Fine-Grained Holocene Alluvium (Qhf)

Qhf is the third most abundant geologic unit within the subarea (~25%). It underlies roughly the northern one-half of the subarea (Plate 1) and is present along the east and southeast edges of the subarea. Deposition was in a low energy possibly restricted basin-type environment. The fine-grained Qhf overlaps the older Pleistocene (Qpf and Qpm) alluvium deposited from the north, and rests against the bedrock along the western boundary of the subarea.

The fine-grained Holocene alluvium consists of clay and silty clay materials that contain interbeds of sand and variable quantities of organic material. This lithology makes the alluvium only moderately permeable to impermeable, and moderately to slightly erodible. Engineering characteristics of the Qhf will require precautions with regard to porosity, compressibility, and long-term consolidation under structural loads, particularly where organic deposits are present as interbeds, or dispersed within the silt and clay layers. Foundation and backfill suitability can be improved by implementing proper design recommendations.

Medium-Grained Late Pleistocene Alluvium (Qpm)

This Pleistocene alluvium (Qpm) is the least abundant of the four surficial units, covering about 15 percent of the subarea distributed primarily in the southeast corner. It represents deposition in a river and alluvial fan environment with the probable sediment sources to the north and northeast.

Qpm consists of fine- to coarse-grained sand that is weakly to moderately consolidated. Engineering properties will be variable but generally superior to the younger units. Qpm will be porous, moderately permeable, slightly compressible, and subject to some consolidation under structural loads. Erosion potential should be moderate in fresh exposures. Foundation and backfill suitability should be high with proper preparation and compaction.

Fine-Grained Late Pleistocene Alluvium (Qpf)

Qpf is the oldest surficial unit exposed in the subarea and is the most wide spread (along with Qhm), occupying about 30% the subarea within the south-central portion and the far west edge. Similar to the Qhf, the Qpf was deposited in a low energy restricted basin-type environment.

The composition of the Qpf deposits is clay and silty clay. Engineering properties of the Qpf should be similar, or somewhat superior, to the Qhf due to the similar lithology and depositional history. Therefore, the materials have properties that will require precautions, including proper engineering and geologic investigation, and implementation of report recommendations.

Bedrock Formation

Bedrock is not exposed in the subarea, but is found along the extreme south-western edge of the subarea at the lower portion of the Chino Hills. These Tertiary rocks may be found in the relatively shallow subsurface within adjacent portions of the subarea.

The bedrock is part of an undivided sequence in Cox and Morton (1978), but is mapped in the same area by Weber (1977) as the Puente Formation bedrock consisting of sandstone, conglomerate, siltstone, and as shale of the Sycamore Canyon Member (Fife, et al, 1976). The properties of the bedrock materials should be generally suitable for engineering purposes, (i.e., foundations, backfill), when standard engineering geologic and soils engineering investigation recommendations have been implemented.

Faulting

Faults are the planes along which earthquakes occur. In cases where earthquakes are large enough, or shallow enough, ground rupture can occur along the fault plane where it intersects the earth's surface. Both earthquake shaking (discussed in the Seismicity section below) and fault rupture must be considered for Subarea 2. Active (Holocene offset) and potentially active (Pleistocene) faults (as defined by the State Division of Mines and Geology) must be considered as potential sources for fault rupture. In general, the younger the last movement on a fault, the higher the potential for future movement on that fault

Central Avenue Fault

Numerous faults exist in the vicinity of Chino that can cause severe seismic shaking. The potentially active Central Avenue fault (Fife, et al, 1986; Jennings, 1994) trends northwest-southeast and is mapped just north of the subarea projecting toward its southwestern corner. It trends from Pomona (I-10) northwest-southeast on the east side of, and sub parallel to, Central Avenue terminating just south of Kimball Avenue within subarea 1 (Plate 1). Montgomery Watson (1993) show the Central Avenue fault as a groundwater barrier located more to the northeast, extending through subarea 2 from near Johnson Avenue and Chino-Corona Road to near where Mill Creek intersects the San Bernardino-Riverside County line. This is discussed as an unnamed groundwater barrier below.

The Central Avenue fault is sub parallel to the Chino fault, which lies to the west within and near the base of the Chino Hills. Both faults are interpreted to extend from the area of the north end of the Elsinore fault zone at the point where the Whittier fault branches to the west-northwest toward the Whittier Narrows. There is evidence of Holocene faulting on both the North Elsinore and Whittier fault zones (Jennings, 1992; Weber, 1977).

The Central Avenue fault is mapped as concealed (Fife, et al, 1976, including Morton, 1974) that indicates it is not exposed at the surface. However, the Morton (1974) map indicates that the fault appears to offset the water-bearing alluvium (late Pleistocene-Holocene age). The fault was originally recognized because it forms a groundwater barrier apparently due to this offset. Hayes Associates (1992) reports that the trace of the Central Avenue fault was trenched to a depth of 13 feet at the Majestic Spectrum project several miles north-northeast of Subarea 2 and no evidence of offset was found. Hayes Associates reports that there was no evidence to suggest Holocene activity.

No scientific or development-related studies within Subarea 2 are known to have defined Holocene activity on the Central Avenue fault. Wilson Geosciences (1995) identified several factors that suggest at least a possibility that the Central Avenue fault may have offset near surface (Holocene?) deposits. The linearity of Chino Creek is still evident within Subarea 2 along the trend seen in Subarea 1. The unusual morphology of the drainages entering Chino Creek from the north and east suggests possible local tectonic influences.

Other Possible Late Quaternary or Younger Faults

An unnamed fault was mapped by Weber (1977) southeast of the Subarea to the County line, which can be projected northwesterly into Subarea 2 on a trend subparallel to the Central Avenue and Chino faults. Weber indicates that this fault offsets late Pleistocene medium-grained alluvium (Qpm) on the terrace along the south side of the Santa Ana River south of Subarea 2. A straight-line extension of this fault to the northwest would not directly connect with the Central Avenue fault. Based on data presently available, it is believed that the unnamed fault projects to the east of the Central Avenue fault.

Weber (1977) recognizes other aerial photo lineaments (although he does not show them on his map) on the northeast side of the Chino-Corona Basin that could be within Subarea 2. These lineaments are both northwest and north-northeast trending according to Weber, although they are not shown as faults on his map. He concludes that the lineaments are associated with linear gullies and closed depressions, and only a few were verified tentatively as faults by field mapping. Weber makes no determination as to the origin of these "unverified" features, but concludes that they are not apparently associated with "a strong, through going fault zone with late Quaternary displacement."

Similarly, northeast trending (approximately north 55-65 degrees east) and northwest trending (north 40-55 degrees west) lineaments were observed on topographic maps evaluated for this study. The long northwest trending lineament identified in Subarea 1 is subparallel to the Chino-Central Avenue fault trends and enters Subarea 2 at Chino-Corona Road east of Pioneer Avenue. Its southeast extension is questionable beyond about 1000 feet. To the east there are three other lineaments with similar trends, the longest of which lies approximately 4000 feet to the east of the projected trace of the Central Avenue fault (Plate 1) where it enters Subarea 2 at Pine and Euclid Avenues. Its trace is moderately well distinguished by apparent stream channel deflections/terminations and relatively abrupt changes in topography (Plate 1). This lineament appears to be truncated by a primary, north 55 degrees east trending feature. The significance of these northwest trending lineaments is not known at this time.

Because of their geometric relationship to the Chino-Central Avenue faults they must be considered tectonic in origin, but their history of movement is unknown.

Four northeast trending sets of lineaments were observed based on topographic map and surface water features. Three such subparallel lineaments are associated with linear sections of the Mill Creek drainage in the south one-half of the Subarea 2. The lineaments are spaced about 1500 to 2000 feet apart and, while their continuity appears disrupted by northwest trending structure, are continuous across Subarea 2. The northernmost of the three lineaments trends roughly north 55 degrees east and enters the area from the east just north of Heilman Avenue and Chino-Corona Road. This location is nearly coincident with the southern extent of the artesian water area mapped in the early 1900s. All three features control the location of linear sections of Mill Creek that are connected by sharp 90 degree bends. These bends are nearly parallel with the northwest lineaments discussed above. The fourth northeast trending lineament crosses the subarea nearly coincident with Pine Avenue trending from north 70 to 85 degrees east. This feature bounds the southerly edge of a line of three prominent swamp/bog areas mapped in the late 1890s and forms apparent stream channel deflections and terminations.

The northeast trending lineaments trend subparallel to the reach of the adjacent Santa Ana River, and to buried faults in the northern San Gabriel-Pomona Valley and western San Bernardino Valley, namely the San Jose, Walnut Creek, Red Hill-Etiwanda, an inferred fault near Fontana, and so-called groundwater Barrier "J". All of the above named faults are considered potentially active (Jennings, 1994).

This study is not considered an exhaustive look at the possible relationships of topographic lineaments to the faulting, surficial geology and geomorphology of Subarea 2 and the surrounding areas. Analysis of vintage topographic maps, aerial photos, available imagery, and field mapping are required to provide definitive results. Observations suggest that there may be reasons to conclude that there has been late Pleistocene, and possible Holocene activity (faulting, uplift, and/or folding), associated with the lineaments and groundwater barriers described.

Seismicity

Numerous regional and local faults are capable of producing severe earthquakes, those of Richter magnitude (M) of 6.0 or greater. An analysis of all such potential earthquake producing faults was performed considering faults within a radius of 50 miles from the Pine and Grove Avenues. Table 1 (Blake, 1989 and updates) shows the faults, their maximum potential earthquakes, the likely maximum Modified Mercalli Intensity (MMI) and peak horizontal ground acceleration (PGA) on the west side of the subarea.

The Chino, Whittier-North Elsinore, and Sierra Madre-San Fernando faults have the potential to generate the highest subarea accelerations. For the maximum probable earthquake (MPE), that is the 100-year event normally considered in design of non-critical structures, the range in value for these faults is about 0.23 to 0.29 g (g = the unit force of gravity). Maximum "credible" earthquake (MCE) events must be considered in the design of certain critical or important facilities (e.g. hospitals, dams, class III landfills). For these faults the MCE should yield an estimated peak horizontal acceleration in the range of 0.31 to 0.59 g. It should be noted that other attenuation and uncertainty relationships could provide other acceleration and intensity values. The selected relationship provides a close match when compared to observed values from the Northridge earthquake.

TABLE 1 - Deterministic Site Parameters far Earthquakes Associated With Active Faults Located Within Approximately 50 Miles of the Site Area

ABBREVIATED FAULT NAME	APPROXIMATE DISTANCE (miles)	MAXIMUM CREDIBLE EVENT			MAXIMUM PROBABLE EVENT		
		Magnitude	Peak Acceleration	MMI Intensity	Magnitude	Peak Acceleration	MMI Intensity
Chino	3	7.00	0.59	X	5.40	0.29	IX
Whittier - North Elsinore	6	7.10	0.39	X	6.00	0.23	IX
San Jose	10	6.7	0.23	IX	5.00	0.06	VI
Sierra Madre - San Fernando	13	7.30	0.31	IX	6.30	0.17	VIII
Cucamonga	14	6.90	0.22	IX	6.10	0.13	VIII
Elsinore	14	7.50	0.29	IX	6.60	0.16	VIII
Glen Helen Lytle Creek Claremont	19	7.00	0.15	VIII	6.70	0.12	VII
Clamshell-Sawpit	23	6.60	0.10	VII	4.90	0.03	V
San Andreas (San Bernardino Mountains)	23	8.00	0.26	IX	6.70	0.10	VII
San Gorgonio Banning	23	7.50	0.19	VIII	6.60	0.10	VII
San Andreas (Mojave Segment)	24	8.0	0.25	IX	7.40	0.16	VIII
North Frontal Fault Zone (San Bernardino Mountains)	25	7.70	0.19	VIII	6.00	0.05	VI
Raymond	26	7.50	0.16	VIII	4.90	0.02	IV
Elysian Park Seismic Zone	29	7.10	0.11	VII	5.80	0.04	V
Compton-Los Alamitos	30	7.20	0.17	VIII	5.80	0.06	VI
Newport-Inglewood Offshore Zone of Deformation	30	7.10	0.10	VII	5.90	0.04	V
San Gabriel	31	7.40	0.12	VII	5.60	0.03	V
Verdugo	32	6.70	0.07	VI	5.20	0.02	IV
Newport-Inglewood North	33	6.70	0.06	VI	4.20	0.01	II
Casa Loma Clark (San Jacinto)	35	7.00	0.08	VII	7.00	0.08	VII
Santa Monica-Hollywood	37	7.00	0.07	VI	5.80	0.03	V
Wilshire Arch	37	5.70	0.04	V	5.00	0.02	IV
Palos Verdes-Coronado Banks - Agua Blanca	38	7.20	0.08	VII	6.20	0.03	V
Santa Monica Mountains Thrust	38	7.20	0.12	VII	6.30	0.06	VI
Hot Springs Buck Ridge (San Jacinto)	42	7.00	0.06	VI	6.10	0.03	V
Coronado Bank-Agua Blanca	46	7.50	0.08	VII	6.70	0.04	V

Notes: The maximum credible event is the largest estimated earthquake magnitude (Richter scale thought to be possible associated with a given fault or fault zone The maximum probable event is the largest estimated earthquake magnitude likely to occur in a 100-year period associated with a given fault or fault zone Peak acceleration is the estimated peak horizontal ground acceleration in percent gravity abbreviated g) using the attenuation relationship of Campbell and Bozorgnia (1994) with an uncertainty of mean + 1-sigma The intensity is the estimated Modified Mercalli Intensity (MMI) at the site which represents an empirical measure of physical damage to structures and of disturbance to the earth's surface as a result of various magnitude earthquakes at various site distances.

More distant faults are capable of larger earthquakes with a higher probability of occurrence. The two San Andreas fault segments (Table 1) can be expected to generate the MCE events approximately every 150 to
200 years. These events would yield a peak horizontal ground acceleration of approximately 0.25 g. While occurrence is considered about as likely as the MPE, these are appropriate design values for important facilities. Because the earthquake waves would have a longer period, these values should be considered particularly applicable to structures with a similar fundamental period.

Fife, et al (1976) evaluated the potential ground shaking severity in the area of Prado Dam from large earthquakes on several near and distant faults. They concluded that accelerations (assumed to be peak horizontal on the buried bedrock) would be in the range of approximately of 0.45 to 0.6 g within Subarea 2 (Plate 2). They also discuss site response due to the presence of a thick section of non-bedrock (alluvium; Plate 1). In general, they recommend that the design of important structures consider the site response spectra (acceleration, velocity and displacement) using standard techniques. The values in Table 1 (Blake, 1989, using Campbell and Bozorgnia, 1994) are for a soil (non-bedrock) site therefore provides some idea of an average condition for this one component.

Soils and Slope

Soils consist of four associations that correspond well to the areal distribution of underlying geologic units. Cox and Morton (1976) considered the soil units when devising the geologic map of surficial deposits. These four associations (and their map symbols) are:

1. Foster-Grangeville (Fp-Gw; on Recent alluvial fans)
2. Tujunga-Delhi (TD-Dg/AR; on Recent alluvial fans)
3. Merrill-Chino (MB-CE); on Older alluvial fans and terraces), and
4. Placentia (Py/BC; on Older alluvial fans)

The soils overlying the Recent alluvial deposits (1 and 2 above) make up roughly 45% of the soils and are about evenly distributed by area. The Foster-Grangeville (Hayes Associates, 1992) is a deep, permeable soil with no development of a profile, and was formed from unconsolidated materials. Slopes range from 0-9%, particles are more generally granular, runoff is slow and depths reach 60 inches. Tujunga-Delhi soils extend to depths of 60 inches or more, are very permeable, loose and unconsolidated, and subject to wind erosion if unprotected. These soils generally correspond with surficial geologic units Qhm and Qpm in the southeast along the Santa Ana River.

Soils overlying the Older alluvial deposits (3 and 4 above) make up roughly 55% of the soils and are about evenly distributed by area. Merrill-Chino and Placentia soils are silty and sandy loam overlying clay loam with slopes of 0-9%, and depths of over 60 inches. These soils are moderately erodible, well drained, and have a low to moderate permeability, and are associated with the surficial geologic units Qhf and Qpf.

The geotechnical engineering properties of the soils in the subarea are not well known from specific geotechnical studies. One study obtained for the Chino Airport area (predominantly Merrill-Chino association and surficial unit Qhf) indicates fine- to medium-grained soils consisting of a sand, silt, and clay mixture. Encountered soils were classified as expansive, having a uniform permeability, being easily rippable, and having moderate erosion potential (RMA, 1989). For planning purposes, the agriculture related descriptions suffice to determine that there are conditions of concern for development, but that no highly unusual hazardous conditions exist.

Average surface slope across the subarea ranges between about 0.5 to 1.0 % on the primary geomorphic surface to the north. Slopes from this primary surface into the primary drainages average about 2 to 3 %. Locally slopes range up to 10 % or along the edges of some gullies. The incised Chino Creek and the larger flood plain have slopes in the range of 0.5 to 0.6 % along the flow line. Fife, et al (1976; Morton, 1974) analyzed the slope stability and found that the areas between the drainages and the flat valley surface to be of low relief and generally devoid of landslides. With standard geotechnical investigations and adherence to UBC requirements there is generally a low potential for instability. Surface slopes of greater than 10% have a moderate risk of surficial slope failures involving any of the above named soil units.

Groundwater

The southern Chino Basin area has a relatively shallow water table due to the large drainage area feeding the Santa Ana River, and to the natural restriction at Corona and the Santa Ana Canyon. The natural damming affect of the Chino Hills and Santa Ana Mountains is due to the movement and uplift along the Chino-North Elsinore fault zone. The Chino Basin has both water-bearing and non water-bearing rocks. The water-bearing units are the Holocene and Pleistocene-age deposits described above. These sediments vary in thickness from less than 300 feet and to slightly more than 800 feet within Subarea 2 (Plate 1). The greater thickness (650-800 feet) occurs along a north-south axis through the center of the subarea. Lesser thickness is found along the western edge (300-400 feet).

Regional groundwater elevations (Chino Basin Watermaster, 1997) at the northeast corner of the subarea vary from about 550 to 560 feet. The southern one-half of the subarea has water elevations of 500 feet or less. These elevations represent depths of approximately 100 feet in the northeast and less than 30 feet in the south. These depths will likely vary somewhat by season, but in general they should be within a range of about $\pm$ 5 to 10 feet. Fife, et al (1976) indicate that the northern two-thirds of Subarea 2 lies within what was an important zone of artesian ground water in the early 1900s. Recharge from the north replenished the aquifer under the lower permeability confining layer(s). The confining layer is not entirely impermeable, allowing upward flow into perched zones at shallower depths.

In the late 1800s there were marshes and bogs (surface water) present along the southwest and southeast portions of the subarea now occupied by alluvial drainages (Chino and Mill Creeks). This indicates that the groundwater was at the surface, or at zero depth. These marshes correspond roughly to the boundaries of the Qhm deposits in this area (Plate 1). There are also five isolated swamp/bog areas in the north one-half of the subarea, three along the north side of Pine Avenue, one southeast of the Kimball and Euclid Avenue intersection, and one just north of the intersection of Kimball and Grove Avenues. It is unlikely that the water levels in the late 1800s would recur on a broad scale. It is possible that in local areas water may be perched at levels much shallower than 100 feet; this likelihood is much higher south of Pine Street.

Carson and Matti (1982) prepared a map showing the minimum depth to water during the period 1973-1979 for the upper Santa Ana River Valley. They show contours within Subarea 2 that indicate that the range in minimum depth to water was less than 30 feet deep to greater than 100 feet deep (Plate 1). They used very few wells for control points and the contours are considered approximate. Variations in precipitation and well pumping since 1979 would indicate that these depths are not likely to be the same today. No direct comparison to the 1997 Chino Watermaster data was possible since their contours are elevation rather than depth. Comparisons at selected points using the surface elevation USGS contours indicates that the water level may have been slightly shallower in 1997 in the north one-half of the

subarea than in 1973-1979. Data points are too sparse to compare the south one-half of the subarea. However, relatively shallow groundwater depths may be encountered in the future if similar rainfall and water use conditions prevail.

Subsidence

Subsidence is the gradual downward settling of the land surface with little or no horizontal movement. A principal cause can be the removal of large volumes of water from subsurface formations that are confined groundwater aquifers. Groundwater withdrawal has been going on in the Chino Basin for approximately 100 years. The presence of thick, poorly consolidated sediments, as exist in the Chino-Prado Basin area, increase the possibility of subsidence. Although no documentation of subsidence was found for Subarea 2, there are reports (Morton, 1974; Fife, et al, 1976; Harding Lawson Associates, 1991; Kleinfelder, 1993, 1996a, 1996b) of a nearly north-south trending set of ground fissures immediately north of the California Institution for Men at Chino. These reports document active subsidence 3 to 4 miles northwest of Subarea 2.

Morton (Wilson Geosciences, 1995) suggested that he has observed other such features in this general area of the Chino Basin that are likely attributable to subsidence. Kleinfelder (1993) used available leveling survey data to define a subsidence trough trending north to northwest in the area of Central Avenue between Chino Avenue and Eucalyptus Avenue. They concluded that the subsidence had occurred over a much broader area and wad no localized at the ground fissures. The observed fissures were parallel to the trough of maximum subsidence and about 1000 to 1200 feet to the east. This indicates that tensional forces parallel to but outside the zone of maximum subsidence generated the ground fissures.

Beneath the ground fissures appear as infilled, steep-sided gullies up to several feet wide at the surface and narrowing to an inch or less at depth of 10 to 25 feet. The infilled soil is typically loose with very poor engineering properties. Little differential vertical movement is usually present due to the tensional nature of the stresses.

Based on the data cited above the following conclusions can be drawn:

1. Subsidence is ongoing and will continue even if water levels are allowed to increase.
2. Ground fissures were difficult to detect using poor quality, small-scale aerial photographs.
3. Existing 1987 to present leveling survey data is very useful in defining subsidence areas.
4. The physical properties of material in fissure "trenches" can have adverse impacts on structures if fissures are undetected.
5. Large regional earthquakes and/or prolonged heavy rainfall may accelerate subsidence, surface material settlement, and fissure propagation.

Subsidence has been associated with the San Jacinto fault near San Jacinto causing surface displacements along pre-existing fault planes (Fife, et al, 1976). It is not known if Chino Basin subsidence features are associated with faults. Some of the topographic map and aerial photographic lineaments discussed in the Faulting section may be a result of subsidence and may represent zones where ground fissure should be expected. These features are roughly parallel to the alluvial thickness contours, and shallow groundwater contours, each of which would be expected to control subsidence fissure location and orientation to some degree. Without a study using several data sets (i.e., aerial photographs, leveling surveys, topography, groundwater elevations, alluvial thickness) it will be very difficult to predict the most likely locations for ground fissure zones in Subarea 2.

GEOLOGIC HAZARDS, CONSTRAINTS, AND OPPORTUNITIES SUMMARY

There is a range of potentially hazardous geologic conditions within the overall setting described above. For purposes of this analysis, this potential range is defined as either a concern or a constraint. A concern is defined as a geologic condition raising environmental issues that necessitate resolution through the standard study process. Constraints are defined as conditions raising environmental land use and design issues that are usually not easily mitigated, and may require avoidance, preservation, buffers/setbacks, relocation or other special mitigation. Opportunities for development are greatest in areas lacking concerns or constraints.

Two maps (Plates 1 and 2) are provided with this report. Plate 1 is a geologic map of Subarea 2 showing the geologic, seismic, soils, and groundwater conditions in the subarea. Plate 2 is a map of potential geologic hazards showing the location and extent of areas that may be adversely impacted by certain of the geologic, seismic, soils, and groundwater conditions sufficiently to be considered constraints.

The following section briefly describes the nature of the concerns and constraints, as well as the potential affects that may be important to land use decisions.

Geology

Constraints

There are no known physical geologic characteristics of mapped surficial geologic units that rise to the level of significance of a constraint.

Concerns

There are several geologic concerns related to the mapped geologic units that must be further evaluated and resolved during project-specific siting and design studies. These include:

- Slope Instability
- Unsuitable Engineering Characteristics
- Unique Geologic Formations

Slope Instability

Morton (1974, in Fife, et al, 1976) classifies the geologic units in the Subarea relative to their potential for slope instability. Morton (1974) rates these materials as either Class I (Qhf) or II-a (Qhm and Qpf). Class I materials on the valley floor are generally devoid of landslides and therefore have a very low potential for slope instability. Class II-a materials are in the low relief areas, again generally devoid of landslides. Natural slope instability in Class II generally will be limited to surficial failures in the Qhf, Qhm and Qpf on slopes greater than 10%.

Slope stability evaluations must consider the affects of construction on both natural slopes and newly created cut slopes. These evaluations will be required for new development within the subarea. Design and construction mitigation measures (e.g., retaining walls, reduce slope angles, earth buttress) in conformance with City of Chino and UBC (1997) standards must be employed to prevent slope instability.

Unsuitable Engineering Characteristics

The clayey nature of the Qhf and Qpf make these materials susceptible to high expansion coefficients and long-term consolidation that require standard mitigations (e.g., reinforced foundations, proper surface drainage, removal and replacement of expansive soils) to prevent adverse affects on foundations and overlying structures.

All geologic units are susceptible to erosion with the Qhm most susceptible and Qpf the least. Standard mitigation measures (e.g., using non-erosive drainage devices and providing proper vegetation cover) must be employed in the design and construction stages to prevent severe erosion.

Chemical reactivity of the materials with concrete and utilities will require assessment. Standard techniques are available to prevent adverse reactions that would be deleterious to performance of man-made materials.

Unique Geologic Formations

Geologic formations can be unique if their outcrop pattern, stratigraphic significance or fossil content is sufficiently unusual relative to other geologic deposits in the nearby region. Such a case may qualify the formation for scientific or academic study to obtain information/data that cannot otherwise readily obtained.

The late Pleistocene (Qpf and Qpm) deposits are clay, silty clay, silt, and sand deposited in restricted basin and riverine environments; these have a fairly limited distribution in the region. This makes the deposits very unique in the San Bernardino-Inland Empire area due to the vertebrate fossil content that is unusual and rare. Abundant vertebrate fossils are known from prior study in the area by the San Bernardino County Museum (Wilson Geosciences Inc., 1995). The relative abundance and rarity of the fossils in this restricted area make identification and future study very important, in particular relative similar restricted fauna in the Domenigoni Valley area being affected by the MWD water storage project. In the Chino Basin area these fossils are often found within five feet of the surface, placing them within the depth range of normal construction. Development (e.g., grading, trenching, drilling, mapping) will lead to opportunities for study that may not otherwise be possible. Standard mitigation measures for identification and salvage of fossil specimens must be a part of project development in the subarea.

Faulting

Constraints

It is not known with confidence that the surface trace (location) of the Central Avenue fault continues into Subarea 2. The potential for its existence along the Chino Creek trend should be taken into account in conjunction with future studies for habitable structures, and critical, or important facilities in Subarea 1. Only if it is determined that the potentially active Central Avenue fault offsets either Holocene nor Pleistocene deposits would it remain a concern that would require study on a case by case basis. Such studies may or may not lead to actions, such as avoidance/setbacks. If future work indicates a possibility of Holocene or late Pleistocene activity along the Central Avenue fault, the fault would subject to a minimum 25 foot setbacks with greater setbacks possible. Fault activity can be addressed on a site-specific basis with aerial photographic analysis and possibly subsurface trenching, drilling, and/or

geophysics; trenching may be particularly appropriate where late Pleistocene deposits are exposed near the surface.

Concerns

Other possible fault or fold related features observed on topographic maps are presently of unknown significance. Features trending parallel, or nearly so, to the Central Avenue and Chino fault trends (generally northwest) should be viewed as having similar, but less significant, characteristics as the Central Avenue fault. Features that are oriented generally perpendicular to this trend and subparallel to the San Jose-Walnut Creek faults should be considered as possible locations for ground movement.

It is recommended that a study program be initiated to determine the likelihood that these features are potentially significant structural features that be the source of a severe earthquake, or undergo ground surface rupture during a severe earthquake on the nearby Chino-North Elsinore fault system. Some level of overall assessment should be completed prior to the time of detailed specific planning for Subarea 2, and the results will dictate whether or not future constraints are necessary. This approach has been discussed with local experts in 1995 (Wilson Geosciences, 1995). The nature of the assessment recommended herein will allow the ground rupture potential to be evaluated prior to more detailed planning of habitable or critical structures, and major utilities in the area. The assessment would consist of detailed mapping from aerial photographs and topographic maps, and field checking to confirm where possible mapped features have significance to overall development plans. Selected subsurface investigations of significant features would be appropriate.

Seismicity

Constraints

Severe Groundshaking

Current Uniform Building Code Standards (ICBO, 1997) set a threshold for horizontal ground acceleration for design of non-critical residential structures, and some commercial and industrial facilities. Where this value has a high likelihood of being exceeded during the design life of planned structures (e.g., the MPE acceleration assumed to occur in a 100 year period), a constraint can be said to exist. This is the case for all of the subarea where the peak horizontal ground acceleration for the Maximum Probable Earthquake is approximately 0.5 to 0.6 g. Plate 2 indicates very approximately where the 0.5 g., 0.55 g., and 0.6 g. peak horizontal acceleration contours may be expected for a MPE on the nearby Chino fault.

Unusual mitigation measures will be required to compensate for these levels of acceleration, particularly for critical, important, or high occupancy facilities. This is especially true for this area due to the potential for site amplification of earthquake waves in thick alluvium, and due to high groundwater. With alluvial thickness in the range of 300 to 800 feet, the relative amplification and attenuation affects of nearby and distant earthquakes must be considered for major and important construction projects. Sufficient information exists to prepare generalized, subarea-wide ground response maps for the critical local and distant earthquakes. Site-specific data and analysis would still be required for major facilities.

Liquefaction

Liquefaction occurs when saturated, cohesionless (low relative density) materials (usually sand or silty sand) are transformed from a solid to a near liquid state due to the increase in pore-water pressure that can be caused by moderate to severe seismic ground shaking. The expected level of ground shaking in the subarea is above 0.5 g, high enough to initiate liquefaction. Two of the three key conditions that are conducive to liquefaction, shallow groundwater and cohesionless sands, are thought to be present within Subarea 2, however insufficient data exist to map either condition with precision. There is some potential for liquefaction where water is greater than about 50 feet deep, but the potential is higher with depths less than 50 feet (LP). Liquefaction potential is substantially higher where water is less than 30 feet deep (LH).

The areas of highest liquefaction potential are coincident with the Holocene deposits (Qhm and Qhf) in the lowest lying areas where surface water has been observed in the late 1880s, where water has been reported to be less than 30 feet deep, and in the major drainages (Plate 2). These areas are considered to have potential land use constraints due to liquefaction.

Liquefaction can cause overlying structures (e.g., bridges, buildings, storage tanks) to settle non-uniformly, and buried structures (e.g., fuel tanks, pipelines) to float. In either situation severe damage to the structure is highly likely. Estimates of liquefaction potential require specific data from geotechnical borings and groundwater level monitoring. It should be a priority to compile such data as it might exist in City, State, or County files, and to obtain new data so that a broad-area assessment is possible.

Other areas of Holocene deposits have minimal potential (LM) and areas underlain by Pleistocene deposits have a lower potential. Due to the lack of specific data, the geologic unit and depth to groundwater boundaries shown on Plate 1 should be considered approximate, and liquefaction assessments should be made for all important projects. The depth and intensity of study will naturally vary depending on the location, type, and importance of the project.

Lateral spreading landslides can occur on relatively shallow slopes due to liquefaction of shallow layers causing a loss of shear strength. Within the subarea, this is most likely adjacent to the drainages where slopes are steepest and water may be more likely to accumulate (the II-a slope areas in Plate 2). It is not possible to map specific areas based on the current data, although the steeper slopes and the area at the base of these slopes are the most susceptible.

Mitigation measures exist for development in liquefaction-prone areas. These include:

1. Excavation and removal or recompaction of liquefiable soils;
2. In-situ ground densification;
3. Ground modification and improvement;
4. Deep foundations;
5. Reinforced shallow foundations; and
6. Reinforced structures to resist deformation during liquefaction.

Soils and Slope

Constraints

There are no known soils engineering conditions that are so significant that they qualify as planning constraints.

Concerns

Many of the soils in the subarea are susceptible to expansion, settlement and possibly hydroconsolidation. Data are insufficient to provide specific quantitative conditions by geologic or soil unit. Moderate to high expansion indices indicate that there is a substantial amount of clay in the soils and repeated episodes of wetting and drying will cause distress to structures in contact with such soils. Consolidation (and long-term settlement) is most prominent in clay-rich and silt-rich soils due to the loading pressure of man-made structures, including buildings or artificial fill. The added weight can collapse the internal void spaces in the soils causing the overlying structures to settle, and possible be damaged. This consolidation and settlement can be much more dramatic under severe seismic shaking (dynamic settlement). Hydroconsolidation will also lead to settlement, but includes the addition of water into the soil structure causing more rapid and more substantial settlements.

The concerns expressed for expansion, consolidation/settlement, and hydroconsolidation potential can be addressed through standard, comprehensive geotechnical and soils engineering investigation and analysis. Recommendations that are made in conjunction with such investigations should specify all necessary steps to be taken to mitigate the potential affects of these soils concerns.

Groundwater

Constraints

There are no known groundwater conditions (except as associated with liquefaction discussed above) that are significant enough to be classed as constraints.

Concerns

Two potential concerns exist for the presence of shallow groundwater. These relate to 1) water seepage that may collect within, around or on a structure (e.g., foundations, slabs, cut/fill slopes, and utility trenches), and 2) water that may be intercepted in a deep excavation causing potential dewatering and safety problems. The first instance could cause damage and/or nuisance with regard to the long-term care and maintenance of facilities. The second instance could cause safety problems for workers, as well as the aforementioned problems.

Geologic, hydrologic, and soils engineering/geotechnical investigation and analysis can be performed to determine if shallow water may be present at a given site. Recommendations that are made in conjunction with such investigations should specify all necessary steps to be taken to mitigate the potential affects of these hydrologic and engineering concerns.

Subsidence

Constraints

Although nothing specific is known about the subsidence history of the subarea and its adjacent areas, the potential does appear to exist for subsidence induced ground fissures. At present it is considered a specific planning constraint. However, insufficient information exists to more fully define the constraint. At present it is assumed that it could occur almost anywhere, and the possible size and depths of fissures is similar to those documented near the California Institution for Men and Ayala Park.

Concerns

Subsidence that is regional in nature (over several square miles) may have little or no affect on smaller structures. Effects to the ground surface (e.g., cracking, noticeable differential movement) and on larger, more continuous structures anchored to the ground may be much more noticeable depending on the magnitude of the subsidence. Evidence suggests that the artesian water area that encompasses the northern 60% of Subarea 2 has undergone and may be undergoing subsidence. Since little evidence has been developed to help determine the location and magnitude of subsidence, a constraint cannot be mapped at this time.

It is recommended that a stepwise program of data evaluation be conducted beginning with all existing leveling survey data to determine subsidence areas. This should allow zones of likely tensional stress to be identified. These results could be extended using local groundwater pumping histories, re-surveys in critical areas, reviewing records of past distress/repair of linear structures (roads, pipelines) crossing the basin. Combined with aerial photographic and topographic map analysis, high potential areas for subsidence in the areas of Subarea 2 could be defined above elevation 540 feet. Alternatively, tasks after the compilation of leveling survey data could be required for individual projects. Past reports have suggested mitigation measures to minimize the impacts of ground fissures on construction.

Conclusions

There are four potential geologic constraints affecting land use and development in Subarea 2. These are ***fault rupture*** and ***severe groundshaking*** due to a local moderate to large earthquake, ***liquefaction (including lateral spread landslides)*** due to shallow groundwater and severe groundshaking from local and major regional faults, and *subsidence-induced ground fissures* due to groundwater withdrawal. These potential constraints are sufficiently significant that special studies, avoidance zones and above standard mitigations may be required. Due to the limited amount of specific data available for Subarea 2, there is uncertainty as to the extent and severity of these potential constraints. It is believed that sufficient information exists to apply these constraints for the purposes of land use planning.

Other geologic concerns are slope instability, unsuitable engineering properties of geologic units, and the existence of unique geologic/paleontologic resources in the late Pleistocene or Holocene units. These concerns are important, but can be addressed by standard mitigation measures that are instituted under normal building codes and environmental impacts report requirements.

Other faults and lineaments have been observed within the late Pleistocene sediments and coincident with topographic features. This indicates a level of concern that these features may:

- Serve as locations for ground rupture in a severe local earthquake on the Chino-Elsinore fault zone
- Be locations where severe ground shaking is more focused should a local moderate to severe earthquake occur under the basin, and
- Exhibit differential movement and ground fissures due to subsidence and groundwater withdrawal

The Subarea 2 portion of the Chino Basin has not been extensively studied for development and few geologic publications on the area have been issued for the past 18-20 years. During this time earthquake activity has become better understood relative to the location of exposed and buried (so-called "blind") earthquake faults. Additional analysis beyond the scope of this study will be needed to determine if

tentatively defined northeast trending features are important in the planning of development in the Subarea 2 portion of the Chino Basin. Until such time as such studies can be performed, the City should consider these features in the planning process.

Liquefaction may be a concern in areas where it is not noted as a constraint, due to the unpredictability of shallow/perched groundwater conditions, and the location of low density sand and silt layers. This possibility should be considered for development that is susceptible to damage in a liquefaction event. There are engineering measures that can be applied to reduce or eliminate the impacts of liquefaction to engineered facilities.

Soils engineering and geotechnical conditions are not well studied in the subarea, however it is known that similar soils outside the subarea have potentially deleterious properties. These properties are considered to be within the range of conditions dealt with in a comprehensive soils engineering or geotechnical engineering investigation for construction of habitable or other important facilities.

Groundwater in the Chino Basin appears to lie at depths of about 100 feet at the northeast corner of the subarea and possibly less than 30 feet in the southern portions. The potential for perched water zones at very shallow levels also exists throughout the subarea. These occurrences can be dealt with in a comprehensive geotechnical engineering investigations that have subsurface borings to the depth of influence for the construction that is proposed. Standard mitigation measures (e.g., dewatering) exist to prevent adverse affects from shallow groundwater.

Subsidence appears to be a potential hazard for this portion of the basin, however little study has been done to determine potential locations or magnitudes of future subsidence. Some of the topographic lineaments mapped for this study may reflect past subsidence, but this is uncertain. This potential for subsidence should be considered for future development projects.

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APPENDIX H
LAND USE/AGRICULTURE

Related Projects

Section 4 of the Environmental Impact Report describes, in summary fashion, the activities occurring within the vicinity of the project area. The specific projects encompassed within that summary are listed below. The information used to generate this data was derived primarily from written information provided by each city, in addition to verbal conversations.

The geographic range of the projects listed is based upon the general parameters of the traffic study, which evaluated a five (5) mile radius around the project site. Proposed or on-going projects beyond this distance were not included within the tabulations. The areas affected include the Cities of Chino, Chino Hills, Corona, Norco, and Ontario. In addition, land within the unincorporated area of the County of Riverside, referred to as the Eastvale area, was also included.

The City of Chino

TABLE NO. 1

Project Name (if available)	Land Uses Proposed	Project Composition	Size (Ac.)	Status	Location
Majestic Spectrum Specific Plan	Commercial development with retail and restaurant uses.	820,000 square feet	75	Grading recently started and plan is occurring.	Southeast corner of the Chino Valley Freeway (71) and Grand Ave.
East Chino Specific Plan	Residential, commercial, industrial, parks, schools, and streets or other easements or rights of way.	773.9 acres of residential land with up to 3,110 units, 93.4 acres of commercial land, 105.6 acres of industrial land, and 234.6 acres of other lands.	972.9	Approved and under construction.	Located generally north of Eucalyptus Ave., east of Cypress Ave.
CIM	Residential, business park, golf and open space, and school/park.	332 acres of residential land for 2,105 units, 24 acres of business park land, 245 acres of golf and open space, and 15 acres for school/park.	694	Proposed	Generally south of Ruben S. Ayala Park, north of the California Institution for Men.
Subarea 1	Industrial, agricultural and transitional (industrial), and greenspace.	605 acres of industrial, 320 acres of agricultural and transitional industrial land, and 885 acres of greenspace.	1,810	Approved.	South of Merrill Ave., generally east of SR 71, and west of Euclid Ave.

TABLE NO. 1 (Cont.)

Project Name (if available)	Land Uses Proposed	Project Composition	Size (Ac.)	Status	Location
Unknown (proposed by Majestic)	Industrial	728,500 square feet	34.4	Under construction, almost completed	East side of Pipeline Ave. between Schaefer Ave. and Edison Ave.
Eucalyptus Business Park Specific Plan	Industrial	577,000 square feet	30	Demolition and grading have occurred.	Southwest corner of Eucalyptus Ave. and Monte Vista Ave.
Unknown (built by Trammel Crow)	Industrial	882,100 square feet	41	Constructed 5 buildings.	Southeast corner of Eucalyptus Ave. and Yorba Ave.
Note: Information provided by the City of Chino Planning Department					

<u>The City of Ontario</u>

TABLE NO. 2

Project Name (if available)	Land Uses Proposed	Project Composition	Size (Ac.)	Status	Location
The New Model Community	Residential, commercial, industrial, educational, parks/open space, and public uses.	5,200 acres of housing for up to 31,200 units, 504 acres of commercial, 338 acres of industrial, 500 acres for educational uses, 888 acres for parks, and 775 acres for public and infrastructure uses.	8,200	Annexed to the City of Ontario on November 30, 1999.	Generally south of Riverside Drive, north of Merrill Ave./ Bellgrave Ave., east of Euclid Ave., and west of Hamner Ave.
Tentative Tract Map 16045	Single family detached	189 single family homes	40	In process	South side of Riverside Drive, between Archibald Ave. and Ontario Ave.
98-005-S	Retail commercial	Four retail buildings totaling 40,753 square feet	4.46	Under construction	Southwest corner of Riverside Drive and Archibald Ave.
Note: Information obtained from the City of Ontario Planning Department project log sheets and Sphere of Influence Final Environmental Impact Report.					

In the City of Norco

TABLE NO. 3

Project Name (if available)	Land Uses Proposed	Project Composition	Size (Ac.)	Status	Location
Hastings Partnership	Industrial	170,250 square feet	10.71	In plan check	South of Fifth Street and west of Hamner Ave.
SE-GI Products	Manufacturing	127,605 square feet	6.5	Built	South of Second Street between Hamner Ave. and Mountain Ave.
Homebase	Subregional Shopping Center	201,907 square feet	18.01	Phase one completed.	Southeast corner of Hamner Ave. and Yuma Drive.
Note: Information obtained from project log sheets provided by the City of Norco Planning Department.					

In the City of Corona

TABLE NO. 4

Project Name (if available)	Land Uses Proposed	Project Composition	Size (Ac.)	Status	Location
Green River Ranch Specific Plan	Residential and commercial	32 estate lots on 98 acres, Mixed Use (including hotel) on 61.5 acres, and General Commercial on 8.1 acres.	167.8	Approved by the City and pending annexation	Green River, south of the 91 Freeway.
Villa La Paz	Senior Apartments	365 units	7.05 acres	In process	On River Road, between Lincoln Ave. and Main Street.
Unknown	Regional Sports Facility	No known details		Discussion stage	East of the Corona Airport, south of Rincon Road.
Note: Information provided verbally by Terri Manuel of the City of Corona Planning Department on June 21, 2001.					

In the City of Chino Hills

TABLE NO. 5

Project Name (if available)	Land Uses Proposed	Project Composition	Size (Ac.)	Status	Location
Fairfield Ranch	Residential, commercial, business park, commercial recreation, and open space.	787 single-family homes, 37.5 acres of business park, 1.8 acres of village commercial, 30.9 acres of commercial recreation, and 54.8 acres of open space.	245.8	Portions of the project area are developed.	West of Central Ave. and north of Chino Valley Freeway (SR 71).
DeGroot Property	Commercial center	750,000 sq. ft. of commercial.	50	Project is inactive.	South side of Chino Hills Parkway, east of SR 71 and Ramona.
Tract 14551-1 (First phase of Big Galstien)	Single family homes	81 single family homes	48.6	Final map recorded, no permits issued.	West side of Butterfield Ranch Road, south of the terminus of Slate Road.
14551	Single and multiple family residential	250 single family and 216 multiple family residential.	90.8	Approved tentative tract map.	West side of Butterfield Ranch Road, south of the terminus of Slate Road.
Stratham Homes Tract 14425-4	Single family	100 single family units	Unk.	Permits issued for 83 out of 99 units.	East side of Butterfield Ranch Road, north of Sagebrush Street.
Richland/ Pinehurst Tentative Tract 14426 and 14427	Single family	322 single family units	137.6	Portions of tract maps are recorded.	West side of Butterfield Ranch Road, south of the terminus of Slate Road.
Communities/Legacy Ranch, Tracts 14022-1, 14079-1, 14079-2, 14079-3	Single family	142 single family homes. 24 single family units are infill development, 118 single family units are new tract construction.	Unk.	50 percent of permits issued.	East and west of Butterfield Ranch Road and north and south of Picasso Drive.
Flintridge Tract 14285	Single family	49 single family homes	14.8	24 building permits issued.	South of Soquel Canyon Parkway, east of Slate Road.

TABLE NO. 5 (Cont.)

Project Name (if available)	Land Uses Proposed	Project Composition	Size (Ac.)	Status	Location
Kaufman & Broad Tentative Tract 15082	Single family	34 single family condominium units	6.71	Under construction.	South of Torrey Pines Drive, west of Los Serranos Country Club Drive.
Woodland Terrace (Wang)	Single family	237 single family units	184	Unknown	Southwest of Woodview Road and Pipeline Ave.
Villa Borba Tentative Tract 15989	Single family	209 single family units	118	Unknown	West side of Butterfield Ranch Road, south of Pine Ave.
Canyon Estates Tentative Tract 16104	Single family	59	299	Project approved	Adjacent to and north of Chino Hills State Park, bisected by the future alignments of Soquel Canyon Parkway and Peyton Drive.
Warmington Green Valley	Single family	40	46.8	Project approved	South of Frost Ave. and west of Peyton Drive at the terminus of Carriage House and Glen Ridge Drives.

Note: Information obtained from the City of Chino Hills Planning Department project log sheets and materials provided by Tina Rider on June 22, 2001.

Unk.: Unknown

In the Eastvale area of Riverside County

Based upon market analysis completed in April 2000 by Market Profiles, the Eastvale area can accommodate up to 25,000 single family homes and 1,200 multiple family homes on 5,517 acres. In addition, the area will allow 263 acres of commercial and 744 acres of industrial land uses.

General Plan Consistency Analysis

The following is a consistency analysis of The Preserve Specific Plan and the City of Chino General Plan. This section documents each of the goals of the Chino General Plan and describes how The Preserve achieves consistency.

LAND USE ELEMENT

A. GROWTH AND IDENTITY

General Policy

The City of Chino has set no maximum population limits. Growth shall be in a phased and orderly manner consistent with the availability of adequate public and private services, utilities and public facilities (Rev. 1-80-88 Measure M).

The Specific Plan responds to the policy:

The Preserve incorporates smart growth and sustainable cities principals in its development plan and blends them with a unique environmental setting and commits public and private resources to make them work. The Preserve has been carefully crafted to guide growth to the most appropriate locations, avoiding hazards and biologically sensitive areas. Phasing and financing plans contained in the Specific Plan guide an orderly development that is tied with the provision of services and utilities.

General Policy

The City of Chino shall develop a community image which portrays it as a diverse, yet well maintained and pleasant suburban environment in which to live and do business. The City's rural agricultural heritage should also be maintained and fostered.

The Specific Plan responds to the policy:

The Preserve's development concept combines a mixture of uses: open space and agricultural, residential neighborhoods, a regional commercial center, and an employment center centered on the Chino Airport. The Community Core, the heart and focus of The Preserve, accommodates a mixture of residential, commercial, office, cultural, civic, and educational uses in a traditional downtown. The residential categories are purposefully broad to encourage a variety of products types that appeal to all segments of the market. The residential categories accommodate a variety of housing types, from equestrian estates, detached single-family suburban style homes, clustered units, duplexes, townhomes, apartments, and condominiums. The development standards ensure a variety of product design and allow a diversity of product arrangements. Permanent agricultural and natural open space areas are accommodated in The Preserve in the most appropriate locations. This helps to maintain the City's cultural heritage.

B. RESIDENTIAL LAND USES

General Policy

Each new development should have, to the maximum extent, its own distinct character and identity. Adopted land uses patterns should also serve to protect and enhance the character of existing neighborhoods.

The Specific Plan responds to the policy:

Each of the residential land use designations: Estate, Low Density, Medium Density, and High Density will have their own distinct character and each is addressed in the residential designation development plan. The Community Core accommodates a residential environment in a traditional downtown. Each land use category accommodates a broad range of housing types: the Estate Residential category accommodates equestrian estates and clustered projects; the Low Density category accommodates detached single-family suburban style homes, clustered units, duplexes and townhomes; the Medium Density category accommodates small lot single-family projects, duplexes, townhomes and even some apartments; the High Density category accommodates small lot single-family projects, duplexes, townhomes, apartments and condominiums. The intent of these broad residential categories is to encourage a variety of products types that appeal to all segments of the market. The development standards and design guidelines ensure a variety of product design, densities, and allow a diversity of product arrangements.

General Policy

The City's overall land use pattern shall stress higher density development in the Central portion of the City and along Euclid Avenue, and lower density development in the outlying areas.

The Specific Plan responds to the policy:

The central portion of The Preserve is the Community Core, which accommodates a mixture of residential, commercial, office, cultural, civic, and educational uses in a traditional downtown. The High Density residential category surrounds the core. The Community Core and High Density categories accommodates for sale and rent, duplexes, townhomes, clustered residences, flats, live-work products, residential lofts over commercial, pocket lots, detached condominiums and condominiums. The residential density decreases the further from the Community Core, with a concentration of medium density residential near the regional commercial center and the Chino Airport. The Preserve includes a regional commercial center and airport related business park along Euclid Avenue, north of Pine Avenue. The lowest density, the Estate Residential category, is located on the southern end of Community Core adjacent to the 566-foot dam inundation area.

General Plan Consistency Analysis

General Policy

The design and location of all residential neighborhoods shall be such as to avoid adverse environmental impacts upon the neighborhood and vice versa.

The Specific Plan responds to the policy:

Residential development within The Preserve will be situated in areas away from known environmental impacts. Residential neighborhoods are not located in areas that contain earthquake faults, flooding or dam inundation potential, or within the currently adopted Chino Airport noise and safety zones. Environmentally sensitive areas and drainage courses are maintained and incorporated within the plan. The electrical transmission line is preserved and utilized for open space, recreation, nurseries and other uses. The transmission line runs east-to-west across The Preserve, roughly parallel to Pine Avenue.

General Policy

The design of the residential environment shall be such as to give the appearance of a suburban density and scale, except in rural areas, where the scale shall be rural in nature.

The Specific Plan responds to the policy:

The Low Density, Medium Density, and High Density Residential land use designations contain development standards that are designed to give the appearance of a suburban density. The Estate Residential land use designation is designed to give the appearance of a rural scale with single-family, ranch style homes set on large lots. In addition, design guidelines have been created to ensure quality development within The Preserve. Design guidelines address such issues as landscape and streetscape, grading, signage, and lighting. There are also specific guidelines that address residential development in terms of site planning and architectural design. Quality and attention to detail must permeate the initial design, layout of the streets and lots, grading, structure design, landscaping, lighting, and fences.

C. COMMERCIAL LAND USES

General Policy

Commercial development shall be located centrally to the community, with outlying commercial areas providing either specialized services, or services limited in scope to serving local residents.

The Specific Plan responds to the policy:

The central focus of The Preserve is the Community Core. The Community Core accommodates a mixture of residential, commercial, office, cultural, civic, and educational uses in a traditional downtown setting. Due to the orientation and location of the Community Core, it is easily accessible to the entire Preserve. Neighborhood Commercial uses are strategically located throughout The Preserve to allow convenient access to local serving uses, such as service stations and markets, by residents and visitors. The Regional Commercial, Airport Related and Light Industrial land use designations are located to both capitalize on Euclid Avenue and the Chino Airport as well as to buffer the residential portions of the plan from the airport. The Euclid Regional Center and Airport Related land use categories are intended to capture a high proportion of revenue producing uses, improve the regional jobs-housing balance and act as a center for diversified employment uses.

General Policy

All commercial development shall be of the highest aesthetic and functional quality. Detailed design criteria and standards shall be established in order to achieve this purpose and provide developers with suitable guidance. Such criteria shall at a minimum address building height, architectural design, landscaping, bulk, parking design and pedestrian circulation.

The Specific Plan responds to the policy:

The Preserve Specific Plan includes standards and criteria that provide future developers, city staff, and decision makers with clear guidance. All the Non-Residential and Residential land use designations include detailed development standards, including height, setbacks, landscaping, and bulk. The Specific Plan also describes the intended character of each land use category, allowable land use, uses subject to Conditional Use Permit, and appropriate temporary uses for each land use category. The Design Guidelines for The Preserve address community design, connectivity, architectural design, landscaping, gateways, signage, lighting, and walls.

General Policy

The City shall regulate signs in a manner which will emphasize safety, help improve and protect the appearance of buildings as well as the City as a whole, foster legible sign graphics, and promote the public's awareness of the business community while respecting the City's low-keyed suburban character.

The Specific Plan responds to the policy:

The Specific Plan defers to the City's adopted sign ordinance for specific sign standards. The Design Guidelines address overall guidance for the scale, placement, and quality of signs in the General Signage Guidelines section and the Community Core Signage Guidelines.

D. INDUSTRIAL LAND USES

General Policy

The City shall designate sufficient land to provide a full range of manufacturing employment and needed support services. Land for manufacturing support services as well as quasi-industrial uses shall be located in close proximity to manufacturing employment centers, but in separate districts.

The Specific Plan responds to the policy:

The Preserve includes approximately 475-acres that accommodate manufacturing, manufacturing support services, offices as well as quasi-industrial uses. These uses are clustered around the Chino Airport to take advantage of this facility's long-term potential as well as to buffer residential uses from the impacts of the airplanes.

General Policy

All industrial development shall be well designed of quality construction, and should reflect the general suburban nature of the community. By and large, a park-like atmosphere shall predominate which presents an attractive and inviting atmosphere to employees, visitors, present employers and prospective employers.

The Specific Plan responds to the policy:

All projects are subject to the City of Chino building standards to ensure quality construction practices. In addition, all Non-Residential land use designations, including Light Industrial and Airport Related, incorporate detailed development standards, such as height, setbacks, landscaping, and bulk. The Specific Plan also describes the intended character of each land use category, allowable land use, uses subject to Conditional

Use Permit, and appropriate temporary uses for each land use category. The Design Guidelines for The Preserve address community design, connectivity, architectural design, landscaping, gateways, signage, lighting, and walls.

General Policy

It is critical that the City acting in liaison with other private, public and quasi-public groups actively recruit a broad range of new industrial employment to locate in Chino. The City shall establish such a recruitment program in order to develop and expand the current employment base.

The Specific Plan responds to the policy:

The Preserve provides the opportunity to locate prospective employers to the City. The Preserve accommodates more than 10 million square feet of business uses. The Community Core Land Use Designation accommodates a range of employment generating activity by concentrating a mixture of uses within one area. The Preserve provides an additional area for which the City may promote the location of employment generating uses to take advantage of the proximity of the Chino Airport and residential areas.

F. INTERGOVERNMENTAL COORDINATION

General Policy

Through its cooperation with the San Bernardino West Valley Planning effort, the Local Agency Formation Commission, the Chino Hills General Plan Committee, the Southern California Association of Governments, the San Bernardino Association of Governments, as well a other publicly sponsored and privately sponsored planning oriented groups, the City shall insure that while its interests are furthered, its plan will be closely coordinated with and supportive of those of neighboring jurisdictions.

The Specific Plan responds to the policy:

The Preserve Specific Plan has undergone an intensive program to illicit input and comments from interested citizens, affected agencies, and property owners. This includes five Focus Group meetings that were held to discuss issues and opportunities and review the conceptual and preferred land use plans. These focus group meeting involved representatives and members concerned with: environmental issues (March 15, 2000), infrastructure and services (March 22, 2000), transportation and mobility (April 6, 2000), property owners' interests (April 12, 2000), and review of the alternative plans (June 7, 2000).

A few examples of intergovernmental coordination in the development of The Preserve land use plan and circulation system include coordination with the County of San Bernardino in regards to traffic impacts and the Chino Airport, the Army Corps of Engineers and Orange County Water District regarding the 566-foot dam inundation area, the Santa Ana River Watershed Agency and related groups regarding the Santa Ana River, the Local Agency Formation Commission regarding annexation, and adjacent jurisdictions in initial input and review of the plan.

General Plan Consistency Analysis

General Policy

The City shall work closely with the Local Agency formation Commission in expanding, updating and implementing the Sphere of Influence Plan. At present, the City's Sphere of Influence is very closely drawn around the present City limits. While the jurisdictional boundaries of Ontario and Montclair in the north, and the Los Angeles County line in the west, provide clearly understood limits, the Sphere of Influence lines to the south and east should be expanded to more closely approximate the city's natural Sphere of Influence.

The Specific Plan responds to the policy:

Since The Preserve is being annexed into the City of Chino, the City has worked closely with the Local Agency Formation Commission.

General Policy

Agricultural land within Chino and its Sphere of Influence shall be converted into urban uses in a gradual, phased and orderly manner.

The Specific Plan responds to the policy:

The Preserve is a long-term plan for the conversion and development of agricultural lands in the former sphere of influence area. The phasing, financing and infrastructure plans ensure an orderly pattern and pace of growth commiserate with the ability to provide service. It is important to note, that note all agricultural lands are converted. Approximately 345-acres of permanent Agriculture and 518-acres of Agriculture/Open Space-Natural areas accommodate agricultural uses within The Preserve.

General Policy

The City shall discourage strongly the major expansion of Prado Dam, and encourage the Corps of Engineers to seek alternative solutions for increasing the holding capacity of the dam. Rather, the City shall support the "All Rivers" plan which will provide for a minimal raising of the Prado Dam, and further flood control facilities upstream.

The Specific Plan responds to the policy:

The Army Corps of Engineer's Santa Ana Mainstem Project has been approved and will result in the raising of the El Prado Dam 28 feet and the spillway 8 feet. The Preserve maintains the new 566-foot dam inundation elevation almost entirely and accommodates appropriate uses within the floodable areas.

General Policy

The City and Chino Unified School District should work closely in the location and development of new schools and school administration and support facilities within the City and its Sphere of Influence.

The Specific Plan responds to the policy:

The location and development of new schools is an important issue within The Preserve. The Preserve accommodates the development of two elementary schools and one K-8 school. These are conceptually located within the Community Core and the residential area in the east. In addition, the four residential land use designations each allow for the siting of educational facilities, subject to Conditional Use Permit.

G. ENVIRONMENT

General Policy

The City shall take what steps it can towards the attainment and long-term maintenance of an ambient air quality consistent with Federal, State and Regional standards.

The Specific Plan responds to the policy:

The Preserve has been designed to help reduce vehicular trips. The Preserve locates the majority of residences near the Community Core, where services, entertainment, employment and cultural experiences can be accessed. The Preserve also includes an extensive trail and paseo system and accommodates the future development of a designated transit system. All these features provide viable options to the automobile and help the City attainment air quality standards.

General Plan Consistency Analysis

General Policy

The City shall work to help ensure that to the maximum extent possible a quiet living and working environment is achieved for all those living or working within the Planning Area.

The Specific Plan responds to the policy:

All construction within The Preserve is required to comply with the City's development standards and is subject to the City's noise ordinance. The Preserve itself has been designed to help achieve this goal. The noise contours of the Chino Airport, adopted as of 1991, have been respected and no residential uses are located within or adjacent to the 65 dB noise contour. The Community Paseo and Open Space System, an extensive trail system along major roadways, provides a buffer between major streets and adjacent residential areas.

General Policy

Development shall not be allowed in areas of high natural hazard without adequate mitigation.

The Specific Plan responds to the policy:

Development within The Preserve is situated so as to avoid known hazards and environmentally sensitive areas. The developable areas avoid earthquake faults, flooding or dam inundation areas, and the currently adopted Chino Airport noise and safety zones. Environmentally sensitive areas and drainage courses are maintained and incorporated within the plan.

H. RESOURCE CONSERVATION

General Policy

The City shall take positive steps to ensure that newly constructed facilities are as energy efficient as possible.

The Specific Plan responds to the policy:

Future developers within The Preserve are required to comply with the City's building code and are encouraged to incorporate energy efficient techniques. The Preserve is also designed in a compact manner and with transit and trail option to help reduce the need to utilize the automobile.

General Policy

The land use pattern within Chino shall respect the general aim of conserving energy.

The Specific Plan responds to the policy:

The Preserve is designed in a compact manner. The Preserve is a community featuring a mixture of residential neighborhoods focused around a diverse community core and a regional commercial center, interconnected with a Multi-Purpose Open Space feature by a system of paseos and trails. The compact placement of these features, along with transit and trail options will help to reduce the need to utilize the automobile.

CIRCULATION ELEMENT

GOALS, POLICIES AND ACTIONS

Goal G3-1 – Transportation Facility Improvement

Plan, develop, and maintain street improvements, including landscaping, to ensure adequate future capacity to accommodate traffic demands.

The Specific Plan responds to the policy:

The roadway standards for The Preserve were developed from the City of Chino Design Standards and General Plan to accommodate traffic generated by the project as well as through traffic. The roadway system consists of seven roadway classifications that accommodate varying amounts of traffic. The seven roadway classifications are: expressway, major arterial, primary arterial highway, secondary arterial highway, local collector, commercial collector and Main Street. The Design Guidelines address landscaping and streetscape issues in The Preserve.

Goal G3-2 – Truck and Hazardous Materials Routes in the City

The City's truck route and district designations should concentrate truck access to commercial and industrial areas, and should minimize intrusion on residential areas. The City's hazardous materials routes shall be designated on roadways that minimize the possible impact to residential areas in the City.

The Specific Plan responds to the policy:

Routes for trucks are identified along Kimball, Euclid and Pine Avenues to minimize impacts on the Community Core or residential areas within The Preserve.

Goal G3-3 – Rail Service

Support rail service facilities which limit the number of land use conflicts and are integrated with other transportation modes, in a comprehensive strategy.

The Specific Plan responds to the policy:

Rail facilities do not exist within or adjacent to The Preserve. However, a transit system is planned for The Preserve. The transit system is envisioned as a one-way, continuous loop on dedicated, or prioritized lanes, thus minimizing the number of land use conflicts. The form of this transit can be either rubber-tired or rail.

Goal G3-4 – Transportation Demand Management (TDM) Program

Develop and implement employment and home-based TDM programs, reducing the number of vehicular trips generated by both Chino residents and non-residents working in the City.

The Specific Plan responds to the policy:

Development within the Preserve is subject to the City's Transportation Demand Ordinance. Developers are also encouraged to incorporate the latest technological advances, such as Internet connections and electronic timers. Having access to such technological advances will promote home-based businesses.

Goal G3-5 – Public Transit

The City shall encourage improved facilities, routes, and ridership on all public transit.

The Specific Plan responds to the policy:

The Preserve accommodates an innovative transit system, which consists of a local transit system and the regional bus service. The transit system is a one-way loop on dedicated or prioritized lanes with transit stops that serve major features, such as the community core and residential areas.

Goal G3-6 – Commuter and Recreational Trails

Promote commuting and recreational trails as an alternative mode of travel.

The Specific Plan responds to the policy:

The Preserve has been designed to help reduce vehicular trips and promote commuting. The Preserve locates the majority of residences near the Community Core, where services, entertainment, employment and cultural experiences can be accessed. The Preserve's local transit system is located within walking distance of a quarter mile of major activity areas and concentrations of residences. The Preserve also includes an extensive trail and paseo system that provides convenient access to all areas of the plan. All these features provide viable options to the automobile and help promote alternative means of travel.

Goal G3-7 – Development Type

The City shall support land uses in the Chino Airport area which fulfill the goals, and policies of the General Plan and the Chino Airport Master Plan.

The Specific Plan responds to the policy:

The Airport Related and Light Industrial land use designations accommodates development that directly can be related and/or complement the Chino Airport. The noise and safety zones of the Chino Airport are accommodated within these land uses to help buffer residences as well as provide appropriate uses according to the currently adopted Chino Airport Land Use Plan, 1991.

Goal G3-8 – Public Facilities Systems

Provide complete, safe, and efficient public utility systems which serve future land use needs.

The Specific Plan responds to the policy:

The public utility systems within The Preserve are designed to serve its development and will connect to the regional systems. Utility plans have been addressed separately in the Water, Sewage, and Drainage Utility Master Plan.

General Plan Consistency Analysis

HOUSING ELEMENT

GOALS, POLICIES AND ACTIONS

Goal G4-1 – Housing Preservation

Protect and preserve existing housing to ensure that it continues to meet Chino resident's needs for sound housing in a safe environment.

The Specific Plan responds to the goal:

The existing land use of land within The Preserve's area consists mainly of agricultural uses, open space and vacant lands, and some public facilities. There are very few housing units within The Preserve's existing land uses and The Preserve will offer approximately 10,800 housing units.

Goal G4-2 – Housing Production

Encourage the construction of a range of new housing appropriate to the needs of Chino residents and the neighborhood where it will be located.

The Specific Plan responds to the goal:

The Preserve contains various residential land use designations, which consist of: Estate, Low Density, Medium Density, and High Density. The various designations allow for a broad range of housing types that are strategically located and connected among major features. The Low Density, Medium Density, and High Density Residential land use designations are designed to give the appearance of a suburban density. The Estate Residential land use designation is designed to give the appearance of a rural scale with single-family, ranch style homes set on large lots. The diversity of residential neighborhoods offers a variety of housing types, densities, and price ranges.

Goal G4-3 – Remove Governmental Constraints

Review and, where possible, remove governmental constraints to the production of housing in the city.

The Specific Plan responds to the goal:

Development in The Preserve is subject to the City's entitlement and permit processes, however, residential land use designations promote a wide range of densities and housing types in order to achieve variety and accommodate a broad spectrum of market segments. Housing of various densities will be placed throughout The Preserve.

Goal G4-4 – Housing Accessibility

Ensure equal access to both sale and rental housing regardless of race, creed, color, sex, marital status, physical handicaps, age, or national origin.

The Specific Plan responds to the goal:

Residential development within The Preserve will comply with all applicable local, state, and federal fair housing laws in both the sale and rental of housing. In addition, development within The Preserve is subject to the City's entitlement and permit processes.

Goal G4-5 – Community Participation

Encourage public participation in establishing housing policy and designing housing programs for the city.

The Specific Plan responds to the goal:

The Preserve Specific Plan has undergone an intensive program to illicit input and comments from interested citizens, affected agencies, and property owners to illicit their input and comments regarding the development of the area. This includes five Focus Group meetings that were held to discuss issues and opportunities and review the conceptual and preferred land use plans. These focus group meeting involved representatives and members concerned with: environmental issues (March 15, 2000), infrastructure and services (March 22, 2000), transportation and mobility (April 6, 2000), property owners' interests (April 12, 2000), and review of the alternative plans (June 7, 2000). In addition, The Preserve was adopted after four public hearings with the planning commission and city council.

CONSERVATION / OPEN SPACE ELEMENT

GOALS, POLICIES AND ACTIONS

Goal G5-1 – Agricultural Preservation

To preserve and protect land devoted to agricultural uses and to promote activities to help achieve self sustainment.

The Specific Plan responds to the goal:

The Preserve includes two land designations, Agriculture and Agriculture/Open Space-Natural that accommodate agricultural, recreation, habitat, and open space uses. The Agriculture land use designation is intended to provide for agricultural uses including farming, stables, pastures, and grazing. The Agriculture/Open Space-Natural land use designation is intended to provide for agricultural and open space uses, including passive recreation, equestrian uses, farming, pastures, grazing, permanent open space, wildlife preserves, multi-purpose trails, and water retention basins.

Goal G5-2 – Improve Air Quality

To improve air quality in the Chino area.

The Specific Plan responds to the goal:

The Preserve provides strategies that promote a reduction in vehicle usage for everyday activities. The Preserve locates the majority of residences near the Community Core, where services, entertainment, employment and cultural experiences can be accessed. The Preserve also includes an extensive trail and paseo system and accommodates the future development of a designated transit system. All these features provide viable options to the automobile and help the City improve air quality standards.

Goal G5-3 – Preserve Plant and Wildlife Resources

To encourage the preservation and conservation of plant and wildlife resources in the City.

The Specific Plan responds to the goal:

The Preserve includes five open space land use designations: Agriculture, Open Space-Recreation, Agriculture/Open Space Natural, Open Space-Natural, and Open Space-Water. The open space land use designations account for approximately 50% of the total Preserve area. There are 2,987 acres designated within The Preserve. These land use designations are intended to preserve natural resources. The Open Space-Natural land use designation in particular, is intended to accommodate permanent natural open space, wildlife preserves, natural drainage and stream courses, cultural and historic resources, and protect natural plant and animal habitats.

Goal G5-4 – Cultural and Historical Preservation

To preserve the City's cultural and historical resources for the enjoyment and education of Chino residents.

The Specific Plan responds to the goal:

The open space land use designations address a specific range of issues intended to help preserve the historic, rural character of Chino. The Open Space-Natural land use designation, which covers 1640 acres, is intended to accommodate permanent natural open space, wildlife preserves, natural drainage and stream courses, cultural and historic resources, and protect natural plant and animal habitats. Agricultural uses are also an important historic land use. The Agriculture and Open-Space Agriculture land use designations consist of 863 acres in The Preserve.

Goal G5-5 – Reduce Dependence on Non-renewable Resources

The City shall commit itself and encourage residents of Chino to reduce dependence on non-renewable and non-recyclable resources.

The Specific Plan responds to the goal:

The Preserve provides strategies that promote a reduction in vehicle usage for everyday activities. The Preserve locates the majority of residences near the Community Core, where services, entertainment, employment and cultural experiences can be accessed. The Preserve also

includes an extensive trail and paseo system and accommodates the future development of a designated transit system. All these features provide viable options to the automobile and help the City reduce dependence on non-renewable and non-recyclable resources.

Goal G5-6 – Encourage Use of alternative Energy Sources

To encourage and promote the use of alternative energy sources with emphasis on the use of renewable energy sources.

The Specific Plan responds to the goal:

The Preserve requires future developers to comply with the City's building code and encourages developers to incorporate energy efficient building techniques. The Preserve is also designed in a compact manner and with transit and trail option to help reduce the need to utilize the automobile.

Goal G5-7 – Promote Energy Conservation Practices

To encourage the use of energy management and conservation practices, while striving to achieve a sustainable energy future.

The Specific Plan responds to the goal:

Future developers within The Preserve are encouraged to incorporate energy efficient techniques. The Preserve is also designed in a compact manner and with transit and trail option to help reduce the need to utilize the automobile.

Goal G5-8 – Protect Public From Flood Hazards

To protect the public's health, safety and general welfare from flood hazards through flood control practices.

The Specific Plan responds to the goal:

A significant portion of The Preserve, 2,917 acres, lies within the inundation area created by the raising of El Prado Dam. The raised dam is initially designed to accommodate a 333-year flood event. The area below the 566-foot dam inundation elevation is envisioned as a dynamic

combination of active and passive recreation, habitat and agricultural uses. The California Institute for Women falls partially within the 566-foot dam inundation elevation. Levees will be constructed to protect the structures on the prison facility's property from inundation. The will be no residential or commercial development within this area to protect the public's health and safety. The Open Space-Recreation land use designation will provide protection from environmental hazards.

Goal G5-9 – Conserve Mineral Resources

To encourage the conservation of mineral resources, including rock, sand and gravel resources.

The Specific Plan responds to the goal:

The various open space designations within The Preserve present opportunities for conservation of resources. The open space land use designations are divided into five subcategories: Agriculture, Open Space-Recreation, Agriculture/Open Space-Natural, Open Space-Natural, and Open-Space Water. The Open Space-Natural land use designation, in particular, is intended to accommodate permanent natural open space, wildlife preserves, natural drainage and stream courses, cultural and historic resources, and protect natural plant and animal habitats.

Goal G5-10 – Reduce Local Solid Waste

To reduce the amount of local solid waste generated in the City.

The Specific Plan responds to the goal:

Dairy Waste is currently generated in the City. Manure from dairy operations is spread over farmed lands, shipped out of the area or composted at the Co-Composting facility. The Co-Composting facility is operated by the Chino Municipal Water District for the purpose of composting both dairy manure and wastewater sludge into a marketable commodity. There are discussions to relocate the Co-composting facility to Subarea 1. The Preserve must comply with local solid waster reduction requirements. In addition, Specific Dairy Waste Management requirements have been created in order to reduce the amount of dairy waste within The Preserve. The requirements call for the removal of approximately 2 million tons of stockpile manure by December 31, 2001. Dairy uses are transitioning to more urban land uses within The Preserve.

General Plan Consistency Analysis

Goal G5-11 – Soil Conservation

To conserve and protect soil resources in the City.

The Specific Plan responds to the goal:

The Preserve features a multi-purpose open space feature, which consists of 2,987 acres. The opens space feature provides opportunities for soil conservation. This open space feature is subdivided into 5 categories that include: Agriculture, Open Space-Recreation, Agriculture/Open Space-Natural, and Open Space-Water. The Open Space-Natural (OS-N) Land Use Designation particularly encourages the conservation of soil resources in the City by promoting permanent open space.

Goal G5-12 – Conserve Water

To conserve water resources in the City of Chino.

The Specific Plan responds to the goal:

The Open-Space-Water (OS-W) Land Use Designation within The Preserve is intended to preserve water resources, such as watercourses and lakes. This designation allows land to be used for such things as lakes and waterbodies and water related recreation. In addition, The Preserve will incorporate an extensive reclaimed water system, keying off of the adjacent treatment plant.

Goal G5-13 – Meet Existing and Future Water Demands

To meet existing and future water demands for the City.

The Specific Plan responds to the goal:

The Preserve is serviced by an extensive and well-planned infrastructure system that is designed to accommodate future development within The Preserve. The water, wastewater, drainage, and utility systems are designed to seamlessly connect to the regional/local systems. The infrastructure plans were developed separately and incorporated into this Specific Plan.

Goal G5-14 – Maintain Federal, State and Local Water Quality Standards

To ensure that the City's water supply maintains federal, state and local water quality standards.

The Specific Plan responds to the goal:

The Preserve is serviced by an extensive and well-planned infrastructure system. The water, wastewater, drainage, and utility systems are designed to seamlessly connect to the regional/local systems. The infrastructure plans were developed separately and incorporated into this Specific Plan. Water and Wastewater issues will be addressed upon completion of the Water and Wastewater Master Plans. Dairy waste management is an important issue within The Preserve and is critical to the health of the Santa Ana River. For this reason, the Santa Ana River Water Quality Control Board (SARWQCB) enforces requirements of the Clean Water Act. Dairy operators are also subject to the Porter Cologne Water Pollution Control Act.

Goal G5-15 – Open Space for Natural Resources Preservation

To encourage the development of open space for preservation of the City's natural resources.

The Specific Plan responds to the goal:

The Preserve includes 2,987 acres of open space land use designations. There are five open space land use designations: Agriculture, Open Space-Recreation, Agriculture/Open Space Natural, Open Space-Natural, and Open Space-Water. These land use designations are intended to preserve natural resources. The Open Space-Natural Land Use Designation, which consists of 1,640 acres, accommodates permanent natural open space, wildlife preserves, natural drainage and stream courses, cultural and historic resources, and protect natural plant and animal habitats.

Goal G5-16 – Open Space for Outdoor Recreation

To maintain and encourage the development of open space for outdoor recreation.

The Specific Plan responds to the goal:

The Preserve includes 2,987 acres of open space land use designations. There are five open space land use designations: Agriculture, Open Space-Recreation, Agriculture/Open Space Natural, Open Space-Natural, and Open Space-Water. The Open Space-Recreation Land Use

designation, which consists of 422 acres, is intended to establish open space areas for active and passive recreation. Allowable land uses include: sports fields, golf, equestrian facilities, and multi-purpose trails.

APPENDIX A

GOALS AND OBJECTIVES

Goal 1

To encourage the provision of recreation facilities in new residential subdivisions.

The Specific Plan responds to the goal:

The four different residential land use designations, as well as the Community Core, encourage open space in new development projects. New developments are required to meet local park ordinances. However, there is flexibility to provide other cultural, service and recreational activities. The Estate Residential (ER) Land Use Designation's intent is for open space and landscaping to dominate the visual scene and encourages the creation and use of equestrian facilities and trails. The Community Core land use designation allows for a mix of uses that promote the integration of open space and recreation within the area. The Community Core allows for plazas and courtyards and wide, landscaped sidewalks with textured paving. The Community Paseo and Open Space System is a system of trails and linear open spaces that connect major features of The Preserve, such as the Community Core, residential areas and public facilities. This system accommodates walking, equestrian, bicycling and skating options.

Goal 2

To acquire parkland in advance of urban development in an attempt to avoid high land costs.

The Specific Plan responds to the goal:

Future development is required to comply with local park ordinances. Satisfaction of the parkland requirements will be required prior to entitlement. The parks system for The Preserve consists of both Neighborhood and Community parks distributed within the residential sectors of the project. The calculation of parkland dedication requirements is based on the provisions of the City's Local Park Ordinance. The Preserve 's Conceptual Park Plan consists of one 45-acre Community Park and six Neighborhood Parks, ranging in size from 5 to 15 acres. Additionally, the

Park Plan includes recommendations for the placement of parks however; the final park placement will be determined upon final approval of tract or parcel maps, and may contain some combination of public parks and private recreation facilities.

Goal 3

To utilize innovative park design in relating various user groups and provide for low cost maintenance.

The Specific Plan responds to the goal:

Subject to local Park Ordinance, park design is addressed in the Park Plan. In addition, The Preserve provides basic guidelines and locational principles. These principles will be used in the preparation of any tract maps, or subsequent park improvement plans. Park and recreation facility design shall be based on innovative design concepts and consideration of long-term park maintenance costs.

Goal 4

To determine current and future park and recreation requirements and design facilities and programs to satisfy the needs of residents.

The Specific Plan responds to the goal:

Subject to local Park Ordinance, park and recreation requirements are addressed in The Preserve's Park Plan. In addition, The Preserve provides basic guidelines and locational principles. The calculation of parkland dedication requirements is based on the provisions of the City's Local Park Ordinance. The Local Park Ordinance authorizes the City to require the dedication of land/or the payment of in-lieu fees for park and recreational purposes as a condition of approval for a tentative or parcel map. The Preserve 's Conceptual Park Plan consists of one 45-acre Community Park and six Neighborhood Parks, ranging in size from 5 to 15 acres.

Goal 5

To encourage the development of bicycle and equestrian paths and trails where planned.

The Specific Plan responds to the goal:

The Community Paseo and Open Space System is the backbone of The Preserve, interweaving the various features of the plan and connecting the entire community with the open space feature to the south. The Community Paseo and Open Space System is a system of trails and linear open spaces that connect the major features of The Preserve. The Community Paseo and Open Space System provides a convenient and viable mobility option to the car and accommodates walking, bicycling, and skating.

Bicycle paths are encouraged in The Preserve through the Bicycle Plan, which consists of an extensive bicycle system. The bicycle system is connected with major features of The Preserve and with the regional bicycle system. The bicycle system is composed of on-street and off-street pathways.

Equestrian paths and trails are an important feature of The Preserve. The standards for the bikeway system in The Preserve are identical to those found in the Circulation Element of the City of Chino General Plan. The equestrian trails are located in the Estate Residential land use category and along Hellman Avenue.

NOISE ELEMENT

GOALS, POLICIES AND ACTIONS

Goal G6-1 – Protect Public Health, Safety & Welfare

Protect the public health, safety and general welfare by eliminating existing noise problems and by preventing significant degradation of the future acoustic environment through the establishment of standards that specify acceptable limits of noise for land uses throughout the City.

The Specific Plan responds to the goal:

The Chino Airport has an important presence in The Preserve and necessary measures are taken to protect the public health, safety, and general welfare. Airport Noise and Safety Zones, as of 1991, were utilized to drive the land use plan. Noise sensitive and inappropriate uses are not located within the adopted noise and safety zones. The City's Airport Overflight Zone applies to The Preserve. The Chino Airport Noise and Safety Zones restrict the location of certain types of sensitive uses, such as residential, while providing an opportunity for compatible uses, such as industrial warehouse. The airport noise contour, 65-dB, is located north of Kimball Avenue within airport property. Schools, residences, hospitals and churches are prohibited within the 65-dB contour. Appropriate uses for the 65dB noise contour include industrial, commercial, recreation, agriculture and open space uses.

SEISMIC & PUBLIC SAFETY ELEMENT

A. SEISMIC AND GEOLOGICAL HAZARDS POLICY PLAN

General Goal

To reduce loss of life, injuries, damage to property and social economic dislocations resulting from seismic geologic hazards.

The Specific Plan responds to the goal:

Development within The Preserve is will be located away from any known fault lines. The area of The Preserve that lies near a fault line is zoned for open space land use designations that do not include structures capable of supporting human habitation, even temporary habitation. Allowable land use designations surrounding the earthquake fault include: crop cultivation, equestrian centers, multi-purpose trails, lakes and waterbodies, and wildlife/habitat conservation areas.

B. FLOOD HAZARD POLICY PLAN

General Goal

To prevent injury or loss of life and damage to property due to flooding hazards.

The Specific Plan responds to the goal:

All flood hazards have been avoided in The Preserve. The Prado Flood Basin will consist primarily of open space and recreational uses which will prevent injury or property damage. There will be no structures developed that are capable of supporting human habitation, even temporary habitation within this area. The 566-foot dam inundation elevation is the level of the area behind the dam that could be inundated by a 200-year flood event. The area below the 566-foot dam inundation elevation is envisioned as a dynamic combination of active and passive recreation, habitat and agricultural uses. In addition, the Open Space-Recreation land use designation is intended to provide protection from environmental hazards.

C. WILDLAND FIRE HAZARD POLICY PLAN

General Goal

To reduce loss of life, injuries, damage to property, and natural resources due to wildland fires.

The Specific Plan responds to the goal:

There is a possibility for wildland fires in the Open Space land use designation of The Preserve. However, future development within The Preserve must comply with Building Standards and Fire Code. In addition, urbanization reduces the threat of wildland fires except on the perimeter. There is a linear path in this area that acts as a buffer.

D. DEFENSIBLE SPACE POLICY PLAN

General Goal

To reduce loss of life, injury and loss or damage to property by considering crime prevention in site planning and development design.

The Specific Plan responds to the goal:

Details of each proposal are subject to City review at time of submittal. In addition, The Preserve's Design Guidelines promote safety and crime prevention through its themes of quality and unity. Quality development is realized through an attention to detail that is carried forth from the initial conception to final construction. In addition, The Preserve's design guidelines promote a greater sense of community by directly connecting services, employment, and housing.

General Plan Consistency Analysis

AIR QUALITY ELEMENT

Goal G8-1 – Air Quality Improvement

To achieve coordination of air quality improvement within the portion of the South Coast Air Basin in San Bernardino County and improved air quality through reductions in pollutants from Orange, Riverside and Los Angeles Counties.

The Specific Plan responds to the goal:

The Preserve offers a transit system and a system of trails, which will promote reduced vehicle usage, which will also promote air quality improvement. The Community Paseo and Open Space System is the backbone of The Preserve, interweaving the various features of the plan and connecting the entire community with the open space feature to the south. The Community Paseo and Open Space System is a system of trails and linear open spaces that connect the major features of The Preserve. The Community Paseo and Open Space System provides a convenient and viable mobility option to the car and accommodates walking, bicycling, and skating

Goal G8-2 – Ground Transportation

To achieve a diverse and efficient ground transportation system which generates the minimum feasible pollutants.

The Specific Plan responds to the goal:

The Preserve provides a mix of land uses, including residential, community core and commercial. These features are interconnected by a system of paseos and trails. Additionally, the transportation plan provides a variety of options, including a transit system, a bicycle system, and an equestrian system. The Preserve's design encourages the use of alternative transportation methods, which will help to reduce the amount of pollutants.

Goal G8-3 – General Aviation Emissions

To encourage the minimum feasible emissions from Chino Airport.

The Specific Plan responds to the goal:

The Preserve accommodates the Chino Airport's Noise and Safety Zones to protect the health, safety, and welfare of residents and businesses in the plan area. The City continues to work with the County of San Bernardino to reduce emissions.

Goal G8-4 – Efficient Land Use Pattern

To achieve a pattern of land uses which can be efficiently served by a diversified transportation system and development projects which directly and indirectly generate the minimum feasible air pollutants.

The Specific Plan responds to the goal:

The Preserve is designed in a compact manner. The Preserve is a community featuring a mixture of residential neighborhoods focused around a diverse community core and a regional commercial center, interconnected with a Multi-Purpose Open Space feature by a system of paseos and trails. The compact placement of these features, along with transit and trail options will help to reduce the need to utilize the automobile.

The Preserve provides a mix of land uses, including residential, community core and commercial. These features are interconnected by a system of paseos and trails. A system of roadways has been created for The Preserve, based upon the City's design standards. Additionally, the transportation plan provides a variety of options, including a transit system, a bicycle system, and an equestrian system. The interconnected nature of The Preserve allows for the use of alternative transportation. Many of business features are accessible by bicycle, walking, or public transportation. This system will help to reduce the amount of air pollutants.

Goal G8-5 – Reduce Particulate Emissions

Reduce to a minimum particulate emissions from such uses as construction, operation of roads, and buildings.

The Specific Plan responds to the goal:

Future developers within The Preserve are encouraged to incorporate energy efficient techniques. In addition, The Preserve features all of the strategies that make sense at a local level for reducing the need to use the automobile for everyday activities. The reduction in vehicle usage will contribute to reduced particulate emissions.

Goal G8-6 – Reduce Energy Consumption

To reduce emissions through reduced energy consumption.

The Specific Plan responds to the goal:

The Preserve is designed in a compact manner and with transit and trail option to help reduce the need to utilize the automobile. The highest density of development is located near the core of The Preserve, thus minimizing the need to utilize the automobile. Future developers within The Preserve are encouraged to incorporate energy efficient techniques.

ECONOMIC DEVELOPMENT ELEMENT IMPLEMENTATION PLAN

Goal G9-1 – Sales Tax Revenue

To maximize the amount of sales tax revenue captured by the City of Chino. Since Proposition 13 limits property tax revenues, the City depends on sales tax revenues for 30% of Chino's general funds (illustrated in Figure 1, page 7). General funds are used to pay for police and fire protection, as well as many other services integral to a high quality of life. In order to continue offering a high level of services to residents and businesses, it was determined that one of the goals of the economic development strategy should be maximizing sales tax revenues.

The Specific Plan responds to the element goal:

There are approximately 10 million square feet of business uses accommodated in the Preserve Specific Plan. Business land use designations are divided into four subcategories: Neighborhood Commercial, Regional Commercial, Light Industrial and Airport Related. These land use designations allow a wide range of intensities in order to encourage an exciting mixture of uses and ensure the long-term viability of The Preserve. To ensure this variety, a number of innovative tools are used in the development plan. In addition to the business land use designations, the Community Core land use designation encourages a variety of commercial uses. These various land use designations will contribute to sales tax revenue.

Goal G9-2 – Employment Opportunities

To encourage and accommodate growth in industrial and office activity over the next two decades to create approximately 18,000 new jobs by 2010 and maintain Chino's high jobs/housing ratio.

The Specific Plan responds to the element goal:

There are four business land use designations in The Preserve: Neighborhood Commercial, Regional Commercial, Light Industrial and Airport Related. The Preserve also includes four residential land use designations, which contribute to the jobs/housing ratio. Additionally, the Community Core land use designation encourages a mix of uses including business and residential areas. The Preserve anticipates the development of 9,779 housing units and the development of 10,234,744 square feet of business uses.

General Plan Consistency Analysis

Goal G9-3 – Positive Business Environment

To maintain the city government's positive business environment.

The Specific Plan responds to the element goal:

The Preserve provides several land use designations that promote a variety of business activities. The Preserve anticipates the development of over 600 acres in the business land use designations. The business land use designations include: Neighborhood Commercial, Regional Commercial, Light Industrial and Airport Related. Additionally, the Community Core provides for a variety of business opportunities, including retail, office, and dining. Business land use designations allow a wide range of intensities in order to encourage an exciting mixture of uses and ensure the long-term viability of The Preserve.

Goal G9-4 – Quality of Life

To have an economic development program that respects and enhances the community's quality of life.

The Specific Plan responds to the element goal:

The business land use designations within The Preserve allow for a wide range of intensities in order to encourage a mixture of uses and ensure the long-term viability. The Community Core also offers a unique opportunity within The Preserve. The Community Core allows for a mixture of uses within one area, which allow for a high level of activity and diversity to be generated. The business land use designations coupled with The Preserve's unique transportation system will enhance the community's quality of life. In addition, The Preserve includes design guidelines that are intended to ensure a high quality of development and minimize negative impacts from things such as noise and odor.

DRAFT

CITY OF CHINO:

Right-To-Farm Policies

Submitted to:

Community Development Department
13220 Central Avenue
Chino, CA 91710
P.O. Box 667
Chino, CA 91708-0667

CITY OF CHINO
Brent Arnold, Principal Planner

Submitted by:

1580 Metro Drive
Costa Mesa, CA 92626
Phone: 714.966.9220
Fax: 714.966.9221
E-mail: costamesa@planningcenter.com

THE PLANNING CENTER

MAY 24, 2000

SUBAREA 2 RIGHT TO FARM POLICIES

"SUBAREA 2: A SPECIAL PLACE FOR SPECIAL PEOPLE"

INTRODUCTION

This report is intended to present Draft Right-to-Farm policies for ultimate inclusion in the Specific Plan and General Plan Amendment for Subarea 2. The purpose of these policies is to acknowledge the continued importance of agricultural operation and potential impacts posed to non-agricultural uses as the area transitions to urban/suburban uses. The proposed policies are based on the City's existing right-to-farm ordinance, similar ordinances from other jurisdictions as well as models suggested by the Farm Bureau. Please keep in mind that the format and structure of the proposed policies is not necessarily indicative of the format of the Specific Plan, however the language and sequence would be utilized.

A model ordinance is attached (See Attachment 1) to provide more detailed information and ideas for specific language.

SPECIFIC PLAN
RIGHT-TO-FARM POLICIES SECTION

1 Background

Where non-agricultural land uses are located near agricultural uses, there is a potential for conflicts. These conflicts result from the inherent attributes of agricultural operations, including noise, odor, dust, smoke, operation of machinery (including aircraft), storage and disposal of manure, and where field crops or orchids are involved, the application of chemical fertilizers, soil amendments, herbicides, pesticides, and the hours of operation. As a result, agricultural businesses frequently become the subjects of nuisance complaints and are pressured to cease or curtail operations. These pressures may discourage further investments in farm improvements, dampen the economic viability of the City's agricultural industry, and harm a vital link to the City's historic past. As Subarea 2 transitions from rural uses to more urban/suburban uses, these conflicts will be exacerbated and must be addressed in advance.

In addition, property owners may desires to both take advantage of the adopted specific plan designations and develop non-agricultural uses while at the same time continuing agricultural operations elsewhere in Subarea 2. In this instance, it is incumbent on those property owners to operate their agricultural uses in a manner that minimizes impacts to the non-agricultural uses.

2 Policies and Programs

2.1 Continued Agricultural Use

The City of Chino shall encourage continued agricultural operations within Subarea 2 concurrent with the gradual urbanization of the area.

2.1.1 Permanent agricultural uses shall be provided for in the land use plan for Subarea 2 where feasible and impacts on urban development and environmental resources are limited.

2.1.2 Property owners who develop in accordance with the specific plan and continue agricultural operations on other properties within Subarea 2, shall modify agricultural operations to minimize impacts to urban development and environmental resources.

2.1.3 As urban development occurs, the City shall inform agricultural operators within Subarea 2 of the potential impacts posed by reckless agricultural operations to urban development and environmental resources.

2.2 Urban Transition

The City of Chino shall require property owners who utilize property within Subarea 2 for both agricultural and non-agricultural uses to reduce/eliminate impacts caused by agricultural uses.

2.2.1 The City of Chino shall require property owners who concurrently develop property according to the adopted specific plan and operate/lease property in Subarea 2 for agricultural purposes, to operate the agricultural uses in a manner that minimizes impacts on non-agricultural uses. This may involve such measures as, but not limited to, requiring increased setbacks for agricultural uses or limiting hours of operations. The intent is to ensure that property owners who utilize property for two potentially incompatible uses take the necessary steps to reduce impacts to non-agricultural uses.

2.3 Disclosure

The City of Chino shall provide notification to prospective residents and business operators of Subarea 2 of existing agricultural uses and of the City's support for their continued operations. The intent is to concurrently keep residents/business and agricultural operators advised of information that is of mutual interest

2.3.1 Potential residents and business operators of Subarea 2 shall be advised of the potential problems associated with locating near agricultural operations, including noise, odor, dust, smoke, operation of machinery (including aircraft), storage and disposal of manure, and where field crops or orchids are involved, the application of chemical fertilizers, soil amendments, herbicides, pesticides, and the hours of operation.

2.3.2 The City shall require developers and sellers to notify potential purchasers and operators of probable conflicts resulting from nearby agricultural uses. The notification shall occur upon transfer of ownership, signing of rental or leasing agreements, or issuance of a discretionary development permit.

The attached Real Estate Transfer Disclosure Statement can be utilized for notification purposes (See Attachment 1)

2.4 Resolution of Disputes

The City of Chino shall devise a system for the resolution of disputes arising from agricultural operations.

2.4.1 The City shall seek to have parties in conflict develop a mutually acceptable solution through the services of an accredited dispute resolution service.

2.4.2 Disputes regarding inconveniences or discomforts created by agricultural operations shall be heard by the city council if not resolved by other means.

ATTACHMENT 1: MODEL RIGHT TO FARM ORDINANCE

Section 1. Definitions

a) "Agricultural Land" shall mean all that real property currently used for agricultural operations or upon which agricultural operations may in the future be established.

b) "Agricultural Operation" shall mean and include, but not be limited to, the cultivation and tillage of the soil; dairying; the production, irrigation, frost protection, cultivation, growing, harvesting and processing of any agricultural commodity, including viticulture, horticulture, timber or apiculture; the raising of livestock, fur bearing animals, fish or poultry; and any commercial agricultural practices performed as incident to or in conjunction with such operations; including preparation for market; delivery to storage or to market, or to carriers for transportation to market.

Section 2. Purpose and Intent

(a) It is the declared policy of the City of Chino to enhance and encourage agricultural operations within the City. It is the further intent of the City of Chino to provide to the residents of this City proper notification of the City's recognition and support through this ordinance of those persons' and/or entities' right to farm.

(b) Where non-agricultural land uses extend into agricultural areas or exist side by side, agricultural operations frequently become the subjects of nuisance complaints due to lack of information about such operations. As a result agricultural operations are forced to cease or curtail their operations. Such actions discourage investments in farm improvements to the detriment of adjacent agricultural uses and the economic viability of the City's agricultural industry as a whole. It is the purpose and intent of this section to reduce the loss to the City of its agricultural resources by clarifying the circumstances under which agricultural operations may be considered a nuisance. This ordinance is not to be construed as in any way modifying or abridging state law as set out in the California Civil Code, Health and Safety Code, Fish and Game Code, Food and Agricultural Code, Division 7 of the Water Code, or any other applicable provision of State law relative to nuisances, rather it is only to be utilized in the interpretation and enforcement of the provisions of the code and City regulations.

(c) An additional purpose of this ordinance is to promote a good neighbor policy by advising purchasers and users of property adjacent to or near agricultural operations of the inherent potential problems associated with such purchase or residence. Such concerns may include, but are not limited to, the noises, odors, dust, chemicals, smoke, and hours of operation that may accompany agricultural operations. It is intended that, through mandatory disclosures, purchasers and users will better understand the impact of living near agricultural operations and be prepared to accept attendant conditions as the natural result of living in or near rural areas.

Section 3. Nuisance

No agricultural activity, operation, or facility or appurtenances thereof, conducted or maintained for commercial purposes, and in a manner consistent with proper and accepted customs and standards and with all chapters of the Zoning Ordinance of the City of Chino, as established and followed by similar agricultural operation, shall be or become a nuisance, if it was not a nuisance when it began.

Section 4. Disclosure

a) The disclosure statement required by this chapter shall be used under the following circumstances and in the following manner:

1) Disclosure upon transfer of residential property: Upon any transfer of real property by sale, exchange, installment land sale contract, lease with an option to purchase, or ground lease coupled with improvements, or residential stock cooperative improved with dwelling units, the transferor shall require that a statement containing the language set forth in subpart (b) shall be signed by the purchaser or lessee and recorded with the County Recorder in conjunction with the deed or lease conveying the interest in real property.

2) Disclosure upon issuance of discretionary development permit: Upon the issuance of a discretionary development permit, including but not limited to subdivision permits and use permits, for use on or adjacent to lands zoned for agricultural operation, the discretionary development permit shall include a condition that the owners of the property shall be required to sign a statement of acknowledgment containing the Disclosure set out in subpart (b) I on forms provided by the Planning Department, which form shall then be recorded with the County Recorder.

b) The disclosure required by Section 4(a) (1) is set forth herein, and shall be made a copy of, the following disclosure form:

LOCAL OPTION
REAL ESTATE TRANSFER
DISCLOSURE STATEMENT

This disclosure statement concerns the real property situated in the City of Chino, State of California, described as _____. This statement is a disclosure of the condition of the above property in compliance with chapter _____ of the City of Chino Zoning Code as of _____, 19___.

It is not a warranty of any kind by the seller(s) or any agent(s) representing any principal(s) in this transaction, and is not a substitute for any inspections or warranties the principal(s) may wish to obtain.

SELLERS INFORMATION

The Seller discloses the following information with the knowledge that even though this is not a warranty, prospective buyers may rely upon this information in deciding whether and on what terms to purchase the subject property. Seller hereby authorizes any agent(s) representing any principal(s) in this transaction to provide a copy of this statement to any person or entity in connection with any actual or anticipated sale of the property. THE FOLLOWING ARE REPRESENTATIONS MADE BY THE SELLER AS REQUIRED BY THE CITY OF CHINO AND ARE NOT THE REPRESENTATIONS OF THE AGENT(S), IF ANY. THIS INFORMATION IS A DISCLOSURE AND IS NOT TO BE PART OF ANY CONTRACT BETWEEN THE BUYER AND SELLER.

THE CITY OF CHINO PERMITS OPERATION OF PROPERLY CONDUCTED AGRICULTURAL OPERATIONS WITHIN THE CITY. If your property is adjacent to or near property used for agricultural operations or on agricultural lands, you may be subject to inconveniences or discomforts arising from such operations, including but not limited to noise, odors, fumes, dust, the operation of machinery of any kind during the 24-hour period (including aircraft), the storage and disposal of manure, and the application by spraying or otherwise of chemical fertilizers, soil amendments, herbicides and pesticides. Chino has determined

that inconveniences or discomforts associated with such agricultural operations shall not be considered a nuisance, if such operations are consistent with accepted customs and standards. The Chino City Council shall act as a grievance committee to assist in the resolution of any disputes, which might arise between residents and of Chino regarding agricultural operations. If you have any questions concerning this policy, please contact the City of Chino Department of Planning.

Seller certifies that the information herein is true and correct to the best of Seller's knowledge as of the date signed by the Seller.

Seller_____
Date_____
Seller_____
Date_____

BUYER (S) AND SELLER (S) MAY WISH TO OBTAIN PROFESSIONAL ADVICE AND/OR INSPECTIONS OF THE PROPERTY AND TO PROVIDE FOR APPROPRIATE PROVISIONS IN A CONTRACT BETWEEN BUYER(S) AND SELLER(S) WITH RESPECT TO ANY ADVICE/INSPECTIONS/DEFECTS.

I/WE ACKNOWLEDGE RECEIPT OF A COPY OF THIS STATEMENT.

Buyer_____
Date_____
Seller_____
Date_____
Agent (Broker Representing Seller)_____
By_____
(Associate Licensee or Broker-Signature)
Date_____

Agent (Broker Obtaining the Offer)_____
By_____
(Associate Licensee or Broker-Signature)
Date_____
A REAL ESTATE BROKER IS QUALIFIED TO ADVISE ON REAL ESTATE. IF YOU DESIRE LEGAL ADVICE, CONSULT YOUR ATTORNEY.

Section 5. Refusal to Sign Disclosure Statement
If a Buyer refuses to sign the disclosure statement set forth in Section 4(b) the transferor may comply with the requirements of this chapter by delivering the statement to the Buyer as provided in Section 4(b) and affixing the signing the following declaration to the statement:

I (name), have delivered a copy of the foregoing disclosure statement as required by law to (buyers name) who has refused to sign.

I declare the forgoing to be true under penalty of perjury.
Date:_____ (Sign)_____
Print Name:

Section 6. Penalty for Violation

Any violation of the requirements of this chapter shall be handled as a civil matter between the parties affected and shall not be a misdemeanor or infraction. Noncompliance with any provision of this chapter shall not affect title to real property, nor prevent the recording of any document.

Section 7. Separability
If any section, sentence, clause or phrase of this ordinance is for any reason held to be invalid or unconstitutional by the decision of a court or competent jurisdiction, it shall not affect the remaining portions of the ordinance.

Section 8. Precedence
This ordinance shall take precedence over all ordinances or parts of ordinances or resolutions or parts of resolution in conflict herewith and to the extent they do conflict with this ordinance they are hereby repealed with respect to the conflict and no more.

Section 9. Resolution of Disputes

(a) Should any controversy arise regarding any inconveniences or discomforts occasioned by agricultural operations including, but not limited to, noises, odors, fumes, dust, the operation of machinery of any kind during any 24 hour period (including aircraft), the storage and disposal of manure, and the application by spraying or otherwise of chemical fertilizers, soil amendments, herbicides and pesticides, the parties shall follow the following two steps: 1) seek to arrive at a mutually acceptable solution through the services of an accredited dispute resolution service; 2) failing the first step, submit the controversy to the city council as set forth in an attempt to resolve the matter prior to the filing of any court action.

1. The aggrieved party may notify the city council within thirty (30) days of the occurrence of the agricultural operation giving rise to the controversy.
2. Within fifteen (15) days after receiving the complaint, the city council shall set a meeting with the affected parties and shall attempt to mediate the dispute.
3. If the dispute cannot be successfully mediated by the city council, then both parties may agree to present the controversy to a professional mediator. The expense of such mediation shall be the responsibility of the affected parties.

(b) Any controversy between the parties may be submitted in writing to the city council within thirty days of the date of the occurrence of the particular activity giving rise to the controversy or to the date a party became aware of the occurrence.

(c) The effectiveness of the grievance committee as a forum for resolution of disputes is dependent upon full discussion and complete presentation of all pertinent facts concerning the dispute in order to eliminate any misunderstandings. The parties are encouraged to cooperate in the exchange of pertinent information concerning the controversy.

(d) The controversy shall be presented to the city council by written request of one of the parties within 30 days. Thereafter, the city council may investigate the facts of the controversy, but must, within thirty days, hold a meeting to consider the merit of the matter and within twenty days of the meeting must render a written decision to the parties. At the time of the meeting both parties shall have an opportunity to present what each considers to be pertinent facts.

Dairy Information - The Chino Preserve
COMMUNITY DEVELOPMENT
CITY OF CHINO

DATE: March 12, 2001

Operator	Milk Cows	Dry Cows	Total Mature Cows	Heifers	Calves	Overall Total Animals	RPTED Manure Produced
Albers, R. 8649 Merrill	1,080	165	1,245	290	150	1,685	2,840
Barthelemy, R. 16500 Chino-Corona	1,330	302	1,632	348	135	2,115	3,666
Bouma, P. 8919 Merrill	2,000	350	2,350	2,200	200	4,750	
De Boer, S. 8865 Kimball	530	80	610	150	0	760	1,370
Eagle Livestock 7850 Bickmore	0	0	0	0	4,500	4,500	1,800
Echeverria, J. 8762 Kimball	1,325	300	1,625	140	110	1,875	3,434
Engelsma, J. 8011 Kimball	197	35	232	90	45	367	572
Goyenetche, A. 6919 Bickmore	960	250	1,210	0	0	1,210	2,420
Haringa, H. 8552 Kimball	355	41	396	16	20	432	816
Hettinga, H. 17190 Cucamonga	1,400	300	1,700	100	0	1,800	0
Jaques, J. 8710 Pine	1,016	170	1,186	0	0	1,186	2,372
Marquez, A 7360 Pine	650	100	750	250	200	1,200	1,830

MEMORANDUM
FILE NO.: Dairy List for Subarea 2

DATE: March 12, 2001

Operator	Milk Cows	Dry Cows	Total Mature Cows	Heifers	Calves	Overall Total Animal	RPTED Manure Produced
Moons, J. 6310 Hellman	1,020	135	1,155	33	235	1,423	2,437
Mouw, W 8363 Pine	400	50	450	100	0	550	1,000
Mouw, W/R 6800 Pine	700	150	850	350	400	1,600	2,210
Nyenhuis, Jim 8711 Remington	790	90	880	0	0	880	1,760
Rocha, J. 7363 Pine	478	84	562	218	97	877	1,381
Scheenstra, A. 7725 Kimball	675	108	783	0	0	783	1,566
Scheenstra, A. 7551 Kimball	930	125	1,055	10	40	1,105	2,136
Stark, E. 7653 Kimball	985	195	1,180	43	82	1,305	2,436
Stueve, D. 7975 Bickmore	830	161	991	519	144	1,654	2,559
Stueve, G. 8340 Pine	2,400	600	3,000	3,000	0	6,000	9,000
Swager, G. 7945 Chino-Corona Rd.	1050	150	1,200	1000	0	2,200	0
Van Leeuween, Arie 6829 Pine	720	100	820	30	120	970	1,718
Van Vleit,N 8571 Merrill	1,000	200	1,200	0	0	1,200	2,400
Vander Poel, H. 8787 Pine	1,750	300	2,050	100	200	2,350	4,280
Vander Poel, H. 7311 Kimball	750	150	900	115	0	1,015	0

MEMORANDUM
FILE NO.: Dairy List for Subarea 2

DATE: March 12, 2001

Operator	Milk Cows	Dry Cows	Total Mature Cows	Heifers	Calves	Overall Total Animals	RPTED Manure Produced
Vander Poel, R 16221 Euclid	500	50	550	0	0	550	0
Wassenaav, P 8015 Kimball	40	11	51	0	0	51	0
Wiersema, H 8315 Merrill	840	110	950	39	0	989	1,975
Wind, B/T 8545 Pine	2,000	400	2,400	1,500	0	3,900	6,300

This information was compiled from the Milk Producer's Council's list dated 1998.

The CALC Manure Mature Cows can be calculated by multiplying the RPTED Manure Produced by 4.1 to get the dry ton amount.

Ray Albers
8649 Merrill Avenue
Chino, CA 91710

1200

Jaques, John
8710 Pine
Chino, CA 91710

Skyview Dairy
7311 Kimball
Chino, CA 91710

BRUCE ROBBINS
Mayor Pro Tem

GLENN DUNCAN
EARL C. ELROD
DENNIS YATES
Council Members

GLEN ROJAS
City Manager

CITY of CHINO

Bar VP Dairy
16221 Euclid Avenue
Chino, CA 91710

Loyola Dairy
7075 Bickmore
Chino, CA 91710

Stark & Sons
7653 Kimball
Chino, CA 91710

DeBoer, Sidney
8865 Kimball
Chino, CA 91710

Marquez Dairy
7360 Pine
Chino, CA 91710

Stueve's Gold #1
8340 Pine
Chino, CA 91710

Echeverria, Juan
8762 Kimball
Chino, CA 91710

Moons Dairy
6310 Hellman
Chino, CA 91710

Stueve's Gold #2
16055 Grove
Chino, CA 91710

Engelsma, Mrs. Jake
8011 Kimball
Chino,CA 91710

Mouw, Warren #1
8363 Pine
Chino, CA 91710

Swager & Sons #1
7945 Chino-Corona
Corona, CA 91720

Fair View Farms
6829 Pine
Chino, CA 91710

Mouw, Warren #2
6838 Pine
Chino, CA 91710

T & W Farms
8545 Pine
Chino, CA 91710

Goyenetche, Albert
6919 Bickmore
Chino, CA 91710

Nyenhuis, Jim
8711 Remington
Chino, CA 91710

Van Vliet Dairy
8571 Kimball
Chino, CA 91710

Haringa, Herman
8552 Kimball
Chino, CA 91710

Providence Dairy
16520 Chino-Corona
Chino, CA 91710

Vander Kool, Charles
8315 Merrill
Chino, Ca 91710

Hettinga, Hein – Corona
17190 Cucamonga
Corona, CA 91720

Rocha, John M.
7363 Pine
Chino, CA 91710

Vander Poel, Henry #1
8787 Pine
Chino, CA 91710

J & D Star
7551 Kimball
Chino, CA 91710

Simoes, H.M. & Sons
7565 Bickmore
Chino, CA 91710

Vander Poel, Pete
8711 Pine
Chino, CA 91710

13220 Central Avenue, Chino, California 91710
Mailing Address: P.O. Box 667, Chino, California 91708-0667
(909) 627-7577 • (909) 591-6829 Fax
Web Site: www.cityofchino.org.

Verhoeven, Ron
7725 Kimball
Chino, CA 91710

EUNICE M. ULLOA

BRUCE ROBBINS
Mayor Pro Tem

Wassenaar Dairy
8015 Kimball
Chino, CA 91710

Westra, H & R
16176 Cucamonga
Chino, CA 91710

Aphessetche Ranch
Xavier Aphessetche
7262 Bickmore Ave.
Chino, CA 91710

Durrington Farms
Glenn Durrington
5512 Frances
Chino, CA 91710

Eagle Livestock, Inc.
Roger Camping
P.O. Box 1178
Chino, CA 91710

CITY of CHINO

GLENN DUNCAN
EARL C. ELROD
DENNIS YATES
Council Members

GLEN ROJAS
City Manager

13220 Central Avenue, Chino, California 91710
Mailing Address: P.O. Box 667, Chino, California 91708-0667
(909) 627-7577 • (909) 591-6829 Fax
Web Site: www.cityofchino.org.

TRANSMITTAL

CITY OF CHINO • COMMUNITY DEVELOPMENT DEPARTMENT
13220 CENTRAL AVENUE, PO BOX 667 • CHINO, CALIFORNIA 91708-0667 • (909) 591-9812

DATE:
February 14, 2001

TO:
Tom Holm, AICP

FROM:
Sonia Pierce
For: Brent Arnold

COMPANY:
Michael Brandman Associates

TITLE:
Planning Consultant

ADDRESS:
15901 Red Hill Avenue

FAX NO.:
(909) 590-5535

PHONE NO.:
(714) 258-8100
(714) 258-8900-Fax

PHONE NO.:
(909) 464-8324

SUBJECT:
Williamson Act Parcels by contract number for Subarea2 Chino, CA

THE ATTACHED IS PROVIDED FOR YOUR:
[X] Information [ ] Files [ ] Review and Comment
[ ] Approval [ ] Use [ ]

NOTES/COMMENTS:
For your information and use, attached is a copy of the Williamson Act Parcels by contract number for Subarea2.

4 pages, including Cover Sheet

Williamson Act Parcels

by Contract Number

Contract	APN	Ac	Owner	Nonrenewal Year
68-022	1055-331-03	4.5 ✓	Lewis Investment Company LLC	
68-022	1055-341-03	4.25 ✓	Lewis Investment Company LLC	
68-022	1055-351-01	9 ✓	Lewis Investment Company LLC	
68-022	1055-351-02	9.5 ✓	Lewis Investment Company LLC	
68-022	1055-361-01	9.5 ✓	Lewis Investment Company LLC	
68-022	1055-361-02	10 ✓	Lewis Investment Company LLC	
68-022	1055-371-01	9.5 ✓	Lewis Investment Company LLC	
68-022	1055-371-02	10 ✓	Lewis Investment Company LLC	
68-022	1055-391-02	7.6 ✓	Lewis Investment Company LLC	
68-022	1055-401-03	10 ✓	Lewis Investment Company LLC	
68-022	1055-411-01	9.5 ✓	Lewis Investment Company LLC	
68-022	1055-411-02	10 ✓	Lewis Investment Company LLC	
68-022	1055-441-03	4.5	Lewis Investment Company LLC	
68-046	1057-011-01	9	Sand Creek MH Park	
68-046	1057-011-02	9.5	Van Vliet Family LP	
68-046	1057-021-01	9.5	Sand Creek MH Park	
68-046	1057-021-02	10	Van Vliet Family LP	
68-046	1057-031-01	1.75	Sand Creek MH Park	
68-046	1057-031-02	5	Sand Creek MH Park	
68-046	1057-031-03	6.7	Sand Creek MH Park	
68-046	1057-041-01	1.17	Van Vliet Family LP	
68-046	1057-041-02	10	Van Vliet Family LP	
68-046	1057-051-02	7.98	Van Vliet Family LP	
68-046	1057-061-01	9.5	Van Vliet Family LP	
68-046	1057-061-02	10	Van Vliet Family LP	
68-046	1057-071-01	9.63	Van Vliet Family LP	
68-051	1055-311-01	9	Durrington, W	
68-051	1055-311-02	9.1	Durrington, W	
68-051	1055-321-01	9.5	Durrington, W	
68-051	1055-321-02	9.62	Durrington, W	
68-051	1055-331-01	9.62	Durrington, W	
68-051	1055-331-02	5	Durrington, W	
68-051	1055-341-01	9.14	Durrington, W	
68-051	1055-341-02	4.75	Durrington, W	
68-051	1055-441-01	9.62	Durrington, W	
68-051	1055-441-02	5	Durrington, W	
68-051	1055-451-01	9.5	Durrington, W	
68-051	1055-451-02	9.62	Durrington, W	
68-051	1055-461-03	0	Durrington, W	
68-051	1055-471-01	9	Durrington, W	
68-051	1055-471-02	9.14	Durrington, W	
68-051	1055-481-01	9.62	Durrington, W	
68-051	1055-481-02	9.5	Durrington, W	
68-056	1055-421-01	9.5	Falloncrest Farms LLC	1993
68-056	1055-431-01	9	Falloncrest Farms LLC	1993
68-056	1055-431-02	9.14	Falloncrest Farms LLC	1993
68-056	1055-461-05	0	Falloncrest Farms LLC	1993
68-056	1057-101-01	8.1	Falloncrest Farms LLC	1993
68-056	1057-101-02	9.16	Falloncrest Farms LLC	1993
68-056	1057-101-03	U	Falloncrest Farms LLC	1993
68-056	1057-111-01	9.14	Falloncrest Farms LLC	1993
68-056	1057-111-02	9.1	Falloncrest Farms LLC	1993
68-056	1057-121-01	9	Falloncrest Farms LLC	1993
68-056	1057-121-02	9.14	Falloncrest Farms LLC	1993

Williamson Act Parcels

by Contract Number

Contract	APN	Ac	Owner	Nonrenewal Year
68-056	1057-131-01	5.6	Falloncrest Farms LLC	1993
68-056	1057-131-02	6.7	Falloncrest Farms LLC	1993
68-056	1057-141-01	2.8	Falloncrest Farms LLC	1993
68-056	1057-141-02	4	Falloncrest Farms LLC	1993
68-056	1057-151-01	9.13	Falloncrest Farms LLC	1993
68-056	1057-151-02	9	Falloncrest Farms LLC	1993
68-056	1057-161-03	1.47	Falloncrest Farms LLC	1993
68-056	1057-161-04	9.4	Falloncrest Farms LLC	1993
68-083	1055-091-02	0	Echeverria J & P Fam Ptn	1992
68-083	1055-091-04	15.06	Echeverria J & P Fam Ptn	1992
68-083	1055-101-02	0.23	Echeverria J & P Fam Ptn	1992
68-083	1055-101-03	8.86	Echeverria J & P Fam Ptn	1992
68-083	1055-101-04	8.93	Echeverria J & P Fam Ptn	1992
68-083	1055-121-01	9.5	Echeverria J & P Fam Ptn	1992
68-100	1057-201-05	22.6	G H Dairy	
68-110	1055-231-01	9.26	Aphessetche, X	
68-110	1055-231-02	2.49	Aphessetche, X	
68-110	1055-241-05	1	Lewis, S	1992
68-110	1055-241-06	33	Bruechert, J	1992
68-110	1055-241-07	39	Bouma, G	1999
68-110	1055-541-01	9	Aphessetche, X	
68-110	1055-541-02	9.5	Aphessetche, X	
68-110	1056-101-02	3.75	Aphessetche, X	
68-110	1056-111-03	9.5	Aphessetche, X	
68-110	1056-121-01	9	Aphessetche, X	
69-131	1057-181-16	28.77	Fullmer, Q	
69-131	1057-181-17	0.92	Fullmer, Q	
69-131	1057-181-18	0	Fullmer, Q	
70-155	1054-371-01	9.13	Lekkerkerker, P Tr	
70-155	1054-381-02	9.13	Albers, R	
70-155	1054-431-02	9.61	Albers, R	
70-155	1054-441-01	9.61	Lekkerkerker, P Tr	
70-155	1054-451-01	9.61	Lekkerkerker, P Tr	
70-155	1054-461-01	9.13	Albers, R	
70-155	1054-471-02	9.13	Albers, R	
70-155	1054-481-02	9.61	Albers, R	
70-217	1057-191-07	12.4	Orange County Flood Control	
71-312	1057-212-15	18.12	McCune, R	2001
71-340	1057-211-04	34.97	Stueve Bros Farms LLC	
71-341	1057-181-19	21.7	Rodrigues, J	
71-341	1057-181-20	17.78	Rodrigues, J	
72-346	1055-111-02	10	Echeverria, J & D Fam Ptn	1992
72-355	1057-181-15	49.32	Wind, J	1992
72-356	1057-181-03	56	Lewis Investment Co LLC	1993
72-356	1057-181-04	0	Lewis Investment Co LLC	1993
72-356	1057-181-05	0	Lewis Investment Co LLC	1993
72-363	1056-111-01	6.5	Bassler, D	
72-363	1056-121-02	5.86	Bassler, D	
72-363	1056-121-03	6.5	Bassler, D	
72-387	1055-051-01	9.5	Nyenhuis, J	
72-387	1055-051-02	9	Nyenhuis, J	
72-387	1055-061-01	9.77	Nyenhuis, J	
72-387	1055-061-02	9.8	Nyenhuis, J	
72-387	1055-071-01	9.5	Nyenhuis, J	

Williamson Act Parcels

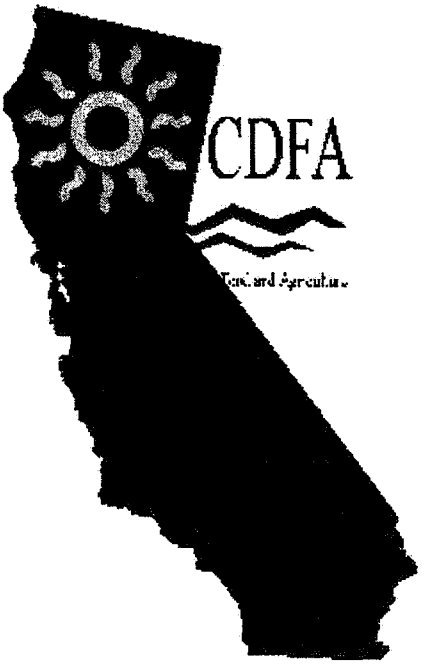
by Contract Number

Contract	APN	Ac	Owner	Nonrenewal Year
72-387	1055-071-02	9.64	Nyenhuis, J	
72-388	1054-381-01	9	Van Vliet, T	
72-388	1054-431-01	9.5	Van Vliet, T	
72-388	1054-471-01	9	Van Vliet, H	
72-388	1054-481-01	9.5	Van Vliet, H	1992
72-398	1057-191-03	90.47	Barthelmy, R	
73-400	1055-461-04	0	Falloncrest Farms LLC	1993
73-400	1055-461-06	18.14	Falloncrest Farms LLC	
74-435	1057-181-08	77.73	Lewis Investment Co LLC	
74-451	1056-061-01	6.7	Lekkerkerker, W	
75-464	1055-271-01	8.76	Vander Sys, J	1992
75-464	1055-281-01	9.5	Vander Sys, J	1992
75-464	1055-491-01	9.5	Vander Sys, J	1992
75-464	1055-501-02	9	Vander Sys, J	
75-481	1056-392-04	5.5	Moreno, M	
76-501	1057-181-21	100	Lewis Investment Co LLC	
77-514	1055-171-02	2.4	De Vries, A	
77-514	1055-171-02	De Vries, A	2.4	
77-514	1055-181-01	16.5	De Vries, A	
77-514	1055-181-01	De Vries, A	16.5	
78-540	1055-381-01	13.25	De Boer, S	
78-540	1055-381-01	De Boer, S	13.25	
78-544	1057-201-06	14.85	Hettinga, H	
78-544	1057-201-07	5	Hettinga, H	
78-544	1057-201-08	41.91	Hettinga, H	

1998 California Dairy Information

1998 California Dairy Facts

Production Volume	**27.6 billion pounds or 3.21 billion gallons**
Average Milk Production per California Cow	**19,404 pounds**
Production Value at the farm	**$4.3 billion**
Number of Dairy Farms	**2,246 farms**
Number of Cows	**1.4 million**
Average number of Cows per farm	**624 cows**
Number of Dairy Processing Plants	**137 plants**



DID YOU KNOW

- ***California ranks No. 1 in the nation in milk production.***
- ***Milk is the leading agriculture commodity in California.***
- ***There are five dairy breeds in California: Holstein, Jersey, Brown Swiss, Guernsey and Ayshire.***
- ***About 1.4 million dairy cows produce milk on more than 2,200 dairies located through out California.***
- ***A cow produces six to seven gallons of milk each day, totaling over 2,000 gallons per year.***

Cows eating silage on a California Dairy

- ***A dairy cow must give birth to produce milk.***
- ***A cow can produce milk for four to seven years, having a calf each year.***
- ***A cow can be milked two (sometimes three) times a day.***
- ***A cows udder can hold 25 to 50 pounds, or 3 to 5 gallons of milk.***

HOW MILK WAS USED

38%	Cheese
23%	Fluid Milk Products
18%	Nonfat Dry MIlk
10%	Butter
6%	Frozen Dairy Products
5%	Yogurt, sour cream, cottage cheese and other soft products.

• ***Cows have one stomach with four compartments.***

Dairy Nutrition and Information Contacts

Dairy Nutrition

Milk is a great source of:

• Calcium for strong bones and teeth.

• Vitamin B_2 which helps pro- mote healthy skin and eyes.

• Vitamins B_{12}, A, D and K.

• While skim milk is virtually fat free and low in calories, it still retains the essential nutrients found in other milks within the dairy food group.

Recommended (suggested) daily consumption of milk:

	-cups-
Children	3
Teenagers	4
Adults	2
Pregnant & Lactating women	4

Dairy Information Contacts

CDFA Dairy Marketing Branch
(916) 654-1456
www.cdfa.ca.gov/dairy

Dairy Nutrition

The Dairy Council of California
(916) 263-3560
www.dairycouncilofca.org

Dairy Product Promotion

California Milk Advisory Board
(415) 871-6455
www. calif-dairy.com

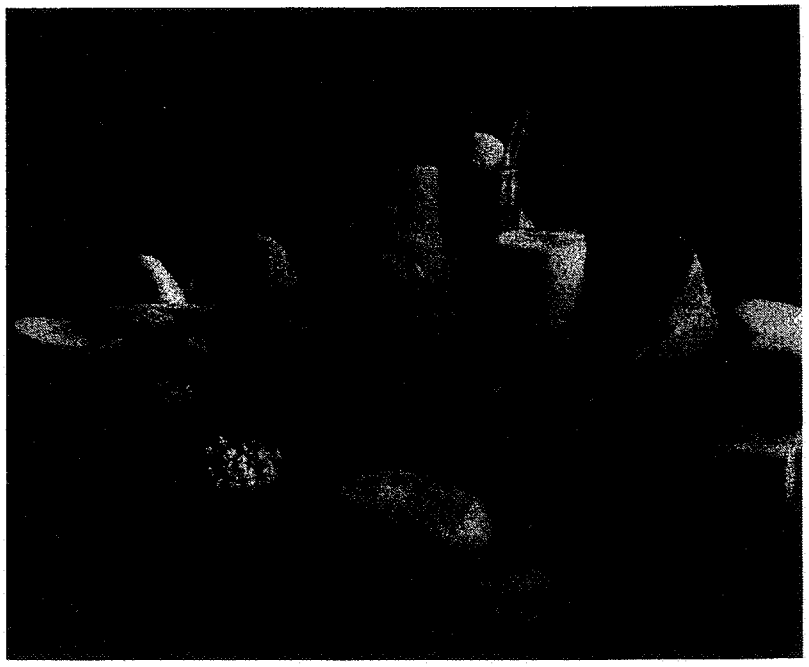
California Fluid Milk Processor Advisory Board
(510) 883-1085
www.gotmilk.com

Milk Processing Facts

- **California ranked first in U.S. production of nonfat dry milk and ice cream. It ranked second in butter, cheese and yogurt production. California produced 45% of the nation's nonfat dry milk, 21% of the nation's butter, 17% of the nation's cheese 12% of the nation's yogurt, and 12% of the nations's ice cream.**
- **Of the 133 processing plants in California, 59 process cheese, 16 process butter, 11 process dry milk products, 40 process fluid milk, and 38 process frozen products. *One plant may process several products.***

Conversion Factors

To make one pound of:	**Requires**
	whole milk
Butter	21.2 lbs
Cheese	10.0 lbs
Ice Cream (gal)	13.5 lbs
	skim milk
Cottage Cheese	6.25 lbs
Nonfat Dry Milk	11.0 lbs



Prepared by: Bob Martin - Lewis Operating Corp.
1/10/2001
RE: Chino Sub Area 2 - Land Under Williamson Act Contracts
Land Above 566'

Name	Acreage	Value Per Acre	Total Value	Williamson Act Cancellation Fee	
Wassenaar	18.8	$65,000.00	$1,222,000	N/A	-
Engelsma	18.0		$1,170,000	N/A	-
Upper Steuve	148.5		$9,652,500		1,206,563
Durrington	135.3		$8,794,500		1,099,313
Mickel	23.0		$1,495,000	N/A	-
Jacques	29.5		$1,917,500	N/A	-
Rohrs	105.7		$6,870,500		858,813
De Boer	16.3		$1,059,500		132,438
Barthelemy	96.3		$6,259,500		782,438
Westra	15.6		$1,014,000	N/A	-
Steuve	294.5		$19,142,500		2,392,813
Rodriguez	40.9		$2,658,500		332,313
Wind	49.3		$3,204,500		400,563
Fullmer	29.9		$1,943,500	N/A	-
Teunissen	15.3		$994,500	N/A	-
VanderPol	102.5		$6,662,500	N/A	-
Idsinga	33.0		$2,145,000	N/A	-
Legacy Ranch	30.9		$2,008,500	N/A	-
Bassler	10.0		$650,000		81,250
Aphessetche	52.3		$3,399,500		424,938
Souza	12.2		$793,000	N/A	-
Greydanus Dairy	31.5		$2,047,500	N/A	-
Bos	15.3		$994,500	N/A	-
Lizarraga	7.1		$461,500	N/A	-
Sand Creek Park	31.7		$2,060,500		257,563
Bruechert	35.2		$2,288,000		286,000
Bouma	37.4		$2,431,000		303,875
Stark	37.0		$2,405,000	N/A	-
Van Vliet	67.8		$4,407,000		550,875
HWW Land Mgmt.	41.6		$2,704,000	N/A	-
Flores	13.1		$851,500	N/A	-
Vandersys	37.0		$2,405,000		300,625
Bettencort	18.8		$1,222,000	N/A	-
Campino	19.0		$1,235,000	N/A	-
	1,670.3		$108,569,500		$9,410,375

The information contained herein has been obtained from sources we deem reliable.
While we have no reason to doubt its accuracy, we do not guarantee it.

APPENDIX I
WATER SUPPLY

Recommended Clarification Notes To City of Chino
Water Supply Assessment
Dated January 28, 2002, Updated July 19, 2002

March 14, 2003

EXECUTIVE SUMMARY

Page 1, par. 6, first sentence: Strike "over entitlement."

SECTION 3.1 OVERVIEW OF SUPPLY AND DEMAND

Page 6, par. 5, Water Demand: Change "15,145" to "15,345," to be consistent with Table 3-1.

Page 7, par. 1, sentence 2: Strike the words "begin lower and," to clarify that demands increase according to development phasing.

Page 7, par. 3, sentence 3: Replace "overproduction" with "production," to clarify that production is consistent with safe yield.

Page 7, par. 4, second to last sentence: In second to the last line, replace "Ann" with "Ana."

Page 8, Table 3-1:

- Change year 2005 Recycled – Subarea 2 demand from "325" to "650,"
  change Total Water Demand in year 2005 from "18,055" to "18,380."
- Change Imported supply amounts in years 2005 through 2022 from "5,357" to "5,353."
- Change year 2005 Total Water Supply from "22,914" to "22,910"; change year 2010 Total Water Supply from "25,314" to "25,310"; change year 2015 Total Water Supply from "25,824" to "25,820"; change year 2020 Total Water Supply from "27,084" to "27,080"; change year 2022 Total Water Supply from "27,448" to "27,444."
- Change year 2005 Surplus Supply from "4,859" to "4,530"; change year 2010 Surplus Supply from "5,264" to "6,260"; change year 2015 Surplus Supply from "4,814" to "4,810"; change year 2020 Surplus Supply from "4,110" to "4,234"; and change year 2022 Surplus Supply from "3,838" to "3,834".

Page 8, Demand Assumptions, 1. City Potable Demand: Add "Year 2000 is actual demand."

Page 8, Supply Assumptions, 1. Groundwater: Change "use" to "available," to clarify the Year 2000 data presented represents the amount available in 2000.

Page 8, Supply Assumptions 3, Imported: Change "5,357" to "5,353."

Page 9, par. 4, sentence 1: Change "this" to "the," and insert "land use" between "from" and "conversion."

Page 9, par. 5, sentence 2: Change "1000" to "2000," to correct year of Inland Empire Utility Agency's Urban Water Management Plan Update.

Page 10, par. 2, sentence 1: Strike "From" and replace with "Imported water is supplied to the City by," and end the sentence with "IEUA". Then start a new (2nd) sentence with "The City of Chino is entitled...," to clarify the relationship between MWD, IEUA and the City.

Page 10, par. 2, (original) sentence 2: Strike "and plans to continue this level of imported supply," to reflect the City's plan as shown in Table 3-1.

Page 10, par. 4, sentence 2: Strike "approximately 350" and replace with "368."

Page 10, par. 6, sentence 1: Insert the word "regional" between "current" and "recycled."

SECTION 3.2 GROUNDWATER – CHINO WATER BASIN

Page 12, par. 3, sentence 2: Strike the "s" on "rights."

Page 15, par. 2, Overdraft – 1978 Judgement: Add "the Appropriative Pool's share of Safe Yield" before "or," and add "more than" before "10,000 acre-feet."

Page 16, last par., Item 2: Strike the last sentence.

Page 17, par. 4, sentence 1: Insert "Individual" before "Producers," to clarify that an individual producer's production ability is different from the pools' total production ability.

Page 19, par. 1, sentence 3: Insert "was" between "City" and "also."

Page 19, par. 4, last sentence: Insert a period at end of sentence.

Page 21, par. 2, sentence 1: Insert "I" after "Chino Basin Desalter."

SECTION 3.3 IMPORTED WATER

Page 24, par. 2, sentence 2: Change "seven" to "five," strike "Fontana Water Company" and "and San Antonio Water Company," and insert "and" before "Monte Vista..."

Page 24, par. 5, sentence 1: Insert "located" between "water connection" and "in the City of Upland."

Page 24, par. 6, sentence 1: Change "5,357" to "5,353."

Page 24, par. 6, sentence 3: Add an "s" to the end of "standard," and insert "and" before "demand," to clarify that the City uses imported water for two purposes.

Page 25, par. 4, sentence 2: Change "their" to "its."

Page 25, par. 5, sentence 2: Strike the "s" from "frameworks."

Page 26, Notes to Table 3-5: Add an "n" after the "r" in "Easter" to read "Eastern."

SECTION 3.4 RECYCLED WATER

Page 27, par. 3, sentence 2: Strike ":1" after "500."

Page 27, par. 6, sentence 3: Strike "approximately 350" and replace with "368;" also add "landscape irrigation and industrial" before "customers."

Page 28, par. 4, sentence 5: Strike the "for."

Page 28, par. 5, sentence 3: Replace "1984" with "1982."

Page 28, par. 5, sentence 1: Change "thirty-seven" to "thirty-eight."

Page 28, par. 5, sentence 2: Add "24 users with a total of" before "45," and strike "of these."

Page 29, Table 3-6: Change "1984-83" to "1982-83."

Page 29, Table 3-7, Second Source: Add "Draft" before "Water Master Plan," and strike the remaining source information, and add "April 2002."

Page 30, par. 4, sentence 2: Change "350" to "368," and add "from the CCWRF" following "afy."

Page 30, par. 6, end sentence: Add footnote "7a" as "7a, Inland Empire Utilities Agency Urban Water Management Plan 2000 Update, Page 2-14."

SECTION 4.0 RELIABILITY OF WATER SUPPLIES

Page 33, par. 3, last sentence: Add a "d" after the "e" in "place" to read "placed."

Page 33, par. 4, sentence 1: Add "after" before "the conversion."

Page 33, par. 4: Change "CDA" to "IEUA and WMWD acting independently, or in their complete discretion, acting through Project Committee 14 consistent with the "Peace Agreement" dated June 29, 2000 by the major producers in the Chino Basin, including the Appropriative Pool, Overlying Non-Agricultural Pool, Overlying Agricultural Pool, MWD member agencies IEUA, WMWD, TVMWD and the State of California."

Page 34, par. 1, sentence 2: Change "use is expected" to "production is expected."

Page 34, par. 1, sentence 2: Add a "0" to "28,00" to read "28,000."

Page 34, par. 1, sentence 2: Change "100 af" to "1,000 af."

Page 34, par. 5, sentence 2: Change "two-" to "multi-."

Page 34, Footnote 9: Add "Tables 3-11, 6-2, and 6-10" after "October 2001."

Page 36, par. 1, sentence 3: Add "located" before "in the City of Upland."

Page 36, par. 1, sentence 4: Capitalize "f" in "feeder" to read "Feeder."

Page 36, par.1, sentence 5: Change "5,267" to "5,353."

Page 36, par. 3, sentence 2: Capitalize "o" in "optimum", "b" in "basin", the first "m" in "measurement" and "p" in "program."

Page 36, par. 4, sentence 2: Add an "n" after the "w" in "know" to read "known."

Page 37, par. 5, sentence 1: Change "Enhancement" to "Expansion."

Page 38, par. 2, sentence 3: Change "Plan" to "Program."

Page 38, par. 6, last sentence: Strike "ing" from "finding" to read "find."

Page 39, Table 4-1: Demand and supply figures are expressed in terms of million acre feet (MAF).

Page 40, par. 1, sentence 4: Add "and multiple-dry years" after "single dry year," and strike "single" before "worst dry year scenario."

Page 40, par. 2, sentence 3: Change " .," between "Conservation" and "while" to ";".

Page 42, par. 9, sentence 1: Add "in diameter" after "2 inches."

Page 42, par. 9, sentence 3: Add "in diameter" after "2 inches."

Page 42, par. 9, sentence 4: Add "and" before "therefore encourages conservation."

Page 43, par. 5, sentence 3: Add "Chino" before "Public Works" and strike "Services."

Page 44, par. 7, sentence 4: Strike "According to "MWD," and begin the sentence with "Data shows."

Page 45, Clarify Table 4-3 as follows: Further analyses by MWD and IEUA contained within their Urban Water Management Plan 2000 Updates demonstrate that projected water use during periods of multiple-year drought reflect that water demand would increase in the first and second years of the drought and then decrease in the third year of the drought. This is based on the 1990-1991-1992 hydrologic sequence, with the first of the three years being the worst, so conditions improved over the next two years. No other three-year sequences in the 77-year hydrologic record had as great an impact on the supply/demand balance. The tabulation below presents the 20-year water supply and demand comparison in dry-year scenarios based on this model, which is consistent with MWD and IEUA projections.

Page 45, Table 4-3: Add sub-heading as "Current Condition Water Supply and Demand Comparison during single and multiple dry years."

Page 45, Table 4-3: Add note as "Recycled Water: Average/Normal Water Year reflects current use; Recycled Factors: single-dry year = 1.00, multiple-dry year 2 = 1.107, dry year 3 = 1.145."

Table 45, Table 4-3:

1. Change Total Supply in Average/Normal Year from "17,202" to "17,852."
2. Change Total Supply in Multiple-Dry Years, Year 2, from "17,912" to "18,182."
3. Change Surplus Supply in Average/Normal Water Year from "4,000" to "4,650."
4. Change Surplus Supply in Multiple-Dry Years, Year 2, from "848" to "1,118."

20-Year Water Supply and Demand Comparison (afy) during single and multiple dry years ***including*** Subarea 2

2020 Supply & Demand Through Year 2022	Normal	Single Dry	Multiple 1	Multiple 2	Multiple 3
Demand Total	**22,850**	**24,787**	**24,787**	**25,846**	**24,447**
Groundwater	11,557	12,181	12,181	13,034	14,142
Imported	5,353	4,603	4,603	4,077	3,611
Desalted	5,000	5,000	5,000	5,000	5,000
Recycled	5,170	5,170	5,170	5,723	6,553
Supply Total	**27,080**	**26,954**	**26,954**	**27,834**	**29,306**
Surplus	**4,230**	**2,167**	**2,167**	**1,988**	**4,859**

Dry Year Factors Used for Comparison: Consistent with IEUA Urban Water Management Plan Year 2000 Update, Table 3-14.

Dry Year Factors	Single Dry	Multiple 1	Multiple 2	Multiple 3
Demand	1.08478	1.08478	1.04270	0.94589
Supply				
Groundwater	1.054	1.054	1.070	1.085
Imported	0.85984	0.85984	0.88574	0.88574
Desalted	1.000	1.000	1.000	1.000
Recycled	1.000	1.000	1.107	1.145

Page 45, par. 1: Strike sentences 2 and 3.

Page 46, par. 4, sentence 1: Change "2035" to "2022."

Page 46, par. 5, sentence 1: Strike "over entitlement."

EXHIBIT 1

REVISED TEXT FOR OPEN SPACE DESIGNATIONS

(THIS PAGE
NOT
INCLUDED)

CITY OF CHINO
WATER SUPPLY ASSESSMENT

January 28, 2002
(July 19, 2002 Updated)

Prepared for
The City of Chino

Prepared by
PSOMAS
3157 Red Hill Avenue, Suite 250
Costa Mesa, CA 92626
714/751-7373

CITY OF CHINO WATER SUPPLY ASSESSMENT
TABLE OF CONTENTS

SECTION	PAGE
EXECUTIVE SUMMARY	**1**
1.0 INTRODUCTION	**3**
2.0 LEGISLATION	**3**
2.1 SB 221 – Kuehl – Land Use: Water Supplies	3
2.2 SB 610 – Costa – Water Supply Planning	4
3.0 CITY OF CHINO WATER DEMAND AND SUPPLIES	**6**
3.1 Overview of Demand and Supplies	6
3.2 Groundwater – Chino Water Basin (includes desalted water)	11
3.3 Imported Water	24
3.4 Recycled Water	27
4.0 RELIABILITY OF WATER SUPPLIES	**32**
4.1 Inland Empire Utilities Agency	32
4.2 Metropolitan Water District of Southern California	35
4.3 Water Facilities Authority	36
4.4 Chino Basin Watermaster	36
4.5 Chino Basin Water Conservation District	37
4.6 Santa Ana Watershed Project Authority	37
4.7 Santa Ana Regional Water Quality Control Board	37
4.8 Water Shortage Plans	38
4.9 Water Conservation as a Reliable Water Source	40
4.10 Reliability Comparison	44
5.0 CONCLUSION	**46**
6.0 BIBLIOGRAPHY	**47**

TABLES

Table 3-1	Current and Projected Water Demand and Supply	8
Table 3-2	1978 Chino Basin Judgment Appropriative Rights	14
Table 3-3	Desalter Water Deliveries from Chino I Desalter	21
Table 3-4	Total Retail Water Demand in MWD's Service Area for San Bernardino County	26
Table 3-5	Actual and Projected Demands on MWD	26
Table 3-6	IEUA Regional Wastewater Treatment Plants, Effluent vs. Recycled Water Usage	29
Table 3-7	City of Chino Historical and Projected Recycled Water Demands	29
Table 4-1	MWD Demand/Supply Balance	39
Table 4-2	City of Chino Historical Water Demands	44
Table 4-3	City of Chino Water Demand/Supply Reliability – Average, Single-Dry, and Multiple-Dry Years	45

CHINO WATER SUPPLY ASSESSMENT

EXECUTIVE SUMMARY

The City of Chino ("City") is responsible for the preparation of The Preserve Environmental Impact Report (EIR). The EIR includes an assessment on utilities, including water supply. Recent legislation, SB 221 and SB 610, require that a water supply assessment be prepared to document the sufficiency of an available water supply for the City and the proposed project. This water supply assessment identifies water supply and reliability to the City, now and into the future, including a sufficient water supply for Chino Subarea 2; also known as The Preserve.

The City currently obtains water from the following primary water sources: 1) naturally recharged groundwater, 2) imported SWP water (surface water), 3) desalted water, and most recently 4) recycled water. The City receives approximately 38 percent of its water supply from groundwater, 40 percent from imported water, 20 percent from desalted water, and 2 percent from recycled water. Current and planned improvements will increase the use of recycled and desalted water.

Water Demand

The City's current average demand is approximately 15,345 acre-feet per year (afy). The annexation and build out of Subarea 2 will increase water demand by approximately 11,317 afy of water (6,835 afy of potable water and 4,482 afy of recycled water).

Phasing of Subarea 2 will occur over time in approximately a 30-year period, intended to minimize impacts to local areas. This development phasing plan allows for water demands to be met almost entirely from sources that are currently being planned, developed and implemented, including desalter water, recycled water, and conservation programs. Groundwater demand could remain relatively stable throughout the forecast period with maximum use of these alternative sources.

Demand and Supply Projections

Analysis of water demand and supply projections for the City, including Subarea 2 (Section 3.0, City of Chino Water Demand and Supplies), demonstrate that projected supplies exceed demand through the Year 2022. These projections consider land use, water development programs and projects, and water conservation. Analysis shows that as desalted water and recycled water use are maximized, groundwater and imported water will remain stable. Recycled water will supply certain areas currently supplied with potable water, and desalted water will supply areas currently using available groundwater and imported water.

Additionally, the City has the opportunity to increase supply to meet demand through the following measures: 1) production of groundwater over entitlement based on safe yield limitations; 2) increasing imported water purchases; 3) purchasing additional desalted water if more is produced than needed to satisfy requirements of other purchasers, and 4) purchasing additional recycled water when other members of the IEUA's regional wastewater contract program are not taking their full entitlement, which will be changed

to no maximum entitlement with completion of the Regional Recycled Water System, which merges all the recycled plants together. Collectively, these additional options will enable water supply to exceed water demand for the City of Chino now and into the future.

Reliability of future water supplies to the region will be ensured through continued implementation of the Optimum Basin Management Program, implementation of local agency programs, and combined efforts and programs among member and cooperative agencies, including all water retailers, and the Chino Basin Watermaster, the Inland Empire Utilities Agency, Metropolitan Water District of Southern California, Santa Ana Regional Water Quality Control Board, Santa Ann Watershed Project Authority, and the Chino Basin Water Conservation District.

1.0 INTRODUCTION

The Preserve Planning area, also known as Chino Subarea 2, encompasses 5,435 acres within the Chino Valley Dairy Preserve. Chino Subarea 2 is located in the vicinity of the cities of Chino, Chino Hills, Ontario, Norco, and Corona, as well as the unincorporated community of Eastvale in Riverside County, and the Prado Flood Control Basin. This area is to be incorporated into the City in 2002.

The Preserve is proposed to allow up to 9,779 dwelling units on 1,236 acres; 626 acres of business uses (Community Core, Light Industrial, Airport Related, Regional Commercial, Neighborhood Commercial); 586 acres of Public Facilities and Rights-of-ways; and approximately 2,987 acres in Open Space (Recreation, Agricultural and Natural Open Space). Proposed development will be concentrated in the northern portion of The Preserve, above the Prado Dam high water inundation line. Lands generally south of the 566' elevation are planned for low intensity uses (Open Space).

The City of Chino is responsible for the preparation of The Preserve Environmental Impact Report (EIR). The EIR includes an assessment on utilities, including water supply. Recent legislation, SB 221 and SB 610, require that a water supply assessment be prepared to document the sufficiency of an available water supply for the City and the proposed project. The document will identify water supply and water reliability to the City of Chino, now and into the future, including a sufficient water supply for Chino Subarea 2; also known as The Preserve.

2.0 LEGISLATION

2.1 SB 221 – Kuehl – Land Use: Water Supplies

Senate Bill 221 was chaptered into law October 9, 2001. SB 221 prohibits approval of a tentative map, or a parcel map, or a development agreement for a subdivision of property of more than 500 dwelling units,....unless the legislative body of a city or county or the designated advisory agency provides written verification from the applicable public water system that a sufficient water supply is available or, in addition, a specified finding is made by the local agency that sufficient water supplies are, or will be, available prior to completion of the project. A true statement of the provisions that have been made for water is satisfied by submitting a copy of the written verification of the availability of a sufficient water supply. This is known as a water supply assessment.

Sufficient water supply means the total water supplies available during normal, single-dry, and multiple-dry years within a 20-year projection that will meet the projected demand association with the proposed subdivision, in addition to existing and planned future uses. All of the following factors shall be considered:

1. The public water systems ability to provide sufficient water supply for the proposed subdivision shall be supported by substantial evidence including, but not limited to, any of the following: 1) urban water management plan; 2) Water supply assessment – Part 2.10 (commencing with Section 10910) of Division 6 of the Water Code; or 3) Other information relating to the sufficiency of the water supply that contains analytical information that is substantially similar to the assessment.

2. Availability of water supplies over a historical record of at least 20 years.
3. Applicability of an urban water shortage contingency analysis that includes action undertaken by the public water system in response to water supply shortages.
4. Reduction in water supply allocated to a specific water use sector pursuant to a resolution or ordinance adopted, or a contract entered into, by the public water system.
5. Amount of water that the water supplier can reasonably rely on receiving from other water supply projects, such as conjunctive use, reclaimed water, water conservation, and water transfer, including programs identified under federal, state, and local water initiatives such as CALFED and Colorado River tentative agreements.
6. When verification relies on projected water supplies not currently available, then written verification shall be based on the following:
   a. Written contracts or other proof of valid rights.
   b. Copies of capital outlay program for financing the delivery of a sufficient water supply.
   c. Securing of applicable federal, state, and local permits for construction of necessary infrastructure.
   d. Necessary regulatory approvals required to convey or deliver the water supply.

2.2 SB 610 – Costa – Water Supply Planning

Senate Bill 610 was also chaptered into law on October 9, 2001. SB 610 requires additional information to be included as part of an urban water management plan (UWMP) if groundwater is identified as a source of water available to the supplier. Information must include a description of all water supply projects and programs that may be undertaken to meet total projected water use.

SB 610 prohibits eligibility for funds from specified bond acts until the plan is submitted to the State. Until January 1, 2006, SB 610 requires the California Department of Water Resources to consider if an updated UWMP has been submitted in determining eligibility for funds made available from programs administered by DWR.

SB 610 also requires a city or county that determines a project subject to CEQA to identify any public water system that may supply water for the project and to request those public water systems to prepare a specified water supply assessment. The assessment is to include the following:

1. Discussion with regard to whether the public water system's total projected water supplies available during normal, single dry, and multiple dry water years during a 20-year projection will meet the projected water demand associated with the proposed project, in addition to the public water system's existing and planned future uses, including agricultural and manufacturing.
2. Identification of existing water supply entitlements, water rights, or water service contracts relevant to the identified water supply for the proposed project and water received in prior years pursuant to those entitlements, rights, and contracts.
3. Description of the quantities of water received in prior years by the public water system under the existing water supply entitlements, water rights or water service contracts.

4. Water supply entitlements, water rights or water service contracts shall be demonstrated by the following:
   a. Written contracts or other proof of entitlement to an identified water supply.
   b. Copies of capital outlay program for financing the delivery of a water supply that has been adopted by the public water system.
   c. Federal, state, and local permits for construction of necessary infrastructure associated with delivering the water supply.
   d. Any necessary regulatory approvals that is required in order to be able to convey or deliver the water supply.
5. Identification of other public water systems or water service contract holders that receive a water supply or have existing water supply entitlements, water rights, or water service contracts, to the same source of water as the public water system.
6. If groundwater is included for the supply for a proposed project, the following additional information is required:
   a. Review of any information contained in the UWMP relevant to the identified water supply for the proposed project.
   b. Description of any groundwater basin(s) from which the proposed project will be supplied. Adjudicated basins must have a copy of the court order or decree adopted and a description of the amount of groundwater the public water system has the legal right to pump. For non-adjudicated basins, information on whether the DWR has identified the basin as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current bulletin of DWR that characterizes the condition of the basin, and a detailed description of the efforts being undertaken in the basin to eliminate the long-term overdraft condition.
   c. Description and analysis of the amount and location of groundwater pumped by the public water system for the past 5 years from any groundwater basin which the proposed project will be supplied. Based on info that is reasonably available, including, but not limited to, historic use records.
   d. Description and analysis of the amount and location of groundwater projected to be pumped by the public water system from any groundwater basin which the proposed project will be supplied. Based on info that is reasonably available, including, but not limited to, historic use records.
   e. Analysis of sufficiency of the groundwater from the basin(s) from which the proposed project will be supplied.
   f. The water supply assessment shall be included in any environmental document prepared for the project.
   g. May include an evaluation of any information included in that environmental document. A determination shall be made whether the projected water supplies will be sufficient to satisfy the demands of the project, in addition to existing and planned future uses.

SB 221 and SB 610 are similar and contain the same basic requirements for a water supply assessment. The following assessment analyzes the adequacy of water supplies for the City of Chino and Chino Subarea 2 now and into the future.

3.0 CITY OF CHINO WATER DEMAND AND SUPPLIES

3.1 Overview of Supply and Demand

The City of Chino ("City") currently serves water to an area of approximately 16.5 square miles and to approximately 14,395 customers. There are minimal portions currently not served by the City that extend beyond the westerly and northwesterly boundary of the water service area.

The City currently obtains water from the following primary water sources: 1) naturally recharged groundwater, 2) imported SWP water, 3) desalted water, and most recently 4) recycled water.

The City of Chino ("City") receives approximately 38 percent of its water supply from groundwater wells accessing the Chino Water Basin and 40 percent imported water from the Metropolitan Water District of Southern California (MWD) via the Water Facilities Authority-Joint Powers Agency (WFA) through the Inland Empire Utilities Agency (IEUA). Additionally, the City obtains about 20 percent of its supply from desalted water from the Chino I Desalter and 2 percent of its supply from recycled water from the Carbon Canyon Wastewater Reclamation Plant. Current and planned improvements will increase the use of recycled and desalted water. Each of the sources of water for the City are briefly discussed in this section and more fully discussed in the following subsections.

Growth Rate

The high cost of land in the Los Angeles area increased the attraction of the Chino Basin and other suburban area where land was still plentiful during the "urban sprawl" era. The 1950 population of Chino was less than 6,000, while the 1990 census population was almost 60,000. Chino's current population is approximately 67,000, and by the year 2010, the population projection is 72,900; by 2015, 76,700; and by 2020, 80,500.[1] This represents a five percent growth rate every five years, or about a one percent annual growth rate.

Water Demand

The City's current average daily demand is approximately 15,145 acre-feet per year (afy) or 13.52 million gallons per day (mgd). This demand is satisfied from groundwater and imported water, with minimal desalted and recycled water supplies being used. Current and planned improvements will increase the use of desalted and recycled water supplies.

The annexation and buildout of Subarea 2 will increase this demand, generating an additional build-out need of approximately 11,317 afy or 10.1 mgd of water. This 11,317-afy demand is projected from both potable and recycled sources based on use; 6,835 afy (6.1mgd) of potable water and 4,482 afy (4.0 mgd) of recycled water.

Phasing of Subarea 2 will occur over time in approximately a 30-year period, intended to minimize impacts to local areas. Development phasing will originate in the north/northwest section near Kimball Avenue and Chino Airport, and progress in a generally clockwise fashion to the northeast, southeast, and finally to the southwest sector. This phasing is consistent with a logical progression of infrastructure from

[1] City of Chino, Urban Water Management Plan Update, January 2002

surrounding developed and developing areas to the north and west. This development phasing plan provides a phasing of water demand, such that the areas identified begin with open space, light industrial, agricultural, and airport related development. Water demand for Subarea 2 will begin lower and increase as development moves into residential and community core. This allows for water demands to be met almost entirely from sources that are currently being planned, developed and implemented, including desalter water, recycled water, and conservation programs. Groundwater demand could remain relatively stable throughout the forecast period with maximum use of these alternative sources.

Demand and Supply

Table 3-1 shows the current and projected water demand and supply for the City of Chino inclusive of The Preserve, Subarea 2. Demand and supply projections consider land use, development of groundwater programs, desalter expansion and development, and connection to recycled water sources. Demand projections also consider water savings resulting from plumbing codes, price effects, and actual and projected implementation of water conservation Best Management Practices. Per capita water demand is forecast to remain relatively constant over a 20-year forecast horizon.

Analysis shows that as desalted water and recycled water use are maximized, groundwater and imported water will remain stable. Recycled water will supply areas currently supplied with potable water, and desalted water will supply areas currently using available groundwater and imported water. The City of Chino has the opportunity to increase supply to meet demand through the following additional measures: 1) overproduction of groundwater based on safe yield limitations; 2) purchasing additional desalted water if more is produced than needed to satisfy requirements of other purchasers, 3) purchasing additional recycled water when other members are not taking their full entitlement, which will be changed to no maximum entitlement with completion of the Regional Recycled Water System, which merges all the recycled plants together. Collectively, these additional options will enable water supply to exceed water demand for the City of Chino now and into the future.

Reliability of future water supplies to the region will be ensured through continued implementation of the Optimum Basin Management Program (see Section 3.2.5), implementation of local agency programs, and combined efforts and programs among member and cooperative agencies, including all water retailers, and the Chino Basin Watermaster, the Inland Empire Utilities Agency, Metropolitan Water District of Southern California, Santa Ana Regional Water Quality Control Board, Santa Ann Watershed Project Authority, and the Chino Basin Water Conservation District.

Table 3-1
Current and Projected Water Demand and Supply
City of Chino, including Subarea 2 (af)

Water Sources		2000	2005	2010	2015	2020	2022
DEMAND							
Potable	City	14,977	15,700	13,910	13,290	12,930	13,088
	Subarea 2	0	1,680	2,740	3,810	4,870	5,132
Recycled	City	368	350	1,750	2,500	3,000	3,060
	Subarea 2	0	325	650	1,350	2,050	2,330
Total Water Demand		**15,345**	**18,055**	**19,050**	**20,950**	**22,850**	**23,610**
SUPPLY							
	Groundwater	9,694	11,557	11,557	11,557	11,557	11,557
	Desalted	3,000	5,000	5,000	5,000	5,000	5,000
	Imported	5,451	5,357	5,357	5,357	5,357	5,357
	Recycled	368	1,000	3,400	3,910	5,170	5,534
Total Water Supply		**18,513**	**22,914**	**25,314**	**25,824**	**27,084**	**27,448**
Surplus Supply		**3,168**	**4,859**	**5,264**	**4,814**	**4,114**	**3,838**

Demand Assumptions:

1. City Potable Demand: City of Chino Urban Water Management Plan Update, January 2002, demand projections included potable, but not recycled, Subarea 2 demand projections. Through year 2020, this Assessment allocates the City's UWMP demand projections between City and Subarea 2 potable, and City recycled water projections.
2. Subarea 2 Potable Demand: Regional Water Quality Supply Plan from OBMP for years through 2020; straight line increase through Year 2022.
3. City Recycled Demand: Year 2000 is actual use; years 2005 through 2022 are based on completion of the Regional Recycled Water System by 2010 and additional efforts to connect customers.
4. Subarea 2 Recycled Demand: Assumed slower demand in earlier development years, increasing significantly by year 2010 through buildout demand of 4,482 afy.

Supply Assumptions:

1. Groundwater: Year 2000 is actual use; years 2005-2022 include assigned water rights (4,034 afy), early transfer rights (2,413 afy), and conversion rights for Subarea 2 (5,110 afy). Additional can be produced for an additional assessment on each acre-foot overproduced, limited to the safe yield of the basin; groundwater replenishment expands the opportunity to overproduce.
2. Desalted: Chino I Desalter existing contract: 3,000 afy; Chino I Expansion: 2,000 afy; total contract after expansion by December 2003: 5,000 afy; more can be purchased if unused capacity is available.
3. Imported: Entitlement to WFA production water: 5.9% of plant 81 mgd capacity = 4.78 mgd (5,357 afy); more can be purchased if unused capacity is available.
4. Recycled: Year 2000 is actual use; years 2005-2020 use demand projections from the IEUA Recycled Water System Feasibility Study, Final Draft, October 2001, adjusted in years 2015 and 2020 to more reasonable City projections. Years 2010 - 2022 assume development of Regional Recycled Water Systems by 2010, which merges all the recycled water plants together, creating no maximum entitlement to recycled water. Therefore, supply will meet demand.

The following briefly discusses each of the water sources for the City of Chino. Each source is more fully discussed in the subsequent sections.

Groundwater

The Chino Basin Watermaster manages groundwater production activities in the Chino Basin. The Watermaster is guided by the provisions of the Chino Basin adjudication and subsequent agreements between the parties to the Judgment. These agreements provide for groundwater production rights that are not fully utilized by the Basin's agricultural interests to be transferred to municipal water purveyors via two methods (i.e., agricultural land use conversion and early transfer.)

The City's current total water rights, based on a share of safe yield, is 4,034 afy from the Chino Groundwater Basin. Additional water rights are received from reallocations of Early Transfers and Land Use Conversions, although they are subject to availability. For FY 2001/02, the City of Chino received their assigned Early Transfer share of 2,413 af and a Land Use Conversion amount of 2,996 af; however, these amounts are subject to a share between the amount required and amount available. The City was assigned a debit for 2001/02 of 285 af based on their share of operating safe yield and the amount available. As a result, total available to the City for reallocation in 2001/02 is 5,125 af.[2] Together with assigned water rights, the City has total water rights of 9,159 af for 2001/02.

Based on The Preserve Specific Plan, which has 2,555 acres of developable land, this production right from conversion will represent 5,110 acre-feet of water rights. Combined with the City's current share of water rights of 4,034 afy under the operating safe yield, and an Early Transfer share of 2,413 afy, this equals approximately 11,557 afy water rights.

Additional groundwater may also be available via a conjunctive use program for the Chino Basin in partnership with the Chino Basin Watermaster, IEUA, and MWD. According to the IEUA 1000 Urban Water Management Plan Update, the program will reduce summertime peaking, deliver State Water Project supplies, minimize or eliminate MWD surface water deliveries during future droughts/emergencies, and allow MWD to export stored water for other member agencies. The program will create improved regional reliability by establishing an initial 150,000 af storage account for MWD and providing a financial incentive to member agencies for shifting demand on MWD surface deliveries to the winter months.

Desalted Water

The City of Chino entered into a contract with Chino Basin Municipal Water District (now IEUA) in 1996 committing to purchase a minimum of 3,000 afy on a "take or pay" basis. Future expansion of the Desalter will increase the City's flow allocation to 5,000 afy by December 2003, and an agreement to purchase the future desalted water will contain a minimum annual quantity of water to be purchased.

The current contract allows the City of Chino to obtain additional product water if the Chino Basin Desalter is capable of producing more Product Water than is necessary to

[2] Chino Basin Watermaster, Fiscal Year 2001-2002, Assessment Package, October 2001

satisfy the requirements of the purchasers. The City shall be entitled to purchase a minimum proportionate share of additional Product Water based on the ratio of the City's minimum annual quantity (3,000 acre-feet) to the total minimum quantity of all purchasers; currently 33 percent for the City of Chino. With the Chino I Expansion, the percentage will increase to 35 percent. Under this contract, Chino would also be entitled to more than its percentage of unused Product Water if it remains available after offered to all purchasers up to their percentage. Chino also has the opportunity to negotiate the purchase of contracted desalted water with purchasers that are constrained by the "take-or-pay" obligation, but have optimized other sources of local water and do not need to take their full entitlement. The desalter is supplied from groundwater wells. The amount of water produced by the desalter is subject to replenishment by Watermaster to prevent overdrafting. Watermaster has identified a hierarchy of water sources/supplies for replenishment purposes.

Imported Water (Surface Water)

From MWD through IEUA, the City of Chino is entitled to 5.9 percent of the Water Facilities Authority Agua de Lejos plant capacity (5,357 afy or 4.78 mgd). However, the City regularly takes up to 7.0 percent of the capacity, and plans to continue this level of imported supply. The City can take delivery of more than its entitlement when other WFA members are not taking delivery of their full entitlements.

The WFA is permitted to treat 81 mgd of State Water Project water through an MWD import water connection, which delivers water to the Agua de Lejos Plant for treatment. The actual quantity of treated water ranges from 12 mgd in the winter months to as high as 71 mgd during the summer. Historically, there has always been unused capacity available, and Chino has always had an opportunity to meet demands through additional WFA imported water. Many of the WFA members desire lesser dependence on imported water, and greater reliability and control on local supplies. As a result, development of local water supply programs has increased, and continued opportunity for utilization of unused capacity is anticipated.

Recycled Water

The City of Chino recycled water supplies are received from the Carbon Canyon Water Recycling Facility (CCWRF), which has a current capacity of 10 mgd or 11,205 afy of reliable non-potable recycled water. CCWRF treats an annual average of 8 mgd or 8,964 afy.[3] The City currently provides approximately 350 afy of recycled water to 45 customers. Total CCWRF recycled water supply use equals only 24 percent of the total effluent flow.

Under the current contract the City may take delivery of more than their entitlement when other members are not taking delivery of their full entitlements. However, upon completion of the Regional Recycled Water System, phased through 2010, which merges all the recycled water plants together, there will be no maximum entitlement to recycled water.

Based on current recycled water production of 65,000 afy, expected to increase to 89,000 afy by 2020, and current annual recycled water use at approximately 5,600 afy, projected

[3] IEUA Recycled Water System Feasibility Study, Final Draft, October 2001

to increase to 71,100 afy by 2020, the City of Chino would have sufficient opportunity to take delivery to meet their projected recycled water demand.

Current Supplies to The Preserve, Subarea 2

The City of Chino does not currently supply the project area with groundwater or imported water, with the exception of the airport, located north of Kimball Avenue and west of Grove Avenue and another area of approximately 220 acres. All other water in Subarea 2 is supplied from groundwater by private wells for use on their lands, which overly the groundwater basin, and as contained in the 1978 Chino Basin Adjudication Judgment, the Peace Agreement, and the Optimum Basin Management Program (OBMP).

3.2 Groundwater - Chino Water Basin

The Chino Groundwater Basin provides the groundwater to the City of Chino. The Basin consists of about 235 square miles in the upper Santa Ana River Watershed. The Basin is a relatively flat alluvial valley from east to west and slopes from north to south at a one to two percent grade. Valley elevations range from about 2,000 feet in the foothills below the San Gabriel Mountains to about 500 feet near Prado Dam. The principal drainage course for the Basin is the Santa Ana River. Year-round flow occurs along the entire reach of the Santa Ana River due to surface inflows at Riverside Narrows, discharges from municipal water recycling plants to the Santa Ana River, and rising groundwater. While still considered to be a single basin, the Basin has been divided into five management zones, based upon similar hydrologic conditions, and three sub-basins, as defined in the Optimum Basin Management Program, June 2000, and the 1995 Water Quality Control Plan for the Santa Ana Watershed (Region 8).

The Chino Groundwater Basin stores approximately 5 million acre-feet (maf) of groundwater and has the capability of storing an additional 1 maf. The legally designated safe yield from the basin is 140,000 acre-feet (af), which is the amount of groundwater that can be pumped from the basin each year while maintaining adequate groundwater levels. Purchasing imported water from MWD through the Inland Empire Utilities Agency (IEUA) for basin recharge generally makes up any excess of pumping over the safe yield of the Basin, although supplemental water may be obtained from any available source including recycled water, State water, local import, and Colorado River supplies.

Three documents govern the adjudication and management of the Chino Basin: 1) the 1978 Chino Basin Judgment, 2) the Peace Agreement, and 3) the Optimum Basin Management Program (OBMP). The following sections discuss each of these documents as they pertain to basin management and the City of Chino water supply from groundwater.

3.2.1 Adjudication – 1978 Judgment

In 1978, the Superior Court of the State of California entered a Judgment that adjudicated the water rights of the Chino Basin, and imposed a physical solution, which is the heart of the Judgment.

According to the Judgment, there are significant imported water supplies available to supplement the native safe yield of the Basin. Therefore, the purpose of the physical

solution was to establish a legal and practical means for making the maximum reasonable beneficial use of the waters of the Chino Basin by providing the optimum economic, long-term, conjunctive utilization of surface waters, ground waters and supplemental water, to meet the requirements of water users having rights in or dependent upon Chino Basin. A fundamental premise of the physical solution was that all water users dependent upon the Chino Basin would be allowed to pump sufficient waters to meet their requirements. To the extent that pumping exceeds the share of the Safe Yield or the Operating Yield, funds are provided by producers to enable the Watermaster to replace overproduction.

Water Rights – 1978 Judgment

Three operating pools were established by the Judgment for Watermaster administration: the Overlying Agricultural Pool, the Overlying Non-Agricultural Pool, and the Appropriative Pool. Allocation of rights to the safe yield of the Chino Basin was allocated to each operating pool.

Overlying right is defined as the appurtenant right of an owner of lands overlying the Chino Basin to produce water from the Basin for overlying beneficial use on such lands. Appropriative rights is defined as the annual production right of a producer from the Chino Basin other than pursuant to an overlying right.

According to the 1978 Judgment, the safe yield of Chino Basin is 140,000 acre-feet per year (afy). Safe Yield is defined as the long-term average annual quantity of groundwater (excluding replenishment water or stored water but including return flow to the Basin from use of replenishment or storage water) which can be produced from the Basin under cultural conditions of a particular year without causing an undesirable result.

Aggregate preserved overlying rights in the safe yield for agricultural pool use, including the rights of the State of California, total 82,800 afy, or 414,000 af in any five consecutive years, for over 1,200 parties. Overlying rights for non-agricultural pool use total 7,366 afy for 12 parties. All overlying rights are appurtenant to the land and are fixed, and cannot be assigned or conveyed separate or apart therefrom. However, in accordance with the provisions of the Chino Basin Wastermaster process, when land converts from agricultural use to non-agricultural use, the purveyor that will supply water to the converted land may apply for additional groundwater production credit.

Appropriative rights allocated by the Judgment include initial operating safe yield rights of 54,834 afy, as shown in Table 3-2. The City of Chino share of Initial Safe Yield was 3,670 afy. Appropriative rights include rights by prescription and are entitled under the physical solution to share in the remaining safe yield, after satisfaction of overlying rights and rights of the State of California. Operating Safe Yield is defined as the amount of groundwater which the Watermaster shall determine can be produced from the Chino Basin by the Appropriative Pool parties free of replenishment obligation under the physical solution. Any subsequent change in the safe yield would debit or credit the Appropriative Pool.

Water Rights Priority

By reason of the long continued overdraft in Chino Basin, and in light of the complexity of determining appropriative priorities and the need for conserving and making maximum

beneficial use of the water resources of the State, each party with appropriative rights are barred from asserting special priorities or preferences. All appropriative rights are deemed and considered of equal priority.

Table 3-2
1978 Chino Basin Judgment Appropriative Rights

Party	Appropriative Right (af)	Share of Initial Operating Safe Yield (af)	Share of Operating Safe Yield (%)
City of Chino	**5,271.7**	**3,670.067**	**6.693**
City of Norco	289.5	201.545	0.368
City of Ontario	16,337.4	11,373.816	20.742
City of Pomona	16,110.5	11,215.852	20.454
City of Upland	4,097.2	2,852.401	5.202
Cucamonga County Water District	4,431.0	3,084.786	5.626
Jurupa Community Services District	1,104.1	768.655	1.402
Monte Vista County Water District	5,958.7	4,148.344	7.565
West San Bernardino County Water District	925.5	644.317	1.175
Etiwanda Water Co.	768.0	534.668	0.975
Felspar Gardens Mutual Water Co.	68.3	47.549	0.087
Fontana Union Water Co.	9,188.3	6,396.736	11.666
Marygold Mutual Water Co.	941.3	655.317	1.195
Mira Loma Water Co.	1,116.0	776.940	1.417
Monta Vista Irrigation Co.	972.1	676.759	1.234
Mutual Water Co. of Glen Avon Heights	672.2	467.974	0.853
Park Water Co.	236.1	164.369	0.300
Pomona Valley Water Co.	3,106.3	2,162.553	3.944
San Antonio Water Co.	2,164.5	1,506.888	2.748
Santa Ana River Water Co.	1,869.3	1,301.374	2.373
Southern California Water Co.	1,774.5	1,235.376	2.253
West End Consolidated Water Co.	1,361.3	947.714	1.728
TOTAL	**78,763.8**	**54,834.000**	**100.00**

Source: 1978 Superior Court Judgment of Adjudication

Reallocation of Water Rights

According to the Judgment, in any five years any portion of the share of safe yield allocated to the Overlying Agricultural Pool is not produced, that water is available for reallocation to the Appropriative Pool. Priority of that water is first to supplement water available from Operating Safe Yield to compensate for any reduction in the safe yield after the tenth year of operation (1988), conversion claims, and then for supplement to the Operating Safe Yield without regard to reductions in safe yield. Conversion claims

include converting agricultural lands to other uses and permanently is provided water by a party of the Appropriative Pool.

Appropriative rights, and corresponding shares of Operating Safe Yield, may be assigned or may be leased or licensed to another appropriator, as approved by the Watermaster.

Overdraft - 1978 Judgment

In adopting the Operating Safe Yield for any year, the Watermaster is limited to 200,000 acre-feet of accumulated overdraft and will not be less than or exceed the Appropriative Pool's share of Safe Yield by 10,000 acre-feet.

Groundwater Replenishment – 1978 Judgment

Overdraft is defined as a condition wherein the total annual production from the Basin exceeds the safe yield. The Judgment states that the Chino Basin is, and since at least 1953 has been, in a condition of overdraft.

The Watermaster levies an annual Replenishment Assessment in an amount sufficient to purchase replenishment water to replace production during the preceding year which exceeds the safe yield. Assessments are based on the Pooling Plan for each pool. The Replenishment Assessment for the Appropriative Pool is recovered by a uniform assessment against all production during the proceeding year equaling 15 percent of replenishment cost of water, and a uniform assessment on each acre-foot of production by each party in excess of his allocated share of Operating Safe Yield during the preceding year equaling 85 percent of costs.

Supplemental water may be used to recharge the Basin either directly by spreading and percolating or injecting the water into the Basin, or indirectly by delivering the water for use in lieu of production and use of safe yield or operating safe yield. Supplemental water may be obtained from any available source including recycled water, State water, local import, and Colorado River supplies.

Much of the available natural surface water runoff in the Santa Ana River Watershed is captured and recharged to the groundwater aquifers. A system of flood control channels and percolation basins have been developed to increase the natural recharge capacity of the Basin. A limited quantity of excess storm water is captured for recharge; however, the groundwater recharge program is being expanded to include greater quantities of storm water, recycled water and lesser quantities of imported water.

Carryover – 1978 Judgment

Any Appropriator who produces less than his assigned share of Operating Safe Yield may carry such unexercised right forward for use in subsequent years. The first water used in any such subsequent year is to be an exercise of that carryover right. If the aggregate carryover of any appropriator exceeds its share of Operating Safe Yield, a storage agreement is executed with the Watermaster as a condition of preserving the surplus carryover.

The City of Chino's carryover to 2001-02 was 4,034 af.[4] This amount was determined based on the amount of carryover from 1999-00 (2,854 af), plus the assigned share of

[4] Chino Basin Watermaster, Fiscal Year 2001-2002, Assessment Package, October 2001

safe yield (4,034 af), plus water transaction activity (2,804 af), plus Ag Pool safe yield reallocation (5,125 af) for a total 2000-01 production right (14,814 af), less 2000-01 actual production (7,147 af). This amount equaled 7,667 af, of which 4,034 af is carried over to 2001-02 production and the excess carryover of 3,633 af is eligible for storage. Carry-over water has no limit at this time; however, limitations will be reevaluated in 2005.

Groundwater Storage Capacity – 1978 Judgment

The Judgment states that a substantial amount of available groundwater storage capacity exists in Chino Basin which is not utilized for storage or regulation of Basin waters. The Basin stores approximately 5 maf of groundwater and has the capability of storing an additional 1 maf. Reservoir capacity can appropriately be utilized for storage and conjunctive use of supplemental water with Basin waters. Any person or public entity may make reasonable beneficial use of the available groundwater storage capacity for storage of supplemental water, with allocation preference of storage capacity to the needs and requirements of the lands overlying the Basin and the owners of rights in the Safe or Operating Safe Yield of the Basin.

3.2.2 Interim Watermaster

In February 1998, the Superior Court appointed a nine-member Board as Interim Watermaster for 26 months; March 1998 to June 2000. The Court directed the Interim Watermaster to develop and submit the optimum basin management program (OBMP) for the Chino Basin. The effort to complete the OBMP for the Chino Basin has been divided into two phases. The first phase culminated in submittal of the draft Phase I Report to the Court in September 1999 with continuing jurisdiction over the Basin groundwater resources. The second phase, including a programmatic EIR was completed and adopted in July 2000, as the Implementation Plan. The OBMP is further discussed in Section 3.2.5.

3.2.3 Peace Agreement

The Peace Agreement was adopted in June 2000, amending the 1978 Chino Basin Judgment, and has a term of 30 years. The Peace Agreement facilitates the implementation of the OBMP, and considers Orange County Water District's petition to change the Santa Ana River to fully appropriated and to appropriate up to 507,000 af of newly declared surplus water.

The Peace Agreement amended the judgment in three areas:

1) Members of the Overlying Non-Agricultural Pool have the right to transfer or lease their quantified production rights within the same pool or to the Watermaster in conformance with specified procedures.
2) Any appropriator who provides water service to overlying lands may exercise overlying rights to the extent necessary to provide water service to overlying lands. Overlying Non-Agricultural Pool members have the right to transfer or lease these rights.

3) For the term of the Peace Agreement, in any year in which sufficient unallocated safe yield from Overlying Agricultural Pool is available for conversion claims, the Watermaster can allocate each appropriator with a conversion claim, 2.0 af of unallocated safe yield water for each converted acre approved.

Overdraft – Peace Agreement

The Watermaster is responsible to conduct recharge and replenishment of the Basin. The Peace Agreement directs that during the five years from fiscal year 2000/2001, the Watermaster will conduct physical recharge of supplemental water of 6,500 afy in one or more of the areas known as Montclair, Brooks, and Upland spreading facilities (Management Zone 1 – MZ1). If the cumulative total of 32,500 af of recharge has not been accomplished at the end of the five years, then recharge will continues at the same annual rate until 32,500 af has been reached.

Recharged supplemental water increases the Operating Safe Yield under the Judgment. Cost and allocation of supplemental water is apportioned pro-rata among members of the Appropriative Pool according to the producer's share of the Initial Safe Yield. At the conclusion of FY 2004/2005, the need to continue recharge activities will be evaluated. The Watermaster provides an annual accounting of the amount and location of recharge. Current recharge is being accomplished at 6,500 afy, and the City of Chino is being assessed on 478.205 afy, which is their share of safe yield at 7.357 percent.

Producers do not currently have a limit on how much they can over-produce; however, they are assessed an amount to replenish the Basin for all overproduction. Producers generally develop annual demand projections that assist in making arrangement with other appropriators for prepurchase of replenishment water through transfers and other agreements. This allows the Watermaster to optimize planning within the OBMP.

In-Lieu

Recharging the Basin may be accomplished either directly by spreading and percolating or injecting the water into the Basin, or indirectly by delivering the water for use in lieu of production and use of safe yield or operating safe yield.

In lieu areas are designated by the Watermaster, and has previously designated the entire Chino Basin as an in-lieu area. Any member of the Appropriative Pool who is willing to abstain for any reason from producing any portion of its share of operating safe yield in any year, may offer the unproduced water to the Watermaster. The Watermaster then may purchase water in place of spreading replenishment water for a calculated price to the appropriator as determined in the Peace Agreement. The price is the lesser of the cost of replenishment water plus the cost of spreading, or the cost of supplemental surface supplies less the appropriator's average cost of groundwater production and the applicable production assessment.

Storage and Recovery– Peace Agreement

Local Storage

Local storage is protected and each party has the right to store its un-Produced carry-over water in the Basin. Local storage agreements are approved so long as the total quantity of

supplemental water under local storage agreements does not exceed the cumulative total of 50,000 af. Water held in storage is transferable, but storage capacity is not. The City of Chino currently has 5,417.5 af in local storage.

Parties may continue to produce the actual quantity of carry-over water and supplemental water held in its storage account, subject only to the loss provisions. Rate of loss from local storage is zero percent until 2005, and then it will increase to 2 percent until it is recalculated based on the best available scientific information. Losses will be deducted annually from each storage account.

At the end of FY 2004-05, the Watermaster shall have the general discretion to place reasonable limits on the further accrual of carry-over and supplemental water in local storage. This may be necessary to provide priority for the use of storage capacity for Storage and Recovery Programs that provide broad mutual benefits to all parties.

Storage and Recovery Program

Initial target for cumulative quantity of water held in storage in the Basin is 500,000 af in addition to existing storage accounts. This program is still in development by the Watermaster and current agreements are not yet fully defined.

Appropriative and Non-Agricultural Pool members are entitled to the compensation paid for a Storage and Recovery Program paid in any form, including money, revenues, credits, proceeds, programs, facilities, or other contributions. Compensation may also be used to offset the cost of operations, to reduce assessments on the members, and to defray the costs of capital projects of the request of the members.

The Watermaster is responsible to conduct best efforts to do the following: 1) complete the short-term conjunctive use project conducted by IEUA, Three Valleys Municipal Water District (TVMWD) and MWD; 2) develop a seasonal peaking program for in-Basin use and dry year yield to reduce the Basin's demand on MWD water; 3) develop a dry year export program; and 4) develop a seasonal peaking export program.

The short-term conjunctive use project includes construction of facilities to store water and later withdraw it for conjunctive use. The program goals are to reduce summertime peaking on MWD, deliver State Water Project supplies to Chino Basin, minimize MWD surface water deliveries during future droughts/emergencies, and to allow MWD to export storage water for other member agencies. The program will create improved reliability by establishing an initial 150,000 af storage account for MWD and providing a financial incentive for shifting demand on MWD surface deliveries to the winter months. This program is just one example of storage programs that are necessary to optimize Basin storage and supplies, reduce demand on imported water supplies, and make water available that may not have been otherwise.

Transfers – Peace Agreement

Transfers must have the approval of the Watermaster. Transfers include the assignment, lease, or sale of a right to produce water to another producer within the Chino Basin or to another person or entity for use outside the Basin whether the transfer is temporary or permanent. Lease of water rights are also permissible to allow producers to make up for the lessee's over-production.

According to the Watermaster Fiscal Year 2001/02 Assessment Package, the City of Chino has one transfer and two assignments. Transfers are recorded annually as arrangements are made. For 2001-02, the San Antonio Water Company transferred 2,700 af of water rights to the City of Chino. The City also assigned rights to the Chino Airport and the El Prado Golf Course, 73.8 af to the Non-Ag Pool and 398.3 af to Ag Pool respectively. The City also receives a share of Early Transfers and Land Use Conversion rights as discussed in the following sections.

Non-Agricultural Pool members have the right to transfer or lease within the pool, and the right to transfer to the Watermaster for the purpose of replenishment for a desalter or for a storage and recovery program.

Early Transfer

An "early transfer" means the reallocation of safe yield not produced by the Agricultural Pool to the Appropriative Pool on an annual basis rather than according to the five-year increment described in the Judgment. The Early Transfer of not less than 32,800 afy was the expected approximate amount of water not produced by the Agricultural Pool. Early transfer is to be the greater of 32,800 af or 32,800 plus the actual quantity of water not produced in a given year after all the land use conversions are satisfied. Early transfer water is allocated among members of the Appropriative Pool in accordance with their pro-rata share of the initial safe yield. The City of Chino's share of the initial safe yield is 6.693 percent, equaling 2,413 afy.

Land Use Conversion of Water Rights

With the effective date of the Peace Agreement (June 2000), the amount of water rights converted from agricultural land to urban use was changed from 2.6 af per acre with allocation between initial shares of safe yield and service provider to 2.0 af per acre, all of which is allocated upon conversion of the land to the Appropriative Pool member, service provider. Upon conversion of water rights, the purveyor pledges the amount of water needed for the urban land use, and up to 2 afy per acre of land will be made available. Based on The Preserve Specific Plan which has 2,555 acres of development, this production right from conversion will represent 5,110 acre-feet of water rights. Combined with the City's current share of water rights of 4,042 afy under the operating safe yield, an Early Transfer share of 2,413 afy, this equals total 11,565 of water rights through the year

An Agricultural Pool member has the right to a voluntary agreement with an appropriator which has a service area contiguous to or inclusive of the agricultural land, to provide the required water to the overlying land on behalf of the Ag Pool member. The appropriator is then entitled to a credit to off-set production to the extent it is serving the overlying land up to the amount of the historical maximum annual quantity previously used on that property. The credit is debited to the Ag Pool's collective production right.

Total required reallocations from Early Transfers and Land Use Conversions are subject to availability. For FY 2001/02, the City of Chino received their Early Transfer share of 2,413 af and a Land Use Conversion amount of 2,996 af; however, these amounts are subject to a share between the amount of af required and the amount of af available based on Agricultural Pool under (over) production. The City was assigned a debit for 2001/02

of 285 af based on their share of operating safe yield and the amount of under production. Therefore, total available to the City for reallocation in 2001/02 is 5,125 af.[5] Together with assigned water rights, the City has total water rights of 9,159 af for 2001/02.

3.2.4 Desalter Water

The existing Chino I Desalter facility is located in the City of Chino. The Chino I Desalter facility was previously owned and operated by IEUA and Western Municipal Water District (WMWD), acting through Project Committee No. 14 (PC14). PC14 is comprised of Santa Ana Watershed Project Authority (SAWPA) members, IEUA, WMWD, and the Orange County Water District (OCWD).

Chino Basin Desalter Authority

A newly formed joint powers agency, the Chino Basin Desalter Authority (CDA) has purchased the Chino I Desalter from SAWPA, and, is serving as the lead agency on behalf of several agencies to design, manage, construct and operate both the proposed Chino I Desalter expansion and the proposed Chino II Desalter Project. The CDA participants include: cities of Ontario, Chino Hills, Chino and Norco, Santa Ana River Water Company, Jurupa Community Services District, and Inland Empire Utilities Agency.

The Chino I Desalter is currently operated under the following: 1) "take-or-pay" agreements with the purchasers of the water; 2) an agreement with MWD subsidizing the Desalter to reduce the cost of the water from the Desalter compared to uninterruptible treated imported water; and 3) an agreement with the Watermaster, all groundwater producers, Kaiser Ventures, Inc., and the California Regional Water Quality Control Board, Santa Ana Region, regarding replenishment obligations for operating the Desalter.

Replenishment Water for Desalters

Replenishment water is provided from 1) the Watermaster Desalter Replenishment account, 2) new yield of the Basin, 3) safe yield of the Basin, and 4) additional replenishment water purchased by the Watermaster.

Desalted Water Deliveries

CDA is currently contracted to provide a combined total of 9,200 acre-feet per year (afy) of product water from the Chino I Desalter to Jurupa Community Service District (JFSD) and the cites of Chino, Chino Hills, and Norco. The Chino I Desalter Expansion would result in an additional 5,000 afy of potable water being made available for use. The resultant total of 14,200 afy will be allocated between the cities of Chino, Chino Hills, Norco and Ontario, and the JCSD and the Santa Ana River Water Company. A desire for additional capacity has prompted the proposed expansion of the existing facility with up to five more wells and additional treatment capacity.

Table 3-3 shows the water deliveries under the existing contracts and the proposed integrated project contracts for the Chino I Desalter and its expansion.

[5] Chino Basin Watermaster, Fiscal Year 2001-2002, Assessment Package, October 2001

Table 3-3
Desalted Water Deliveries from Chino I Desalter
Under the Proposed Integrated Project Contracts
(afy)

Agency	Existing Contracts	Proposed Contracts	
	Chino I Existing	Chino I Existing	Chino I Expansion
City of Chino	3,000	3,000	2,000
City of Chino Hills	2,000	2,000	2,200
Jurupa Community Service Dist	3,200	2,700	
City of Norco	1,000		
City of Ontario		1,500	
Santa Ana River Water Co.			800
Subtotal		9,200	5,000
TOTAL	9,200	14,200	

Source: Chino I Desalter Expansion and Chino II Desalter Project, Draft Subsequent Environmental Impact Report, November 2001

City of Chino Contract

The City of Chino entered into a contract with Chino Basin Municipal Water District (now IEUA) in 1996 committing to purchase a minimum of 3,000 afy on a "take or pay" contractual basis. That contract has been replaced by a commitment by Chino to purchase 3,000 afy from the CDA. According to the agreement, the current Chino Desalination Project is sufficient to supply 4,482 afy (4.0 mgd), although the minimum was set at 3,000 afy. Future expansion of the Desalter will increase the City's flow allocation to 5,000 afy, and an agreement to purchase the future desalted water will contain a minimum annual quantity of water to be purchased.

The current contract allows the City of Chino to obtain additional product water if the Chino Basin Desalter is capable of producing more Product Water than is necessary to satisfy the requirements of the purchasers. The City shall be entitled to purchase a minimum proportionate share of additional Product Water based on the ratio of the City's minimum annual quantity (3,000 acre-feet) to the total maximum quantity of all purchasers; currently 33 percent for the City of Chino. With the Chino I Expansion, the percentage will increase to 35 percent. Under this contract, Chino could also be entitled to more than its percentage of unused Product Water if it remains available after offered to all purchasers up to their percentage. Chino also has the opportunity to negotiate the purchase of contracted desalted water with purchasers that are constrained by the "take-or-pay" obligation, but have optimized other sources of local water and do not need to take their full entitlement.

Chino I Expansion and Chino II Desalter Project

The Chino I Desalter currently treats groundwater supplied by 11 wells. The proposed expansion of the Chino I Desalter will require the installation of up to five new wells to meet the capacity goals for the water supply facility. The major components of the proposed expansion project include the following: 1) addition of treatment facilities; 2) pipeline for in-plant conveyance of bypass water; 3) clearwell pump station modifications; 4) miscellaneous plant modifications; 5) additional treatment component; 6) new groundwater pumping wells; 7) new raw water pipelines; 8) new potable water pipelines; and 9) two new pump stations. The Chino II Desalter is proposed to deliver product water to JCSD, City of Ontario, City of Norco, and the Santa Ana River Company. Development of the Chino II Desalter would result in a shift in deliveries from the Chino I Desalter after expansion, as shown in Table 3-3.

The Chino I Desalter expansion is anticipated to occur between June 2002 and December 2003. Chino II Desalter construction is anticipated to occur between June 2002 and May 2004. Environmental impacts of these projects are considered in the Draft Subsequent Environmental Impact Report, Chino I Desalter Expansion and Chino II Desalter Project, November 2001.

Sale of Chino I Expansion and Chino II Desalter Water

Chino I Expansion and Chino II Desalter purchase agreements will contain a minimum annual quantity of water available to purchase. Members of the Appropriative Pool and the State of California shall have the first priority right to purchase desalted water, OCWD will have the second priority right, and then it will be open to purchase by other persons. The term of a water supply contract for the Desalters is not to be less than 30 years if requested. A large benefit to purchasers of desalter water is that there is no replenishment assessment obligation on desalter water.

3.2.5 Optimum Basin Management Program for the Chino Basin

In February 1998, the Interim Watermaster (nine-member court appointed Board) was directed by the Court to develop and submit the optimum basin management program (OBMP) for the Chino Basin. The OBMP is intended to formulate and implement a groundwater management program that will preserve and enhance the safe yield and the water quality of the Chino Basin. The Watermaster's goal is to make it possible for all groundwater users to produce water from the basin for beneficial uses at an affordable cost. The OBMP is intended to allow continued reliance on groundwater for beneficial use within the basin while minimizing demand for imported water, and to encourage beneficial use of the large available storage space in the aquifer system. OBMP actions are intended to benefit both local and regional water supply programs.

The effort to complete the OBMP for the Chino Basin has been divided into two phases. The first phase culminated in submittal of the draft Phase 1 Report to the Court in September 1999 with continuing jurisdiction over the Basin groundwater resources. The second phase, including a programmatic EIR, was completed and adopted in July 2000, as the Implementation Plan. Since the City of Chino receives approximately 38 percent of its water supply from the Chino Basin, it supports the OBMP Implementation Plan.

Phase 1 of the OBMP defined the state of the Chino Groundwater Basin, established the goals and objectives concerning major issues identified by stakeholders, and affirmed a management plan for the achievement of the stated goals and objectives. Phase 2 of the OBMP is the Implementation Plan for the installation and operation of OBMP facilities. The major OBMP facilities include pipelines, desalters, possibly an ion exchange facility, recharge basins, pump stations, production wells, and monitoring devices.

The four primary OBMP management goals are to enhance basin water supplies, to protect and enhance water quality, to enhance management of the basin, and to equitably finance the OBMP.

The OBMP includes nine program elements that were developed during the Phase 1 OBMP Report that collectively will meet the goals of the OBMP. The scope of implementation of some of the programs have been combined since they overlap and have synergies between them.

The program elements include developing and implementing each of the following:

Element 1 – Comprehensive Monitoring Program

Element 2 – Comprehensive Recharge Program

Element 3 – Water Supply Plan for the Impaired Areas of the Basin

Element 4 – Comprehensive Groundwater Management Plan for Management Zone 1

Element 5 – Regional Supplemental Water Program

Element 6 – Cooperative Programs With the Regional Water Quality Control Board, Santa Ana Region, and Other Agencies to Improve Basin Management

Element 7 – Salt Management Program

Element 8 – Groundwater Storage Management Program

Element 9 – Storage and Recovery Programs

3.3 IMPORTED WATER

The Metropolitan Water District of Southern California (MWD) provides imported water supplies to IEUA. MWD is the wholesale water agency that serves supplemental imported water from northern California (State Water Project) and the Colorado River to 27 member agencies located in portions of Los Angeles, Orange, Riverside, San Bernardino, San Diego, and Ventura Counties.

IEUA is the wholesaler of imported water for MWD, and the City of Chino is a member of IEUA. Seven other agencies also receive MWD water through IEUA including the cities of Chino Hills, Ontario, and Upland, Cucamonga County Water District, Fontana Water Company, Monte Vista Water District, and San Antonio Water Company.

IEUA wholesales the water to the City of Chino through the Water Facilities Authority-Joint Powers Agency (WFA). Additional imported water supplies are also used for groundwater replenishment, contributing to the annual production of the Chino Basin. On average, 6,000 afy of imported water has been used for this purpose. During the times of severe drought, significant more amounts of imported water are purchased for groundwater replenishment.

3.3.1 Water Facilities Authority

A joint powers agreement was entered into in February 1989, creating the WFA, between the IEUA, the Monte Vista County Water District, and the cities of Chino, Upland, Ontario, and Chino Hills. The Agreement provides authority to study, plan and provide facilities for the treatment of water and a distribution system to their members. Other public agencies may join the WFA, through an amendment to the joint powers agreement.

The WFA is permitted to treat 81 mgd of State Water Project water through an MWD import water connection in the City of Upland. MWD's Rialto Branch of the Foothill feeder delivers water to the Agua de Lejos Plant for treatment. The actual quantity of treated water ranges from 12 mgd in the winter months to as high as 71 mgd during the summer. WFA water enters the City's potable water distribution system at Benson Avenue and State Street. Since it is of higher quality that the City's groundwater, it is then blended with water from City wells to maintain the nitrate levels within State standards.

The City of Chino is entitled to 5.9 percent of the plant capacity (5,357 afy or 4.78 mgd); however, the City of Chino consistently takes up to 7.0 percent of the capacity. The City can take delivery of more than its entitlement when other WFA members are not taking delivery of their full entitlements. Historically, there has always been unused capacity and Chino has always had an opportunity to meet water quality standard demands through additional WFA imported water. Many of the WFA members desire less dependence on imported water and greater reliability and control on local supplies. As a result, development of water supply programs has increased and the continued opportunity for purchase of unused capacity is anticipated.

Discussions on the opportunity to increase the capacity of the WFA treatment plant have occurred; however, analysis would need to be done to determine feasibility and economic

benefits considering the climate of imported water reliability. The plant could be increased to 88 mgd through re-rating of the existing plant, and further capacity increases would need to be accomplished by plant expansion.

3.3.2 Inland Empire Utilities Agency (IEUA)

IEUA was formed in 1950 to become a member of MWD for the purpose of importing supplemental water, augmenting local stream and groundwater supplies. Since its formation the agency has expanded its services to include production of recycled water, distribution of imported and recycled water supplies, sewage treatment, co-composting of manure and municipal biosolids, desalinization of groundwater supplies and disposal of non-reclaimable industrial wastewater and brine. IEUA serves a population of approximately 700,000.

3.3.3 Metropolitan Water District of Southern California (MWD)

MWD member agencies receive MWD water at various delivery points on its system, and they pay for it at uniform rates for each class of service established by the Board. Historically, MWD has been responsible for importing water into the region through its Colorado River Aqueduct and the State Water Project. Recently, MWD has increased its ability to supply water, particularly in dry years, through implementation of storage and transfer programs.

Municipal and institutional use accounts for 92 percent of water use, while agricultural use is 8 percent and declining. MWD supplies approximately 50 percent of all water demands in their service area 100 percent of the time.

MWD's ability to provide 100 percent reliability is expected to decline as existing imported water supplies from the Colorado River and State Water Project face increasing challenges unless new programs are implemented. Due to competing needs and uses on all of the water sources, and regional water operation issues, MWD undertook a number of planning processes: the Integrated Resources Planning (IRP) Process, the Water Surplus and Drought Management (WSDM) Plan, the Strategic Planning Process, and the Regional Urban Water Management Plan to provide a frameworks and guideline for optimum water planning into the future.

Historical water demands in the MWD service area have increased from 3.1 maf in 1980 to 3.9 maf in 1990. Total water use is projected to grow from a projected 3.8 maf in 2000 to 4.8 maf in 2020. For the San Bernardino County service area, demands are projected to increase 50.6 percent between 2000 and 2020. This is all attributable to IEUA member agencies since IEUA is the only MWD member agency in San Bernardino County. Table 3-4 shows the historic and projected demands for MWD's San Bernardino County service area.

Reliability of MWD's supply is further discussed in Section 4.0, Reliability of Water Supplies.

Table 3-4
Total Retail Water Demand in MWD's Service Area for San Bernardino County (af)

	Actual				Est.	Projected			
County	1980	1985	1990	1995	2000	2005	2010	2015	2022
San Bernardino	169,700	188,000	209,700	184,300	214,100	239,400	265,900	292,900	334,500

Source: The Regional Urban Water Management Plan for the Metropolitan Water District of Southern California, December 2000

Note: Includes total Agricultural and M&I use

Table 3-5 shows the water demands on MWD as a portion of the service area total water demands. The water demand forecasts account for water savings resulting from plumbing codes, price effects, and actual and projected implementation of Best Management Practices. Per capita water demand is forecast to remain relatively constant over the 20-year forecast horizon.

Table 3-5
Actual and Projected Demands on MWD (af)

	Actual				Est.	Projected			
	1980	1985	1990	1995	2000	2005	2010	2015	2022
Agricultural	179,963	176,810	205,653	89,551	125,687	91,020	80,977	71,146	64,138
Full Service	947,856	1,060,689	1,605,061	1,195,558	1,705,008	1,618,972	1,689,550	1,827,681	2,135,635
Long Term	-	-	-	-	265,065	134,213	126,047	120,286	123,379
Seasonal Shift	-	-	-	-	129,034	119,409	119,771	120,066	124,848
Seasonal Unclassified	-	-	404,568	94,464	-	-	-	-	-
Other*	174,892	422,350	400,695	50,000	37,813	-	-	-	-
MWD Total	1,302,711	1,659,849	2,615,978	1,429,573	2,262,607	1,963,614	2,016,345	2,139,179	2,448,000

Source: The Regional Urban Water Management Plan for the Metropolitan Water District of Southern California, December 2000

* Includes Bank, Cooperative Storage, Cyclic Storage, Demonstration Storage, Local Storage, Reimbursable Construction, Pre-deliveries and/or Wheeling

Notes: Sales forecast does not include SDCWA/IID Transfer and Easter Seepage Water
1980 and 1995 are wet years; 1985, 1990, and 2000 are dry years

3.4 Recycled Water

Water recycling is a critical component of the water resources management strategy for the region. Reuse of highly treated tertiary water is the only new source of water available to meet the growing water demands of the IEUA service area. Recycled water is a proven technology and will provide a more dependable local supply of water as well as reduce the likelihood of water rationing during droughts. In addition, the use of recycled water for groundwater recharge is an integral part of the OBMP. Region-wide implementation of recycled water projects are vital to the protection and enhancement of the safe yield and water quality of the Chino Groundwater Basin.

IEUA recognizes that a mix of water management strategies will be needed to enable IEUA to continue to provide a high quality, reliable water supply at an affordable rate. The water supply mix will include implementing water conservation programs, increasing the safe storage capacity of the Basin, minimizing dependence on imported water supplies, and maximizing use of available storm water, and achieving a maximum reuse of all available recycled water.

3.4.1 IEUA Regional Wastewater Treatment Plants

IEUA operates four regional wastewater treatment plants that produce disinfected and filtered tertiary treated recycled water in compliance with California's Title 22 regulations: RP-1, RP-2, RP-4 and the Carbon Canyon Water Reclamation Facility. The water quality from these plants is outstanding, with an average level of total dissolved solids (TDS) well below 500:1 mg/l and a total nitrogen level of less than 10 mg/liter. A fifth plant is under construction and is expected to be on line by 2003.

IEUA's total current production of recycled water is 65,000 afy and is expected to increase to 89,000 afy by 2020. Current annual water sales are estimated at 5,600 acre-feet for the year 2000. IEUA initiated a recycled water marketing program in 1999, which has been successful in additional recycled water sales.

3.4.2 City of Chino Recycled Water Supplies

The IEUA Regional Sewerage Service Contract defines the manner for a Contracting Agency to claim its respective percentage of the recycled water from the treatment plants. In March of each year, each agency gives IEUA an estimated flow and quantity of recycled effluent demand from each reclamation facility from which that agency is entitled. In April each year, each local agency gives IEUA a purchasing schedule, and in May of each year, IEUA allocates recycled water. With 60 days notice, a local agency can increase its previous request for delivery of recycled water.

The City of Chino recycled water supplies are received from the Carbon Canyon Water Recycling Facility (CCWRF), which has a current capacity of 10 mgd or 11,205 afy of reliable non-potable recycled water. CCWRF treats an annual average of 8 mgd or 8,964 afy.[6] The City currently provides approximately 350 afy of recycled water to 45 customers. Total CCWRF recycled water supply used equals only 24 percent of the total effluent flow.

[6] IEUA Recycled Water System Feasibility Study, Final Draft, October 2001

Under the current contract the City may take delivery of more than their entitlement when other members are not taking delivery of their full entitlements. However, upon completion of the Regional Recycled Water System, phased through 2010, which merges all the recycled water plants together, there will be no limit on entitlement to recycled water.

IEUA facilities serve seven other contracting agencies, including: the cities of Chino Hills, Fontana, Montclair, Ontario, and Upland, plus Cucamonga County Water District and unincorporated areas of San Bernardino County within the IEUA service area.

Additional sources of recycled water within IEUA's service area include the Pomona Water Reclamation Plant (operated by the Los Angeles County Sanitation District), the Upland Hills Water Reclamation Plant (operated by the City of Upland), CIM Water Reclamation Plant (operated by the California Institute for Men at Chino), and the Indian Hills Water Reclamation Plant (operated by Jurupa Community Services District).

3.4.3 IEUA Recycled Water Demand

Recycled water in 2000 was distributed from RP-1/RP-4 and CCWRF. A line connects RP-1 and RP-4 and serves the "northern" recycled water system of IEUA's service area. This system provides water for irrigation of parks and golf courses. CCWRF's "southern" recycled water distribution system delivers water through 21,400 linear feet of pipelines, to the cities of Chino and Chino Hills. Some effluent from RP-1 and RP-2 is discharged into Cucamonga Creek. Effluent from RP-1 is also used for to recharge the Chino Basin aquifer via Ely Basin No. 3. RP-2 serves segments of the cities of Chino and Chino Hills; however, portions of RP-2 are scheduled for demolition as the new RP-5 comes on line.

Thirty-seven users are currently connected to, and are taking deliveries of recycled water from, the IEUA recycled water distribution system. The City of Chino has 45 of these connections, including landscape irrigation, agricultural irrigation, industrial reuse, and construction. Total effluent flow and recycled water use beginning in 1984-83 for the IEUA service area is shown in Table 3-6.

Table 3-6
IEUA Regional Wastewater Treatment Plants
Effluent vs. Recycled Water Usage (af)

Year	RWRP-1 / RWRP-4		RWRP-2		CCWRF	
	Effluent Flow	Recycled Water Usage	Effluent Flow	Recycled Water Usage	Effluent Flow	Recycled Water Usage
1984-1983	20,790	1,550	4,290			
1983-1984	20,950	1,080	3,950			
1984-1985	25,160	1,267	4,280			
1984-1986	28,240	1,222	2,660			
1986-1987	27,160	1,306	5,000			
1987-1988	31,290	2,110	5,500			
1988-1989	35,510	2,038	6,180			
1989-1990	34,760	1,961	5,730			
1990-1991	36,840	1,792	6,100			
1991-1992	40,360	1,909	5,780		1,550	
1994-1993	41,510	1,205	5,640		4,720	
1993-1994	37,310	1,978	5,430		7,010	
1994-1995	39,680	3,794	5,360		8,690	
1994-1996	39,590	2,292	4,810		9,060	
1996-1997	39,940	2,075	4,790		9,750	
1997-1998	44,940	1,260	4,969		9,264	
1998-1999	43,354	2,444	5,345		9,534	100
1999-2000	47,269	3,089	4,737		9,310	2,221

Source: IEUA Recycled Water System Feasibility Study, Final Draft, October 2001

3.4.4 City of Chino Recycled Water Demand

The City of Chino introduced recycled water into its system from the Carbon Canyon Water Recycling Facility (CCWRF) in FY 1998-99 and Table 3-7 shows that 100 af was used that year. In FY 1999-00, the City used 368 af of recycled water, and projected recycled water use is expected to climb with the planned recycled water system improvements and marketing program.

Table 3-7
City of Chino
Historical and Projected Recycled Water Demands (af)

City of Chino	98-99	99-00	2005	2010	2015	2022
Recycled Water Demand	100	368	1,000	3,400	5,200	7,700
Recycled Water as % of Total Demand	0.7%	2.3%	6.09%	17.13%	24.0%	31.28%

Source: IEUA Recycled Water System Feasibility Study, Final Draft, October 2001
Source: Water Master Plan, Subarea 2 – Chino Sphere of Influence, Chino Agricultural Preserve Area, Final Draft of Technical Memorandum, February 2001

Since The Preserve is a newly developing area, dual (potable and recycled) water systems are being proposed, which will conserve potable water and make best use of available supplies. The planning and construction of a dual system at the beginning of development has several benefits, as opposed to implementation of a recycled water distribution

system into an area with existing development and potable water distribution system. Construction costs can be shared by both distribution systems, and the use of recycled water in lieu of potable water for irrigation demands and industrial requirements will reduce the need for additional potable water supplies as the population increases.

The Preserve is perfectly situated for the maximum use of recycled water because of the location of the IEUA's existing recycled water pipelines. The outfall pipeline from RP-1 that connects to RP-2 is aligned through The Preserve. Two branches of this 30-inch diameter RP-1 outfall pipe connect to Prado Lake (30-inch) and Mill Creek (30-inch). These existing pipelines form an excellent "backbone" transmission piping system to supply recycled water to future customers with low capital investments.

Utilizing demand factors and digitized land use areas, the potential recycled water demand for Subarea 2 was calculated [7]. In total, 85 percent of the potential recycled water demand was selected as the most feasible to be served with the recycled water system. The remaining 15 percent of the potential recycled water demand (the less feasible portion) was added back into the total potable water demand. A total demand of 4,482 afy or 4.0 mgd of recycled water was allocated for the non-potable water demand condition.

The City will obtain recycled water for The Preserve from the IEUA recycled water plants, initially from the CCWRF. Since the City is currently only taking approximately 350 afy, and projected recycled water use within their existing service area is limited, significant opportunity to fully meet the projected recycled water demand for The Preserve exists. Additionally, IEUA is currently completing the interconnection of all four wastewater treatment facilities they operate, of which the outfall pipeline from RP-1 that connects to RP-2 is aligned through The Preserve.

Finally, under the current contract the City may take delivery of more than their entitlement when other members are not taking delivery of their full entitlements. However, upon completion of the Regional Recycled Water System that merges all the recycled water plants together there will be no limit on entitlement to recycled water.

Based on current recycled water production of 65,000 afy, expected to increase to 89,000 afy by 2020, and current annual recycled water use at approximately 5,600 afy, projected to increase to 71,100 afy by 2020, the City of Chino would have sufficient opportunity to take delivery to meet their projected recycled water demand.

3.4.5 Recycled Water for Groundwater Basin Recharge

IEUA also assumes responsibility for delivery of recycled water to Chino Basin for recharge. All future direct use of recycled water will be given priority service over recharge deliveries. Recycled water recharge for the year 2000 was approximately 500 af. By the year 2020, it is projected that 28,000 afy will be recharged.

A major addition to the Regional Recycled Water Distribution System is the redevelopment and modification of the existing Chino Basin groundwater recharge facilities. These basin have been used primarily for flood control, and as part of the OBMP, the recharge basins will help "drought-proof" the Basin. Redevelopment of the basins will take place beginning in 2001 through the end of 2003. The Basins will be

[7] City of Chino, Urban Water Management Plan Update, January 2002

enhanced to capture storm water and provide for the greater ability to import and store water in the Basin.

Recycled recharge water is credited to signers of the Regional Sewer Service Contract, based on the percentage of wastewater flow delivered to the Regional Reclamation Plants by the respective agencies. This provides additional groundwater pumping rights calculated annually as stored water credits. In FY 2001-02, the City of Chino received 51.1 af (1/10 of the total af recharged) of water rights as a result of recycled water recharge activity. The City may chose to offset production with the credits or produce more.

4.0 RELIABILITY OF WATER SUPPLIES

The City of Chino and the region are facing increasing challenges and opportunities in its role as stewards of water resources in the region. IEUA's boundaries lie almost entirely within the Chino Groundwater Basin. IEUA is working in cooperation with each of the water management agencies within the Chino Basin to achieve water supply reliability, water quality and watershed management goals for the Santa Ana River Watershed and Southern California region.

The Southern California region faces a challenge between satisfying its water requirements and securing its firm water supplies. Increased environmental regulations and the collaborative competition for water from outside the region have resulted in reduced supplies of imported water. Continued population and economic growth increase water demand within the region, putting an even larger burden on local supplies.

The Preserve proposes 9,779 dwelling units on approximately 5,435 gross acres, including 626 acres for business use, 586 acres for public facilities, and 2,987 acres for open space. Total water demand for The Preserve is proposed at 11,317 afy (10.1 mgd): 6,835 afy (6.1 mgd) of potable water and 4,482 afy (4.0mgd) of recycled water. The Preserve presents an opportunity to demonstrate reliability of water supply for this project and the region into the future.

The following agencies work cooperatively to ensure reliability to the region: Inland Empire Utilities Agency, Metropolitan Water District of Southern California, Chino Basin Watermaster, Chino Basin Water Conservation District, Santa Ana Regional Water Quality Control Board, and Santa Ana Watershed Project Authority.

4.1 Inland Empire Utilities Agency (IEUA)

The City of Chino is a member agency of the IEUA. Other agencies within the IEUA service area include the City of Chino Hills, Cucamonga County Water District, Fontana Water Company, Monte Vista Water District, City of Ontario, San Antonio Water Company, and the City of Upland.

IEUA was formed in 1950 to become a member of MWD for the purpose of importing supplemental water, augmenting local stream and groundwater supplies. Since its formation the agency has expanded its services to include production of recycled water, distribution of imported and recycled water supplies, sewage treatment, co-composting of manure and municipal biosolids, desalinization of groundwater supplies and disposal of non-reclaimable industrial wastewater and brine. IEUA serves a population of approximately 700,000, through the following water supplies.

4.1.1 Imported Water

The Metropolitan Water District of Southern California (MWD) provides imported water supplies to IEUA. Since the 1980's the total regional retail water demands within MWD's service area has increased from about 3.0 maf to 3.9 maf in 1999. Between 1990 and 1999, MWD supplied approximately 40 percent of total water demand in the IEUA service area.

4.1.2 Desalter Water

Secondary Effect of Chino I Desalter Expansion and Chino II Desalter Project

The installation and operation of the Chino Basin Desalters is part of the overall OBMP program to enhance basin water supplies, enhance water quality and carry out management of the Chino Basin's groundwater aquifers for the long-term supply of the existing and future population of the areas. The key concept in the OBMP is that the whole program will be implemented to achieve these objectives. The OBMP evaluation of groundwater impacts concludes that implementation of the whole program would not cause significant changes in groundwater levels within the Basin's aquifers. According to the OBMP program element that encompasses the desalters, groundwater production supply to the desalters is to be offset by a program to recharge storm water, State Project Water and recycled water into the Basin. In fact, based on forecast demand, the net result of additional extraction by desalters will be less than one-half the estimated volume of recharge.

According to the Chino I Desalter Expansion and Chino II Desalter Project Environmental Impact Report, Geoscience's Chino Desalter System Projects model forecasts a lowering in groundwater level within the proposed project's area of potential effect. This change in elevation of the groundwater table within the area of potential effect has a potential to interfere with a number of private and public water production wells. However, implementation of mitigation measures will reduce the forecasted potential environmental effects of lowering the groundwater to the lowest achievable level.

One of the secondary or indirect effects of lowering the groundwater table near the Santa Ana River is an inducement of greater recharge from the river to the project area. One of the identified objectives of the OBMP is to increase the amount of safe yield within the Chino Basin and implementation of the proposed desalter projects will contribute to this objective. The OBMP PEIR discussed the existing volume of flow in the Santa Ana River and potential changes resulting from implementation of the OBMP. The five-year moving average flow in the Santa Ana River has ranged between 250,000 and 310,000 afy since 1992. The annual replenishment obligation that must be delivered downstream of Prado Dam to Orange County is 42,500 afy. The near-term (five-year) decrease in quantity of river outflow at Prado Dam is forecast to be 3,000 afy. Over the long-term, the average decrease in quantity of river outflow due to the project is forecast to be 6,000 afy. When place in the context of the five-year running average of 250,000 afy, the loss of 3,000 to 6,000 afy is not a significant impact[8].

Future Desalters

In ten years or the conversion of 20,000 acres of agricultural lands, the Watermaster will need to determine if future desalters are necessary to implement the OBMP. If it is determined they are necessary, then the CDA will have 36 months to secure sufficient funding from state or federal sources to pay for all the capital costs. If funding is unavailable, then there is no obligation to construct future desalters, and instead will

[8] Chino I Desalter Expansion and Chino II Desalter SEIR, November 2001

attempt to negotiate new terms and conditions with the producers within 24 months to accomplish implementation efforts of the OBMP.

4.1.3 Recycled Water

Current use of recycled water is 5,600 afy in the IEUA service area. Recycled water use is expected to increase to 100,000 afy with a total utilization of about 70,000 afy with the development of a recycled water program for landscape irrigation (29,000 af), groundwater recharge (producing 28,00 afy of increased yield from the Basin), industrial use (13,000 af) and agricultural use (100 af)[9]. As storm water recharge is increased, a greater percentage of recycled water can be recharged to the Basin through blending with the higher quality natural waters.

By the year 2020, over 70,000 afy of recycled water is expected to be available within the IEUA service area. This represents about 60 percent of the recycled flow in 2020. Over 40,000 afy will be discharged downstream into the Prado Basin flowing into the Santa Ana River to Orange County. IEUA's goal is to fully utilize the recycled water supply for local beneficial uses. When blended with storm water during wet years and with imported water, the recycled water will help replenish groundwater supplies within the Basin. Maximizing the use of recycled water will reduce the dependence on imported water within the Basin by 50,000 afy at the present rate of flow, and, by more than 70,000 afy within 20 years.

To accomplish this, IEUA has recently completed their Recycled Water System Feasibility Study of project alternatives. The feasibility study identifies that Phase 1 of the Regional Recycled Water Distribution System Program would include recharge basin upgrades/expansions, new basins, regional recycled water pipelines, pumping and storage facilities, and local recycled water pipelines.

IEUA's goal is to construct the Regional Recycled Water Distribution System within 10 years to maximize reuse. The regional system will reduce, and thereby conserve imported water to the Basin and will also conserve natural or storm water, in compliance with the existing Santa Ana River Basin Water Quality Control Plan, the OBMP, and the IEUA Urban Water Management Plan. The California State Legislature has made it mandatory for major water users to use recycled water, if the resource is readily available and meeting specific regulations.

According to IEUA Ten-Year Capital Improvement Plan (Fiscal Year 1997-98 through 2007-08) CCWRF, RP-5 and RP-1 have the potential to expand capacity significantly over the next forty years. This two-source supply increases the reliability of the system. For the supply of recycled water demands in Subarea 2, adequate resources are available. Such reliability is important to an emergency event whereby the potable source may be rendered incapable of supplying enough water.

IEUA has been active in seeking grant funding to match the capital investment of IEUA in the construction of the Regional Water Distribution System. IEUA has been seeking funding opportunities through the following sources: 1) Proposition 13, the Safe Drinking Water, Clean Water, Watershed Protection, and Flood Protection Bond Act, funds through five agencies, 2) Clean Water Act and Water Quality Planning Grants through

[9] IEUA Recycled Water System Feasibility Study, Final Draft, October 2001

the US Environmental Protection Agency; 3) US Bureau of Reclamation under the Southern California Initiative, Southern California Comprehensive Water Reclamation and Reuse Program; and 4) an energy conservation funding grant through the California Energy Commission under AB 970.

4.2 Metropolitan Water District of Southern California (MWD)

Inland Empire Utilities Agency is a member agency of the MWD. MWD is a public agency that provides supplemental imported water from Northern California (State Water Project) and the Colorado River to 27 member agencies located in portions of Los Angeles, Orange, Riverside, San Bernardino, San Diego and Ventura Counties.

As a water wholesaler, MWD has no retail customers. It distributes treated and untreated water directly to its member agencies. The district provides an average of 60 percent of the municipal, industrial and agricultural water used within its service area. The remaining 40 percent comes from local groundwater, local surface water, recycled water, and from the City of Los Angeles Aqueduct in the eastern Sierra Nevada.

MWD's primary goal is to provide reliable water supplies to meet the water needs of its service area at the lowest possible cost. MWD's 100 percent reliability has continued to decline as existing imported water supplies from the Colorado River and State Water Project face increasing challenges.

To address these challenges, MWD and its member agencies developed an Integrated Water Resources Plan (IRP) in 1996. The overall objective of the IRP process is the selection and implementation of a Preferred Resource Mix (or strategy) consisting of complementary investments in local water resources, imported supplies and demand-side management that meet the region's desired reliability goal in a cost-effective and environmentally sound manner. The 1996 IRP was reviewed as part of MWD's strategic plan and rate refinement to guide the development and implementation of revised MWD water management programs through the year 2005.

MWD also provides financial support for local water projects implemented by its member agencies that contribute to an increase in the reliable water supplies available to the region. Currently, MWD sponsors two programs: 1) Local Resources Program that promotes the construction of recycled water and recovered groundwater projects, and 2) financial and technical assistance for implementing water conservation Best Management Practices. MWD also is responsible for distributing $45 million in funds from Proposition 13 funding for development of conjunctive management programs in Southern California.

As demand forecasts are refined, supply goals are also refined. MWD has consistently supplied over 50 percent of water supplies to the Southern California region. To continue to accomplish this, MWD continues to approve new and innovative projects and programs to ensure reliability. For example, in August 2001, MWD took action to move forward initiatives to bolster future supplies by supporting seawater desalination projects, increased commercial conservation efforts, improve water quality by decreasing salinity in supplies from Northern California and the Colorado River, increased underground storage and retrieval facilities, adopted principles for establishing cooperative programs, and endorsed legislation that would further water reliability.

4.3 Water Facilities Authority – Joint Power Agency (WFA)

The City of Chino is one of five members of the WFA. Other members include the Monte Vista Water District, and the cities of Upland, Ontario, and Chino Hills. The WFA is permitted to treat and deliver 81 mg of State Water Project water through an MWD import water connection in the City of Upland. MWD's Rialto Branch of the Foothill feeder delivers water to the Agua de Lejos Plant for treatment. The City of Chino is entitled to 5.9 percent, or approximately 5,267 afy (4.7 mgd), of the 81 mg. The City can take delivery of more than its entitlement when other WFA members are not taking delivery of their full entitlements. This water enters the potable water distribution system of the City at Benson Avenue and State Street.

4.4 Chino Basin Watermaster

The Chino Basin Watermaster was established in 1978 by a judgment entered by the Superior Court of California. The Judgment required that the Watermaster develop a management plan for the Chino Groundwater Basin that meets water quality and water quantity objectives for the region.

In February 1998, the Superior County appointed a nine-member Board as Interim Watermaster for 26 months; March 1998 to June 2000. The Court directed the Interim Watermaster to develop and submit the optimum basin management program (OBMP) for the Chino Basin.

In 1998, the Chino Basin Watermaster developed an integrated set of water management goals and actions for the Basin. Know as the Optimum Basin Management Program (OBMP), this document describes nine program elements to meet the water quality and local production objectives in the Basin. The OBMP encourages the increased use of local supplies to help "drought proof" the Basin.

In July 2000, the Watermaster's planning process culminated with the adoption of a "Peace Agreement" that ended over 15 years of litigation within the Chino Basin. The Peace Agreement outlines the schedule and actions for implementing the OBMP.

Between 1990 and 1999, local sources supplied about 60 percent of the water demand within IEUA's service area and 38 percent within the City of Chino. In an effort to continually clean up and enhance the safe yield of the Chino Basin, the City of Chino has worked integrally with IEUA to explore various methods of Organics Management with the goal of reducing and ultimately eliminating the salts from the Basin. Pilot projects are currently being constructed within the City of Chino and other areas within the IEUA service area that will convert dairy manure to methane gas for generating electricity and composting manure for retail sale.[10]

[10] City of Chino, Urban Water Management Plan Update, January 2002

4.5 Chino Basin Water Conservation District (CBWCD)

CBWCD was established in 1949 to protect and replenish the Chino Groundwater Basin with rainfall and stormwater runoff from the San Gabriel Mountains. CBWCD uses an system of percolation ponds and spreading grounds to augment the natural capacity of the region to capture runoff for the recharge of the groundwater basin. CBWCD also promotes water conservation through public education programs.

4.6 Santa Ana Watershed Project Authority (SAWPA)

SAWPA was formed in 1972 as a joint powers agency for the purpose of coordinating regional planning within the Santa Ana Watershed to address water quality and supply improvements. SAWPA is comprised of five major water supply and wastewater management agencies within the Santa Ana Watershed; Inland Empire Utilities Agency, Eastern Municipal Water District, Orange County Water District, San Bernardino Valley Municipal Water District and Western Municipal Water District.

Since the early 1970's, SAWPA has held a key role in the development and update of the Regional Basin Plan for the Santa Ana Regional Water Quality Control Board. SAWPA conducts water-related investigations and planning studies, and builds facilities needed for regional water supply, wastewater treatment or water quality remediation. Current studies include the Chino Basin Water Resources Management Study, the Colton-Riverside Conjunctive Use Project, an investigation of water quality in Lake Elsinore and studies on the nitrogen and organic carbon levels in the Prado Basin.

In order to facilitate develop of improvements to the local water supply system, SAWPA adopted an Integrated Resource Plan in June 1998. SAWPA conducted a stakeholder process, which resulted in identifying potential projects with a total estimated cost of over $1 billion. Approved in March 2000, State Water Bond Act (Proposition 13) was approved including $235 million to the Southern California Integrated Watershed Program (SCIWP). On July 17, 2000 the State Water Resources Control Board (SWRCB) entered into a memorandum of understanding to set forth general procedures and criteria for selecting projects to be funded by SCIWP for the Santa Ana River Watershed. On August 1, 2000, SAWPA approved an Initial Project Priority List of 44 projects with an estimated cost of $689 million, and adopted a policy to ensure that the List is reviewed and updated periodically to ensure timely and cost-effective use of funds.

The Chino Basin received $87 million for the construction of water desalters, groundwater recharge facilities and new wells, of which $48 million has been allocated by SAWPA and the SWRCB for the Chino I Desalter Enhancement and construction of the new Chino II Desalter. This is part of the $235 million approved for the Santa Ana River Watershed, subject to administration by SAWPA.

4.7 Santa Ana Regional Water Quality Control Board

The Santa Ana Regional Water Quality Control Board (SARWQCB) is responsible for the development and enforcement of water quality objectives to meet the requirements of the Federal Clean Water Act, California Porter-Cologne Act, and the National Pollution Discharge Elimination System (NPDES).

In 1975, the SARWQCB completed the Water Quality Control Plan for the Upper portion of the Santa Ana Watershed. The plan outlines specific water quality management actions to address water quality and salt (total dissolved solids - TDS) build up in the Chino Groundwater Basin. These include the construction of a large well field and desalters in the lower part of the Basin to extract and treat poor quality water, the construction of a pipeline to export brines from the upper Basin to the ocean, and the use of large volumes of low TDS water for groundwater recharge. The desalter water projects render (via treatment) unusable groundwater usable for potable water purposes.

Since 1975, a brine line (Santa Ana River Interceptor or SARI line) has been built and is in operation. In addition, two groundwater desalting plants are in place. The 2000 Optimum Basin Management Plan by the Chino Basin Watermaster has been developed to meet the requirements of the 1975 plan.

4.8 Water Shortage Plans

4.8.1 City of Chino Water Shortage Contingency Plan

The City of Chino has adopted a Water Shortage Contingency Plan, known as the Water Conservation Ordinance, amended, Chapter 13.05 of the Municipal Code. This Plan includes catastrophic interruption, mandatory prohibition, penalties, consumption reduction methods, rationing allocation method, reduction measuring mechanism, and an emergency fund, and is further discussed in Section 4.9 below.

As a member agency of the IEUA, the City of Chino also has adopted and benefits from MWD's Water Surplus and Drought Management Plan.

4.8.2 MWD Water Surplus and Drought Management Plan

MWD has taken the lead on drought planning for the southern California region. In 1999, MWD developed the Water Surplus and Drought Management (WSDM) Plan. This plan addresses both surplus and shortage contingencies. IEUA, and the City of Chino as a member agency of IEAU, have adopted and follow the MWD WSDM Plan. Each year, MWD considers the level of supplies available and the existing levels of water in storage to determine the appropriate management stage for that year. Each stage is associated with specific resource management actions designed to avoid an Extreme Shortage to the maximum extent possible and minimize adverse impacts to retail customers should an Extreme Shortage occur. MWD's resource management will allow shortages to be mitigated without impacting municipal and industrial customers, except in severe or extreme shortages or emergencies. MWD's extensive analysis of system resources demonstrated that the expected occurrence of a Severe Shortage is four percent or less in most years and it never exceeds six percent. This equates to an expected shortage occurring once every 17 to 25 years.

MWD tested the WSDM Plan by analyzing its ability to meet forecasted demands. The results indicated 100 percent reliability for full-service non-discounted demands through the forecast period under foreseeable hydrologic conditions. To determine the data presented in Table 4-1, MWD examined the hydrologic record and its impacts on the supply/demand balance to finding the worst three-year sequence of 1990-1991-1992 for its service area.

Table 4-1
MWD Demand/Supply Balance
Multiple-Dry Year, Single-Dry Year, and Average Year

	Near Term			Long Term			
Scenario	**2001**	**2002**	**2003**	**2005**	**2010**	**2015**	**2020**
Multiple Dry Years							
Demands							
Retail	4.19	4.05	3.99	4.16	4.40	4.65	4.94
GW Replenishment	0.18	0.17	0.16	0.17	0.17	0.17	0.18
Total	**4.37**	**4.22**	**4.15**	**4.33**	**4.57**	**4.82**	**5.12**
Supply							
Local	2.05	2.04	2.06	2.13	2.32	2.46	2.55
Metropolitan	2.32	2.18	2.09	2.20	2.25	2.36	2.57
Total	**4.37**	**4.22**	**4.15**	**4.33**	**4.57**	**4.82**	**5.12**
Single Dry Year							
Demands							
Retail	4.04			4.21	4.46	4.71	5.03
GW Replenishment	0.17			0.17	0.17	0.18	0.19
Total	**4.21**			**4.38**	**4.63**	**4.89**	**5.22**
Supply							
Local	2.28			2.47	2.66	2.80	2.90
Metropolitan	1.93			1.91	1.97	2.09	2.32
Total	**4.21**			**4.38**	**4.63**	**4.89**	**5.22**
Average Year							
Demands							
Retail	3.91			4.07	4.31	4.55	4.85
GW Replenishment	0.16			0.16	0.16	0.17	0.18
Total	**4.07**			**4.23**	**4.47**	**4.72**	**5.03**
Supply							
Local	2.18			2.33	2.52	2.64	2.73
Metropolitan	1.89			1.90	1.95	2.08	2.30
Total	**4.07**			**4.23**	**4.47**	**4.72**	**5.03**

Source: The Regional Urban Water Management Plan for the Metropolitan Water District of Southern California, December 2000

Notes:

MWD supplies include imported supplies, storage programs and transfers

Multiple Dry Years for 2001-2003 are based on the worst three-year sequence from the historical hydrologic record (1990-1991-1992)

Single Dry Year is based on the single worst year from the historical hydrologic record (1977)

Average Year is based on the average over all years in the historical hydrologic record (1922-1998). In average years, MWD will be adding water to storage, but the additional water supplies are not reported in this table.

Using its resource simulation model IRPSIM, MWD projected the three-year water supply situation, including climate and watershed conditions, on the projected demands for 2001-2002-2003. The model simulated the supply, demands, and the operation of MWD's system to determine its ability to meet those demands. The simulation showed that, despite using the worst three-year sequence of hydrology, MWD would meet its demands through a combination of imported supply, withdrawals from storage programs, and transfers. The same model was used for a single dry year, and again, the simulations predicts that MWD would meet its demands under the single worst dry year scenario. The simulation also showed that MWD would be able to meet all full-service, non-discounted demands during average conditions. In fact, in average years MWD would be adding water to storage, but the additional water supplies are not reported in Table 4-1.

Additional MWD Catastrophic Loss Planning Measures

To safeguard the region from a catastrophic loss of water supply, MWD and its member agencies have made and are continuing to make substantial investments in emergency storage and interconnections with adjacent water purveyors. MWD's emergency plan assumes that demands are reduced 25 percent from the 2020 baseline demand forecast through extraordinary conservation., while the local supplies are largely undisrupted. With few exceptions, MWD asserts it can deliver emergency supply from its Diamond Valley Lake Reservoir throughout its service area via gravity, thereby eliminating dependence on power sources that could also be disrupted by a major earthquake. MWD's WSDM Plan will guide management of available supplies and resources during an emergency.

IEUA recently completed its emergency response plan for its service area. IEUA expects to meet emergency demands within the region through extraordinary conservation and groundwater pumping measures. Multiple sources of power exist within the service area making any electrical shortages a temporary disruption. In addition, IEAU is pursuing additional mutual aid agreements between local retail agencies.[11]

4.9 Water Conservation as a Reliable Water Source

As signatory to the Memorandum of Understanding (MOU) Regarding Urban Water Conservation in California, IEUA has made the State-mandated Best Management Practices (BMP) for water conservation the cornerstone of its conservation programs and a key element in the overall regional water resource management strategy. As a member of IEUA, the City of Chino benefits from regional programs performed on behalf of its member agencies.

Current IEUA conservation programs are saving over 6,000 afy in the IEUA service area. Programs will be significantly expanded by 2020, and IEUA expects to reduce water demands by 24,000 acre-feet of water, or about 7 percent. During the period of 2000 – 2005, IEUA is increasing its funding of water conservation programs[12].

[11] Agreement between City of Fontana and the Cucamonga County Water District was developed in 1999.
[12] IEUA Urban Water Management Plan Year 2000 Update, December 2000

These savings directly relate to additional available water, both groundwater and imported water, for beneficial use within the IEUA service area, including the City of Chino.

Regional programs implemented by IEUA that benefit all member agencies, including the City of Chino:

- BMP 1 – Water Survey Programs for Single-Family Residential and Multi-Family Residential Customers. Free residential indoor and outdoor water use surveys offered to the top 20 percent of water users, and to others as requested.
- BMP 2 – Residential Plumbing Retrofits. Distribution of showerheads, aerators and toilet tank leak detection tablets at community fairs, business expos, and during Water Awareness Month.
- BMP 3 – System Water Audits, Leak Detectors, and Repair. Each local agency, including the City of Chino, maintains an active distribution system auditing program. This program evaluates the systems unaccounted-for water loss with a goal to stay under 6 percent. The City of Chino is consistently at 5 percent.
- BMP 4 – Metering with Commodity Rates for All New Connections and Retrofit of Existing Connections. Assists local agencies with a feasibility study examine incentive programs to move landscape water uses on mixed-use meters to dedicated landscape meters. This program is expected to be complete in the near future.
- BMP 5 – Large Landscape Conservation Programs and Incentives. Large landscape irrigation surveys are offered resulting in Landscape Irrigation Budgets to cost effectively achieve quantifiable water savings.
- BMP 6 – High-Efficiency Washing Machine (HEWM) Rebate Programs. Promotion of HEWMs through consumer education and manufacturer incentives.
- BMP 7 – Public Information Programs. Promotes water conservation in coordination with local agencies. Distribution of public information through bill inserts, brochures, community speakers, special events, and Web pages.
- BMP 8 – School Education Programs. IEUA and the local agencies formed the Water Education Water Awareness Committee (WEWAC) in 1989. WEWAC works with the school districts to promote water conservation, acquaints children and adult consumers with the critical importance of water, provides them with information on water use efficiency, and sponsor teachers' Project Water Education for Teachers (WET) training. Promotion and use of water education programs developed and supported by MWD.
- BMP 9 – Conservation Programs for Commercial, Industrial and Institutional Accounts. Provide water use audits to commercial/industrial/institutional customers. During 1996, local agencies participated in MWD's CII Analyst Survey Program. Based on full implementation of the recommendations contained in he surveys, water demand in three participating agencies alone would be reduced by 420 acre-feet annually.

- BMP 10 – Wholesale Agency Assistance Program. IEUA provides conservation-related technical support and information to member agencies, including ULFT replacement, residential retrofits; CII surveys; residential and large turf irrigation; and conservation-related rates and pricing.
- BMP 11- Conservation Pricing. IEUA assists local agencies to implement inclining multi-block rate structures. IEUA also established a new rate for recycled water to provide an economic incentive for the use of the supply.
- BMP 12 – Conservation Coordinator. IEUA has a designated Conservation Coordinator for conservation programs and BMP implementation, and coordination with local agencies.
- BMP 13 – Water Waste Prohibition. IEUA supports "No Waste" ordinances adopted by local agencies, which are actively enforced.
- BMP 14 – Residential ULFT Replacement Program. IEUA initiated its ultra-low-flush-toilet (ULFT) program in 1991. Includes direct installation, rebate, and high school distribution programs. MWD co-sponsored ULFT programs with member agencies, each paying an equal portion of the cost per toilet. Water savings associated with the 13,000 ULFTs installed to date is equal to an estimated 521 afy, and $182,000 in avoided water purchases. IEUA plans to continue this program and retrofit an additional 15,000 toilets through 2005. Additional water savings for these 15,000 ULFTs is estimated at 601 afy for a total water savings from ULFT replacement at 1,122 afy by the year 2005.

Along with the regional benefit of IEUA BMP programs, the City of Chino has specifically implemented the following conservation programs:

- Ultra Low Flush Toilet Retrofit Program
- School Education Program
- Commercial/Industrial/Institutional Water Survey Program

Additional conservation or water use efficiency measures or programs implemented by the City of Chino include the following:

Metering

The City requires, including development of The Preserve, water meters throughout its distribution system, including all residential, commercial, industrial, government and landscaping accounts. Any unmetered use generally occurs at fire hydrants or from distribution system breaks. Annual estimates are made for this usage.

To increase the efficiency of water meter calibration, the City contracts with a company to calibrate meters greater than 2 inches. This calibration is generally performed on an annual basis. Meters 2 inches and smaller are replaced once every 10 years on the average. Meter calibration and periodic replacement insures that customers are paying for all of the water they consume, therefore encourages conservation.

Unaccounted-For Water Loss

The City's historic low unaccounted-for water loss suggests that leaking pipelines, uncalibrated water meters, service line breaks, and other unusual events are not significant factors within the City's water system. The industry standard, based on the American Water Works Association, for unaccounted-for water loss is no more than 9-10 percent. The City of Chino typically experiences a 5 percent water loss, which is well below the industry threshold.

Landscape Conservation

The City of Chino enforces landscaping requirements for all new industrial and commercial developments. Included is a requirement that landscape plans be designed by a registered landscape architect and that they include automatic irrigation systems, rain shutoff devices, in-line check valves to prevent low head drainage, and separate landscaping meters. Suggestions and recommendations are made regarding the use of xeriscape landscaping techniques based on conserving water through limiting the size of turf areas, maximizing the use of drought tolerant (low water consuming) plants, and appropriate maintenance.

A xeriscape garden has been planted on San Bernardino Avenue between Monte Vista Avenue and Ramona Avenue by the Chino Conservation District. The garden is open to the public and is designed to show that xeriscape can offer an attractive, cost-effective and water-efficient landscaping alternative.

The City requires that all new commercial and industrial landscape areas include rain-override devices. The rain override device cancels irrigation cycles when rain is present.

The California Irrigation Management Information System (CIMIS), developed by the University of Fresno, has a check-station in Chino, and monitors precipitation and evapotranspiration levels. The CIMIS information programs the irrigation cycles and watering time for the City's public lands, reducing irrigation when allowable. This program is quite effective and is being monitored by the Grounds Section of the Public Works Services Department. This program also benefits water quality through the management of runoff.

Current landscaping measures for City property include mulching to reduce evapotranspiration, seasonal adjusting of turf heights, and studies on the use of subterranean irrigation systems. These studies are being conducted at the Civic Center facilities. Initial observations indicate that plants watered by subterranean methods tend to accumulate more dirt and dust than plants that are watered by regular sprinklers; otherwise, the system is very efficient. The dirt/dust problem is mitigated by occasional conventional irrigation.

Telemetry

The City has implemented a telemetry system to monitor the City's water production and usage. The system alerts City personnel to water production levels, aids in the prevention of water reservoir overflows, and increases energy efficiency.

Public Education

The City's public education program includes water use efficiency and conservation literature available at the City's Department of Public Works Office.

Water Conservation Ordinance

The City adopted a Water Conservation Ordinance in 1991, amended, Chapter 13.05 of the Municipal Code. The Ordinance identifies actions to be taken by water consumers within the City during periods of adequate water supply, during moderate water shortages, and during high water shortages. Each shortage stage includes such actions as limiting outside irrigation, leak repair, avoiding water use during peak demand hours, and reduced overall water usage.

Water for public health, safety and welfare, water for maintenance of water facilities, and "grey water" use are all exempt from mandatory reductions. Hardship or special case guidelines are established by the City Manager's Office.

Penalties are imposed for violations of prohibited activities as follows:

1st Violation – Warning
2nd Violation – Final Warning
3rd Violation – $50 Fine
4th Violation – $100 Fine
5th Violation – Possible flow restricting device for domestic meters and termination of landscape meters

4.10 Reliability Comparison

The City's current average water demand is 15,145 afy (13.52 mgd). The annexation and buildout of Subarea 2 will significantly increase this demand, generating an additional need for 6,835 (10.1 mgd) of potable water and 4,482 afy (4.0 mgd) of recycled water.

Table 4-2 shows the historical water demands for the City of Chino as reported in the IEUA Urban Water Management Plan Year 2000 Update, Table 2-4.

Table 4-2
City of Chino Historical Water Demands

	89-90	90-91	91-92	92-93	93-94	94-95	95-96	96-97	97-98	98-99	99-00
Groundwater	9,074	8,893	8,765	7,286	3,014	8,530	9,373	10,231	8,821	10,081	9,694
Imported	378	3,692	3,180	4,705	6,266	4,108	4,322	4,325	4,182	4,071	5,451
Recycled											100

Table 4-3 shows water demand in the City of Chino service area for an average or "normal" water year, a single-dry year, and multiple-dry years. Since 2000 was considered a drier than normal year, 1995/96 through 1998/99 were averaged to use a base normal year for groundwater and imported water. Desalted water is shown based on total contract availability and use, and recycled water is shown based on current use. According to MWD, data shows that San Bernardino semi-arid region, during periods of dry weather, would demand approximately 8 percent more urban water than in a "normal" weather year.

Table 4-3
Water Demand/Supply Reliability
City of Chino, including Subarea 2
(afy)

	Average/Normal Water Year	Single-Dry Year	Multiple-Dry Years		
			Year 1	Year 2	Year 3
Groundwater	9,627	10,147	10,147	10,857	11,780
Imported	4,225	3,633	3,633	3,218	2,850
Desalted	3,000	3,000	3,000	3,000	3,000
Recycled	1,000	1,000	1,000	1,107	1,268
Total Supply	17,202	17,780	17,780	17,912	18,898
Total Demand	13,202	14,258	14,258	17,064	17,064
Surplus Supply	4,000	3,522	3,522	848	1,834

Notes: Factors based on IEUA Urban Water Management Plan Update Year 2000, Table 3-14
Groundwater Factors: single-dry year = 1.054; multiple-dry year 2 = 1.07, dry year 3 = 1.085
Imported Factors: single-dry year factor = <1.163>; multiple-dry years 2 and 3 = <1.129>
Total Demand Single- and Multiple-Dry Year Factors = 1.08

Both MWD and IEUA have demonstrated that water supplies would meet demand in normal, single-dry, and multiple-dry years[13]. According to MWD, data shows that during periods of dry weather, the southern California semi-arid region would demand approximately 8 percent more urban water than in a "normal" weather year. Multiple-dry years would be met with increased conservation measures and programs, resulting in a constant demand increase from normal year of 8 percent.

IEUA demonstrates in the Regional Urban Water Management Plan Year 2000 Update that implementation of groundwater banking, the Regional Recycled Water System, and desalter projects, will enhance supply and reliability water sources, while dependence on imported water significantly decreases.

[13] The Regional Urban Water Management Plan for The Metropolitan Water District, December 2000, and IEUA Urban Water Management Plan Year 2000 Update, December 2000

5.0 CONCLUSION

The City of Chino optimizes its water resource supply through an integrated resource approach, utilizing available water programs and projects. The City receives its water supplies from groundwater, desalted water, imported water, and recycled water. Complexities and continuing refinement in groundwater management and rights, evolving development of the regional recycled water system and supplies, desalter expansion and projects, and challenges of imported water reliability make analysis of water demand and supply complicated. This water supply analysis is considered at a point in time when known future projects are considered. It is also understood that new and innovative programs and projects in concept are yet to be designed. Therefore, water supply assessments should be a part of the ongoing planning efforts of the City to optimize its water resource program.

This water supply assessment identifies water supply and reliability to the City, now and into the future, including a sufficient water supply for Chino Subarea 2. Phasing of Subarea 2 will generally occur over time intended to minimize impacts to local areas. This development phasing plan allows for water demands to be met almost entirely from sources that are currently being planned, developed and implemented, including desalter water, recycled water, and conservation programs. Groundwater demand could remain relatively stable throughout the forecast period with maximum use of these alternative sources.

Water Demand

The City's current average demand is approximately 15,345 acre-feet per year (afy). The annexation and build out of Subarea 2 will increase water demand by year 2035 by approximately 11,317 afy of water (6,835 afy of potable water and 4,482 afy of recycled water).

Demand and Supply Projections

Analysis of water demand and supply projections for the City, including Subarea 2, demonstrate that projected supplies exceed demand through the year 2035. These projections consider land use, water development programs and projects, and water conservation. Analysis shows that as desalted water and recycled water use are maximized, groundwater and imported water will remain stable. Recycled water will supply areas currently supplied with potable water, and desalted water will supply areas currently using available groundwater and imported water.

Additionally, the City has the opportunity to increase supply to meet demand through the following measures: 1) production of groundwater over entitlement based on safe yield limitations; 2) increasing imported water purchases; 3) purchasing additional desalted water if more is produced than needed to satisfy requirements of other purchasers, and 4) purchasing additional recycled water in proportion to its increased contribution of effluent, plus additional surplus when available when other members are not taking their full entitlement, which will be changed to no maximum entitlement with completion of the Regional Recycled Water System, which merges all the recycled plants together. Collectively, these additional options will enable water supply to exceed water demand for the City of Chino now and into the future.

6.0 BIBLIOGRAPHY

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