

APPENDIX C
TRAFFIC IMPACT STUDY



41 Corporate Park
Suite 210
Irvine, CA 92606
p: 949.660.1994
f: 949.660.1911

TRANSPORTATION
PLANNING

TRAVEL DEMAND
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TRAFFIC
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ACOUSTICAL
STUDIES

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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**

TRAFFIC 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
z = 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 Service = "F"

⁶ Modify Eastbound-Westbound traffic signal phasing from split-phasing to permitted-phasing.

- 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	<ul style="list-style-type: none"> • Traffic Signal Phasing Modification 	\$ 50,000
	2020	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Restripe southbound approach to include two through lanes 	\$ 25,000
		<ul style="list-style-type: none"> • Construct southbound free-right turn lane 	\$ 350,000
SUBTOTAL (BUILDOUT)		\$ 375,000	
TOTAL COST			\$ 450,000

TABLE 3

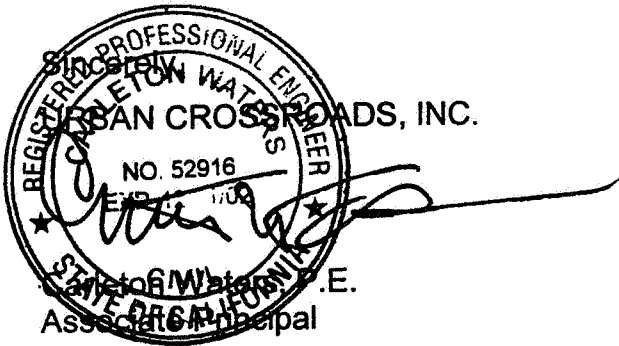
PROJECT FAIR SHARE INTERSECTION TRAFFIC CONTRIBUTION

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

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.



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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
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CHINO AGRICULTURE PRESERVE SUBAREA 2
TRAFFIC IMPACT ANALYSIS (REVISED)
CHINO, CALIFORNIA

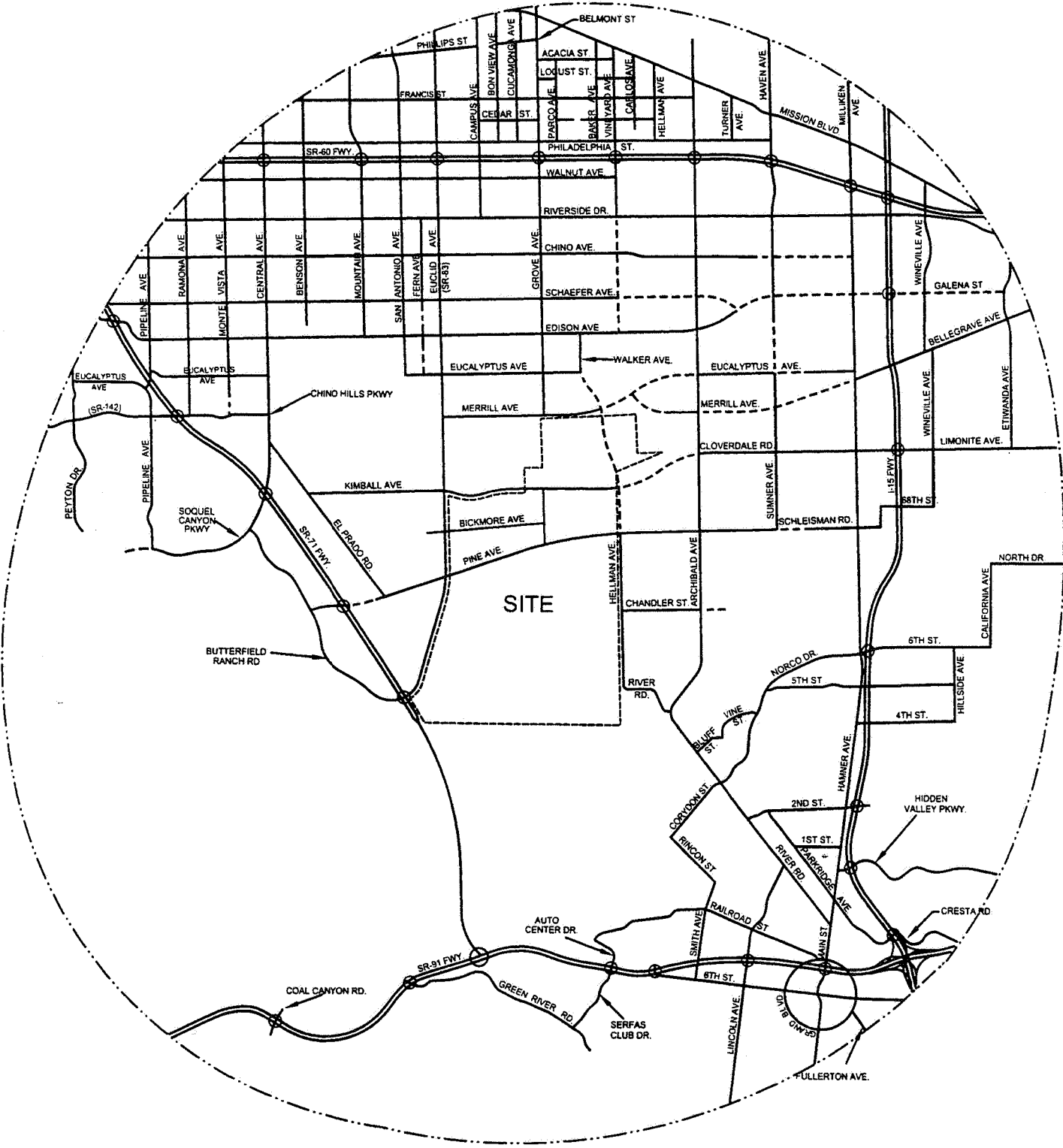
1. INTRODUCTION

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



CONGESTION MANAGEMENT PROGRAM NETWORK AND STUDY AREA LIMITS



LEGEND:

- = 5 MILE STUDY AREA LIMITS
- = CMP ROADWAY



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).

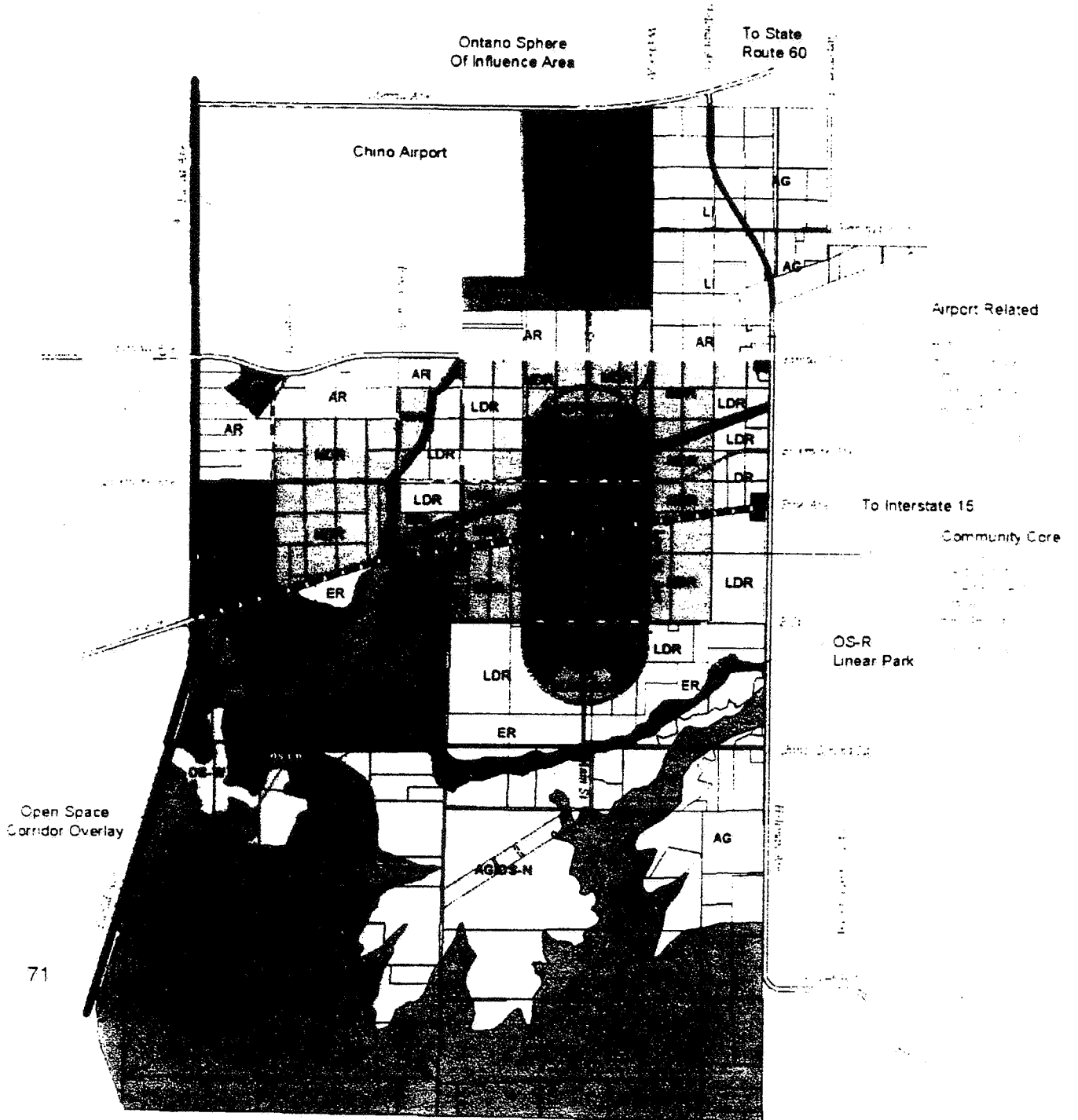
The approximately 5,435 acre project site is proposed to be developed with airport, light industrial, single-family detached residential, multi-family attached residential, hotel, open space-recreation, elementary school, junior high school, prison, agriculture, office, business park and commercial retail 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



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:

$$[(\text{Curb to Curb distance} - 6 \text{ feet}) / (4 \text{ feet/second})] + 7 \text{ seconds}$$

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.

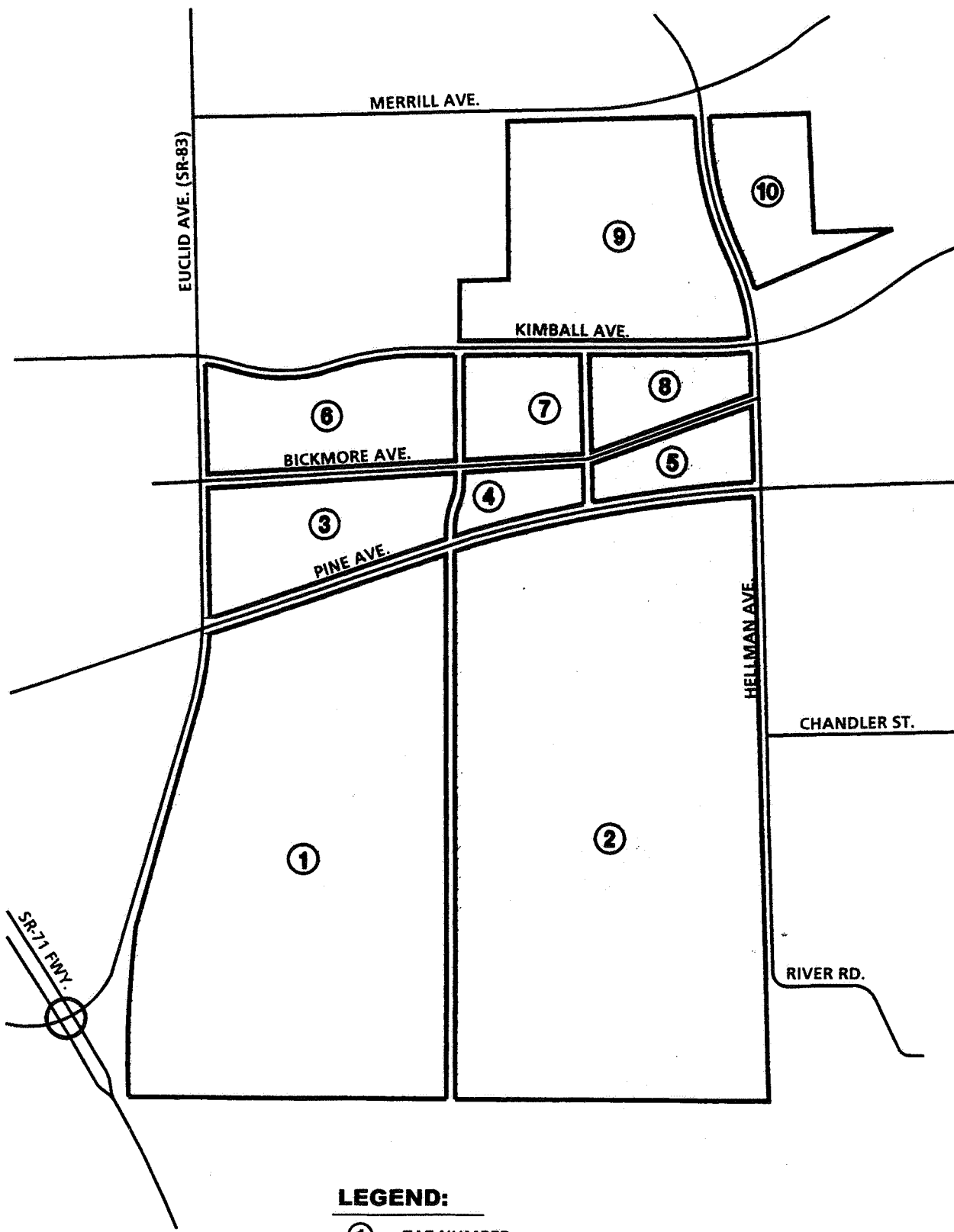
The project land use is summarized on Table 2-1. Partial absorption of all uses is anticipated for all land uses by 2010. Full absorption, except for commercial and some office uses; is generally expected by 2020.

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

PROJECT TRAFFIC ANALYSIS ZONE (TAZ) MAP



LEGEND:

- ① = TAZ NUMBER
- = TAZ BOUNDARY



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

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 RATES¹

LAND USE	UNITS ²	PEAK-HOUR				DAILY
		AM		PM		
		IN	OUT	IN	OUT	
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

TABLE 2-3

PROJECT (2010) TRIP GENERATION

TRAFFIC ANALYSIS ZONE	LAND USE	PROPOSED QUANTITY	PEAK-HOUR				DAILY
			AM		PM		
			IN	OUT	IN	OUT	
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				DAILY
			AM		PM		
			IN	OUT	IN	OUT	
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

TABLE 2-4

PROJECT (2020) TRIP GENERATION

TRAFFIC ANALYSIS ZONE	LAND USE	PROPOSED QUANTITY	PEAK-HOUR				DAILY
			AM		PM		
			IN	OUT	IN	OUT	
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				DAILY
			AM		PM		
			IN	OUT	IN	OUT	
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

TABLE 2-5

PROJECT (BUILDOUT) TRIP GENERATION

TRAFFIC ANALYSIS ZONE	LAND USE	PROPOSED QUANTITY	PEAK-HOUR				DAILY
			AM		PM		
			IN	OUT	IN	OUT	
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				DAILY
			AM		PM		
			IN	OUT	IN	OUT	
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

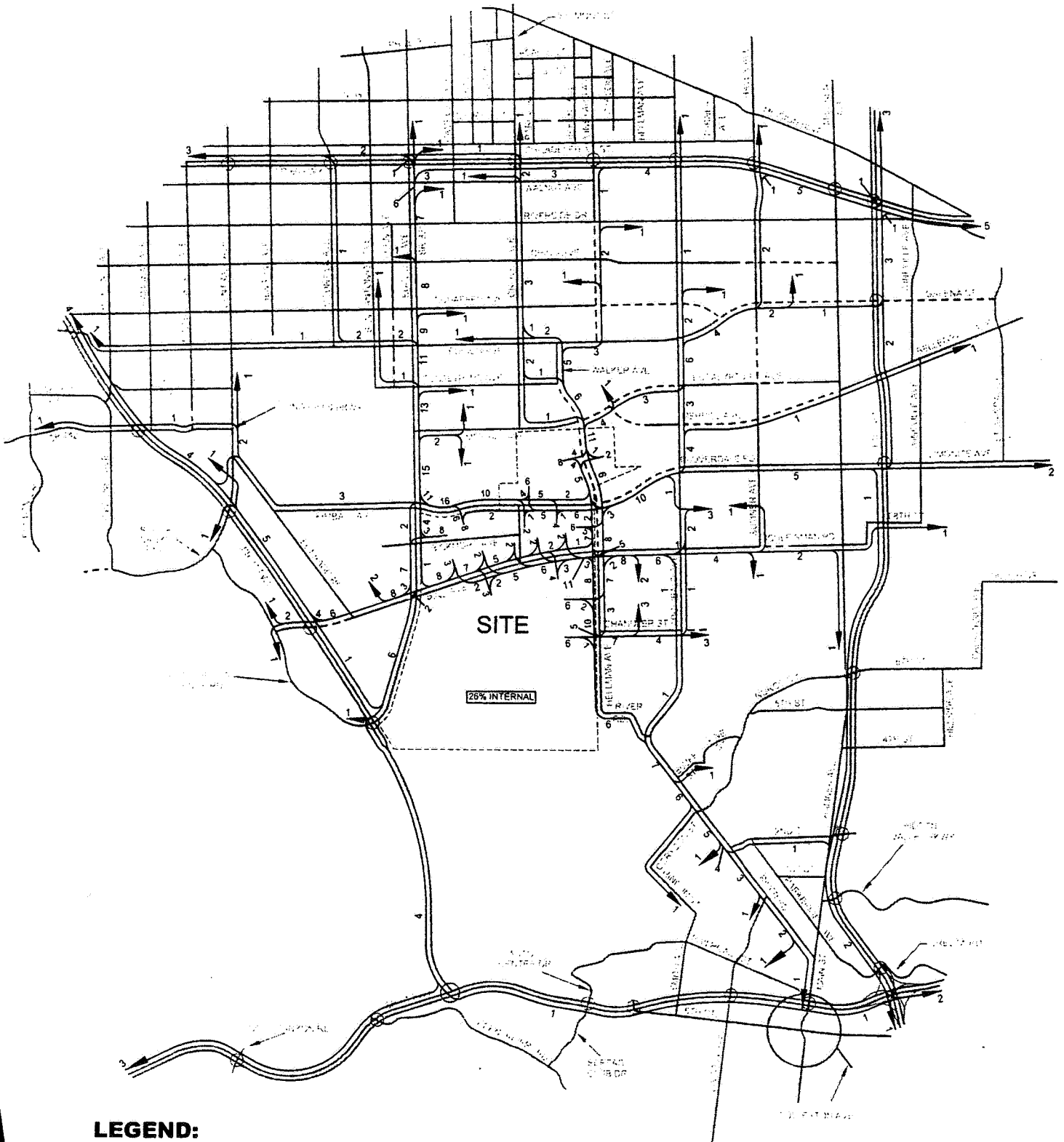
For Buildout conditions, the development is projected to generate a total of approximately 244,930 trip-ends per day with 18,993 vehicles per hour during the AM peak hour and 25,911 vehicles per hour during the PM peak hour. The heavy truck vehicle volumes (included in the totals) are 3,633 trip-ends 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

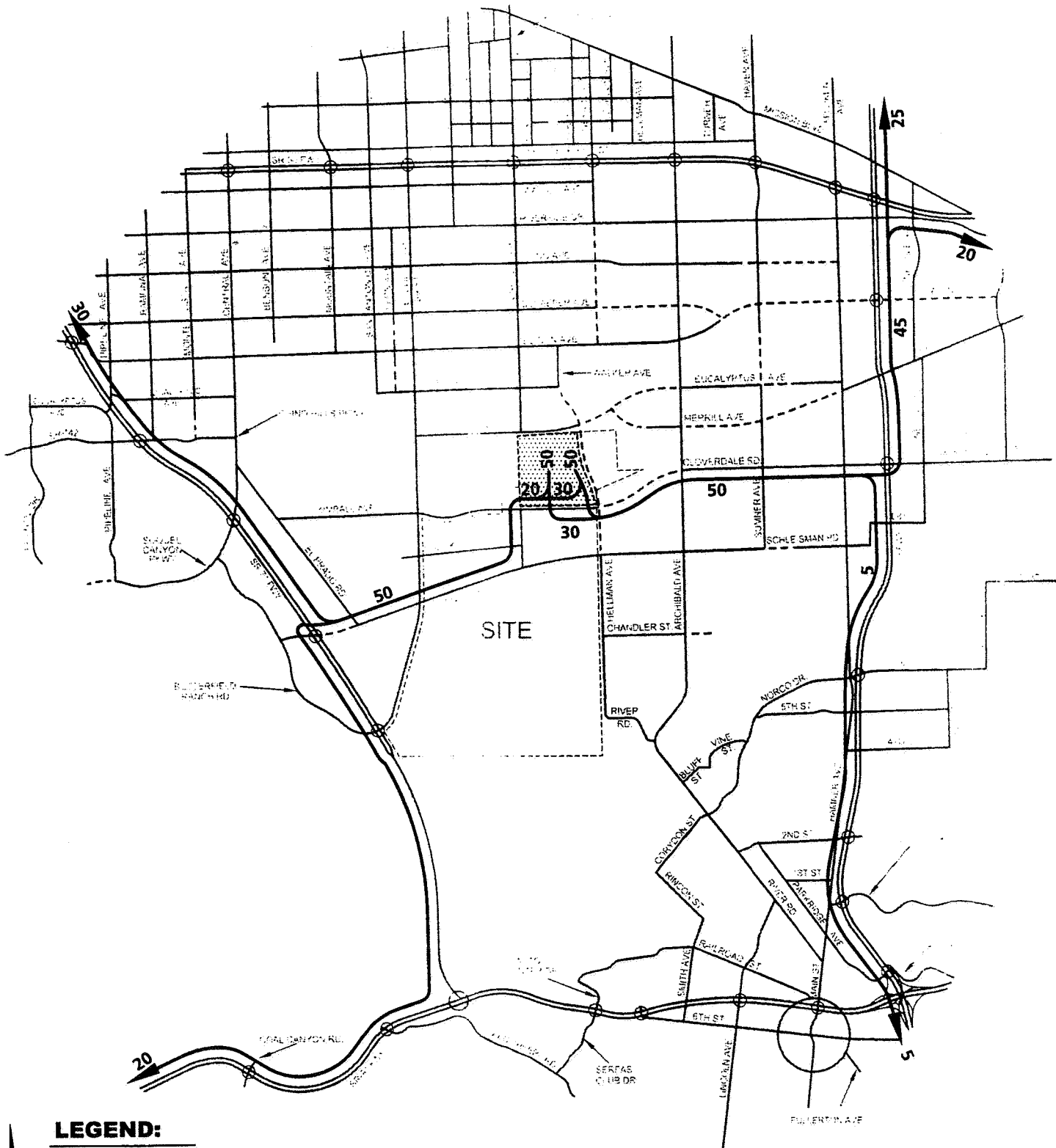


LEGEND:

10 = PERCENT TO/FROM PROJECT
 NOM = NOMINAL



EXHIBIT 2-C HEAVY TRUCK TRIP DISTRIBUTION



LEGEND:

- 10 = PERCENT TO/FROM PROJECT
- = PRIMARY HEAVY TRUCK GENERATOR



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.

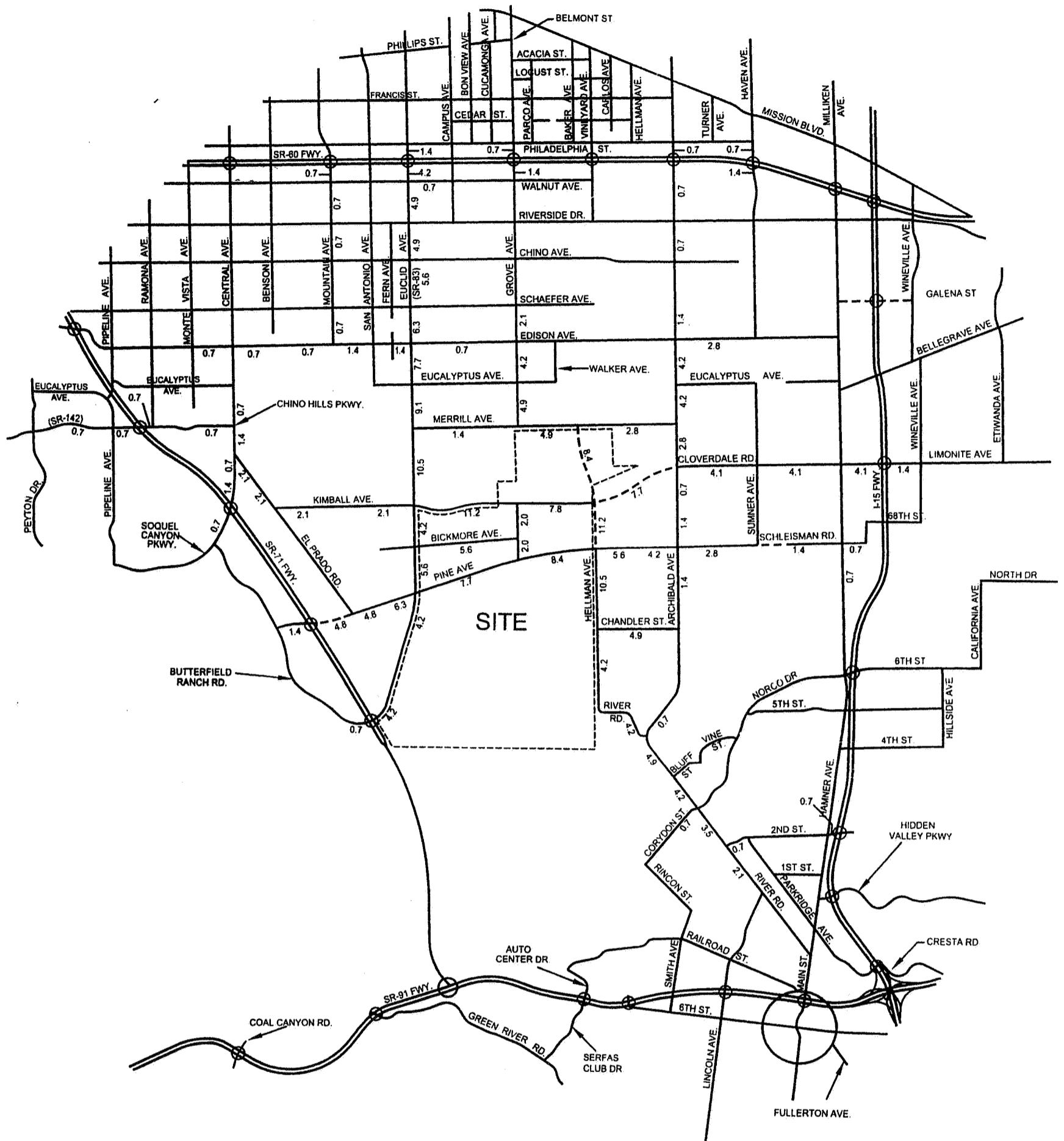
The 2020 ADT volumes attributable to the project only are presented on Exhibit 2-G. The Year 2020 AM peak hour project only traffic forecasts are depicted on Exhibit 2-H, while Exhibit 2-I presents the Year 2020 PM peak hour project only traffic forecasts.

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)**

2-17



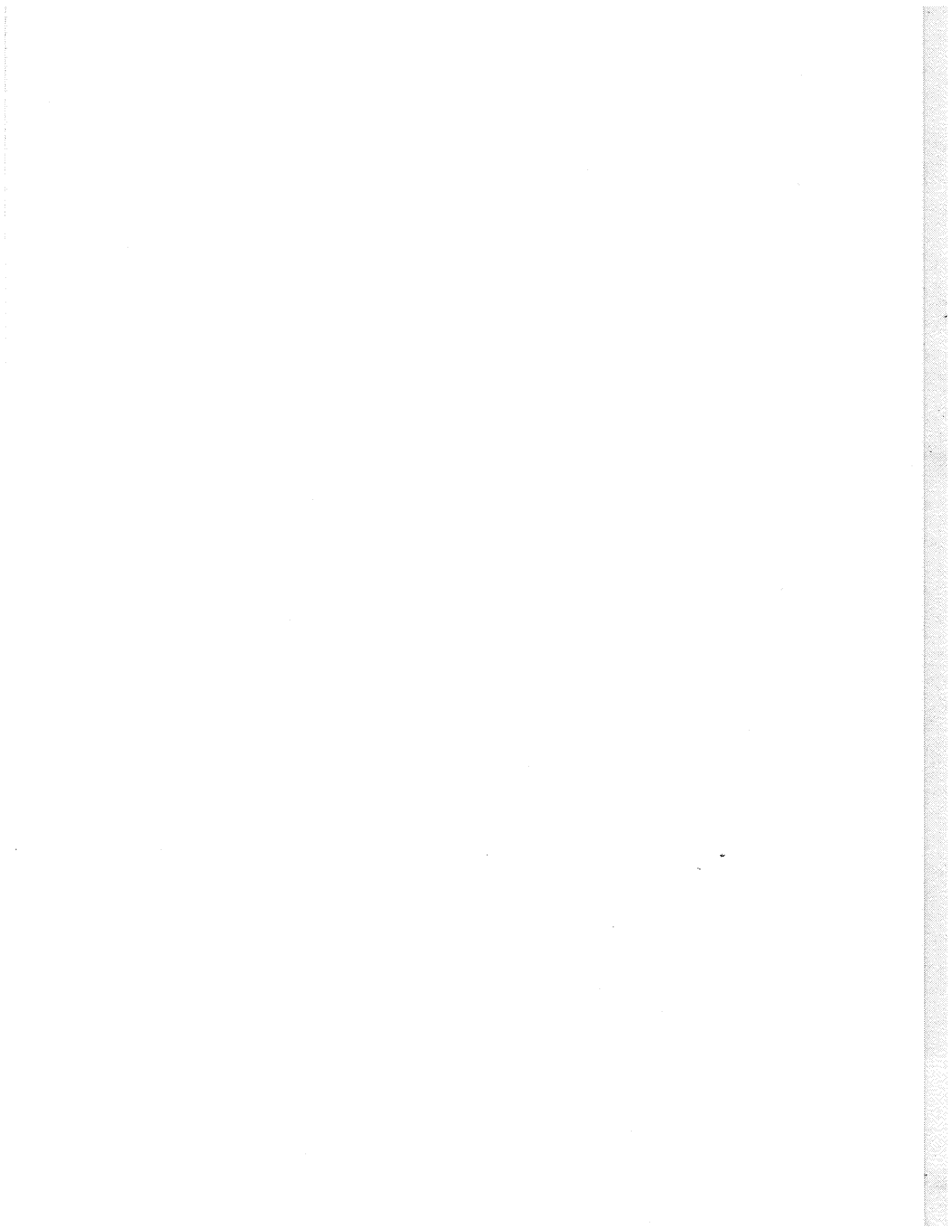
LEGEND:

0.8 = VEHICLES PER DAY (1000'S)

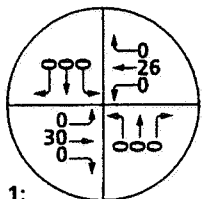


CHINO SUBAREA 2, Chino, California - 00020:111

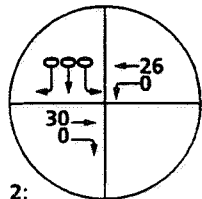




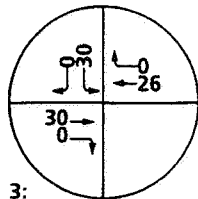
INTERIM (2010) PROJECT AM PEAK HOUR INTERSECTION VOLUMES (PART 1/2)



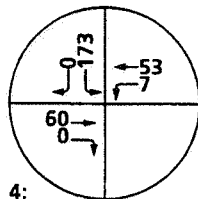
1:
PIPELINE AVE. /
CHINO HILLS PKWY.



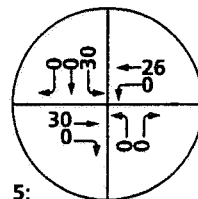
2:
SR-71 SB RAMPS /
CHINO HILLS PKWY.



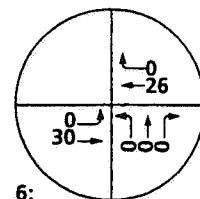
3:
SR-71 SB RAMPS /
SOQUEL
CANYON PKWY.



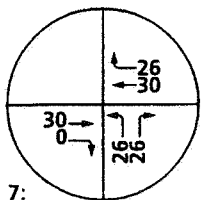
4:
SR-71 SB RAMPS /
PINE AVE.



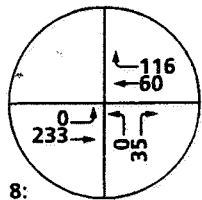
5:
SR-71 SB RAMPS /
EUCLID AVE.



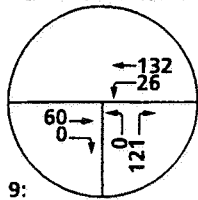
6:
SR-71 NB RAMPS /
CHINO HILLS PKWY.



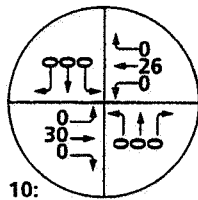
7:
SR-71 NB RAMPS /
SOQUEL
CANYON PKWY.



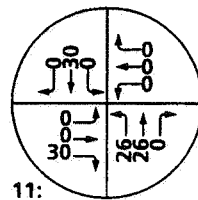
8:
SR-71 NB RAMPS /
PINE AVE.



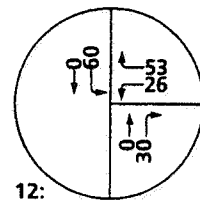
9:
SR-71 NB RAMPS /
EUCLID AVE.



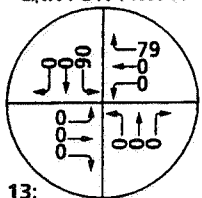
10:
CENTRAL AVE. /
EDISON AVE.



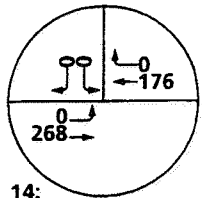
11:
CENTRAL AVE. /
CHINO HILLS PKWY.



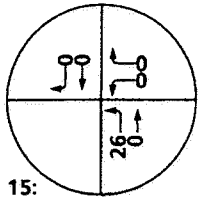
12:
CENTRAL AVE. /
EL PRADO RD.



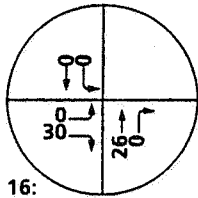
13:
EL PRADO RD. /
KIMBALL AVE.



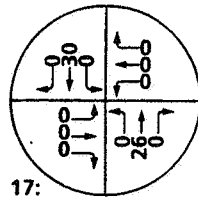
14:
EL PRADO RD. /
PINE AVE.



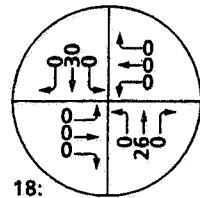
15:
MOUNTAIN AVE. /
SR-60 WB RAMPS



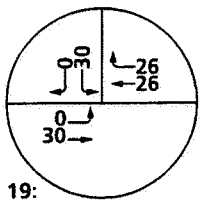
16:
MOUNTAIN AVE. /
SR-60 EB RAMPS



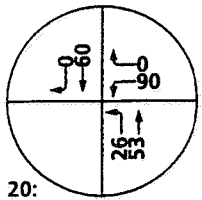
17:
MOUNTAIN AVE. /
WALNUT AVE.



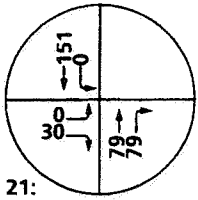
18:
MOUNTAIN AVE. /
RIVERSIDE DR.



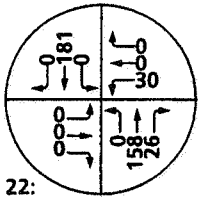
19:
MOUNTAIN AVE. /
EDISON AVE.



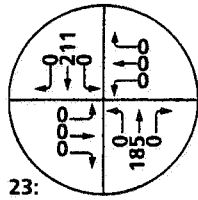
20:
EUCLID AVE. /
SR-60 WB RAMPS



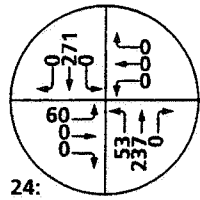
21:
EUCLID AVE. /
SR-60 EB RAMPS



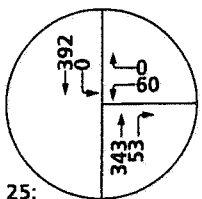
22:
EUCLID AVE. /
WALNUT AVE.



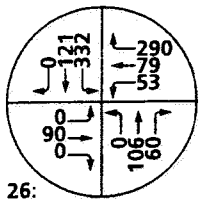
23:
EUCLID AVE. /
RIVERSIDE DR.



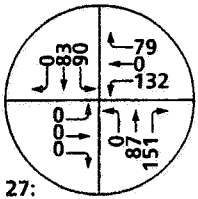
24:
EUCLID AVE. /
EDISON AVE.



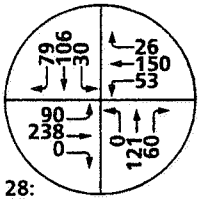
25:
EUCLID AVE. /
MERRILL AVE.



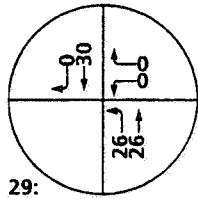
26:
EUCLID AVE. /
KIMBALL AVE.



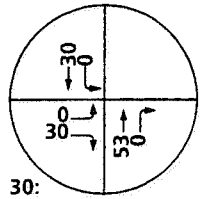
27:
EUCLID AVE. /
BICKMORE AVE.



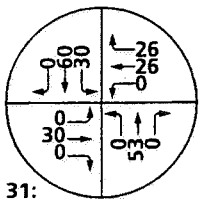
28:
EUCLID AVE. /
PINE AVE.



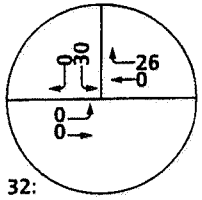
29:
GROVE AVE. /
SR-60 WB RAMPS



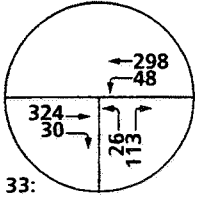
30:
GROVE AVE. /
SR-60 EB RAMPS



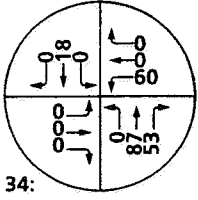
31:
GROVE AVE. /
EDISON AVE.



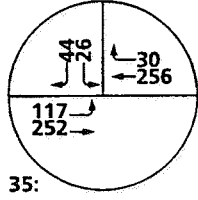
32:
GROVE AVE. /
MERRILL AVE.



33:
GROVE AVE. /
KIMBALL AVE.



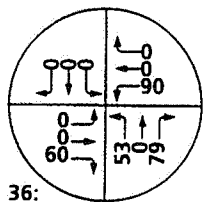
34:
GROVE AVE. /
BICKMORE AVE.



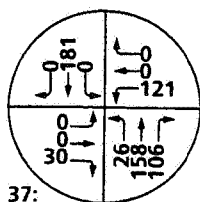
35:
GROVE AVE. /
PINE AVE.



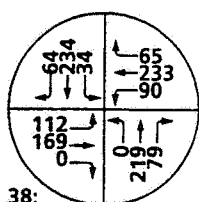
INTERIM (2020) PROJECT PM PEAK HOUR INTERSECTION VOLUMES (PART 2/2)



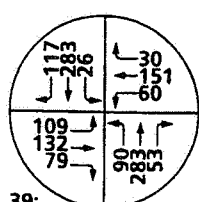
36:
WALKER AVE. /
EDISON AVE.



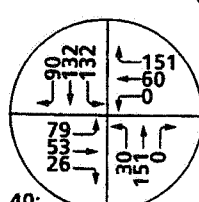
37:
HELLMAN AVE. /
MERRILL AVE.



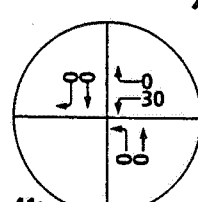
38:
HELLMAN AVE. /
KIMBALL AVE.



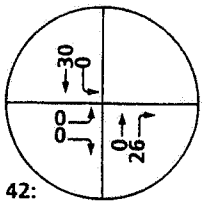
39:
HELLMAN AVE. /
PINE AVE.



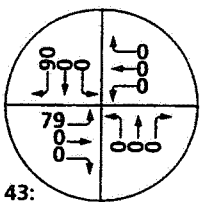
40:
HELLMAN AVE. /
CHANDLER ST.



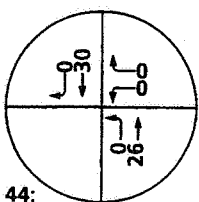
41:
VINEYARD AVE. /
SR-60 WB RAMP



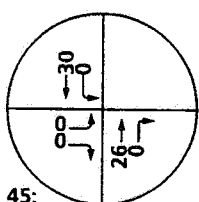
42:
VINEYARD AVE. /
SR-60 EB RAMP



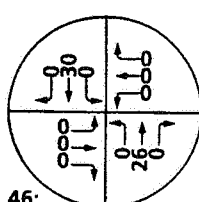
43:
VINEYARD AVE. /
EDISON AVE.



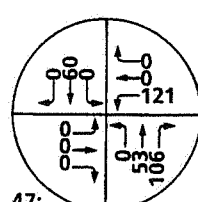
44:
ARCHIBALD AVE. /
SR-60 WB RAMP



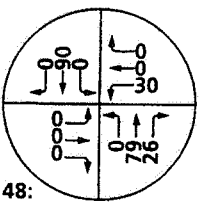
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ARCHIBALD AVE. /
SR-60 EB RAMP



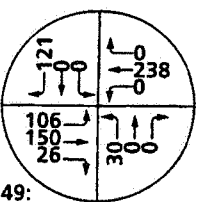
46:
ARCHIBALD AVE. /
RIVERSIDE DR.



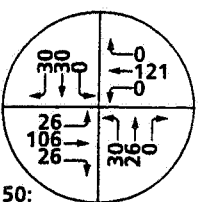
47:
ARCHIBALD AVE. /
EDISON AVE.



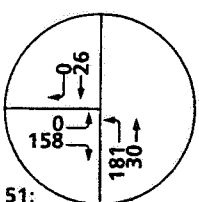
48:
ARCHIBALD AVE. /
MERRILL AVE.



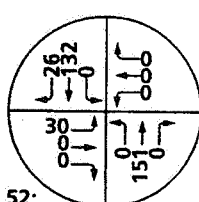
49:
ARCHIBALD AVE. /
CLOVERDALE RD.



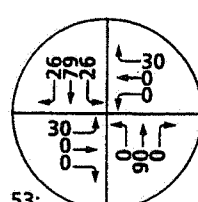
50:
ARCHIBALD AVE. /
PINE AVE.



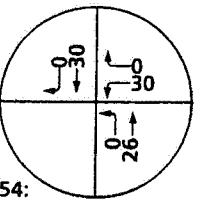
51:
ARCHIBALD AVE. /
RIVER RD.



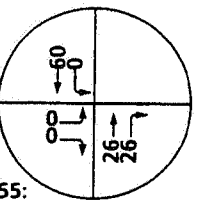
52:
RIVER RD. /
CORYDON ST.



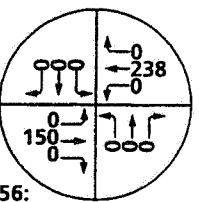
53:
RIVER RD. /
SECOND ST.



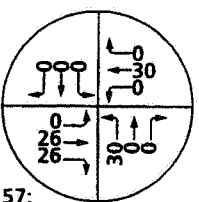
54:
HAVEN AVE. /
SR-60 WB RAMP



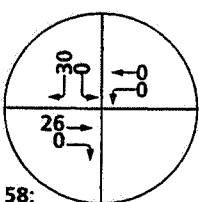
55:
HAVEN AVE. /
SR-60 EB RAMP



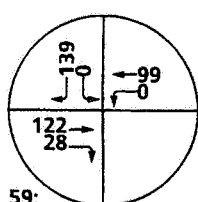
56:
HAMNER AVE. /
CLOVERDALE RD.



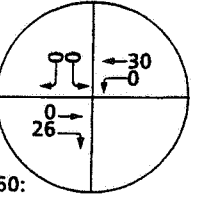
57:
HAMNER AVE. /
SCHLEISMAN RD.



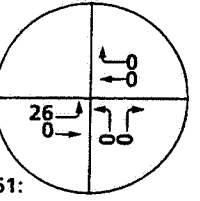
58:
I-15 SB RAMP /
GALENA ST.



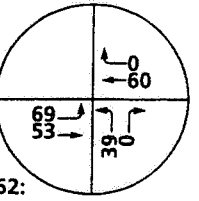
59:
I-15 SB RAMP /
LIMONITE AVE.



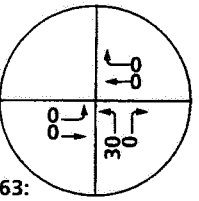
60:
I-15 SB RAMP /
SECOND ST.



61:
I-15 NB RAMP /
GALENA ST.



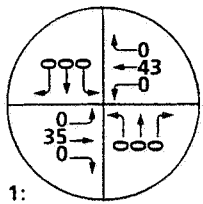
62:
I-15 NB RAMP /
LIMONITE AVE.



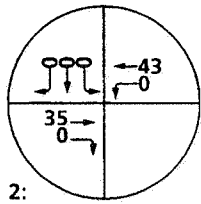
63:
I-15 NB RAMP /
SECOND ST.



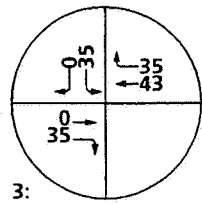
INTERIM (2010) PROJECT PM PEAK HOUR INTERSECTION VOLUMES (PART 1/2)



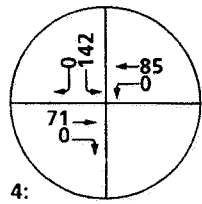
1: PIPELINE AVE. / CHINO HILLS PKWY.



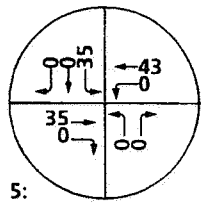
2: SR-71 SB RAMP / CHINO HILLS PKWY.



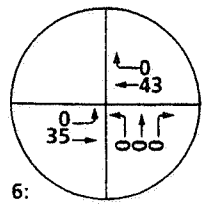
3: SR-71 SB RAMP / SOQUEL CANYON PKWY.



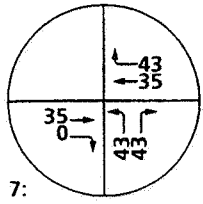
4: SR-71 SB RAMP / PINE AVE.



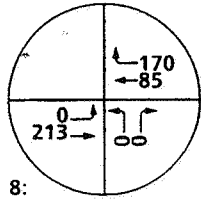
5: SR-71 SB RAMP / EUCLID AVE.



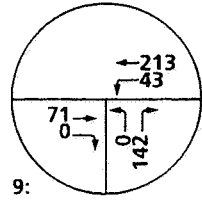
6: SR-71 NB RAMP / CHINO HILLS PKWY.



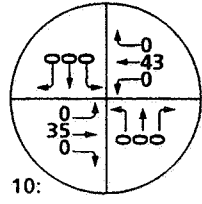
7: SR-71 NB RAMP / SOQUEL CANYON PKWY.



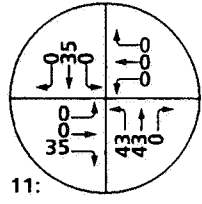
8: SR-71 NB RAMP / PINE AVE.



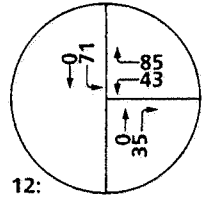
9: SR-71 NB RAMP / EUCLID AVE.



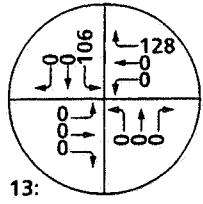
10: CENTRAL AVE. / EDISON AVE.



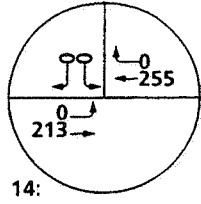
11: CENTRAL AVE. / CHINO HILLS PKWY.



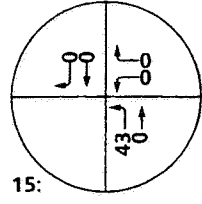
12: CENTRAL AVE. / EL PRADO RD.



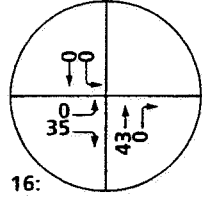
13: EL PRADO RD. / KIMBALL AVE.



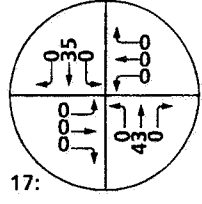
14: EL PRADO RD. / PINE AVE.



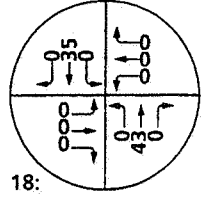
15: MOUNTAIN AVE. / SR-60 WB RAMP



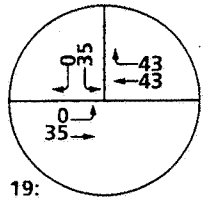
16: MOUNTAIN AVE. / SR-60 EB RAMP



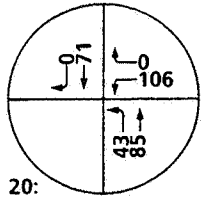
17: MOUNTAIN AVE. / WALNUT AVE.



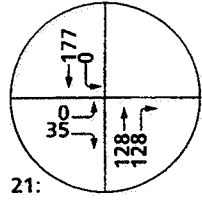
18: MOUNTAIN AVE. / RIVERSIDE DR.



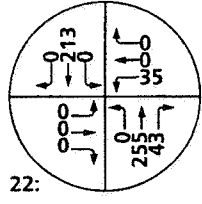
19: MOUNTAIN AVE. / EDISON AVE.



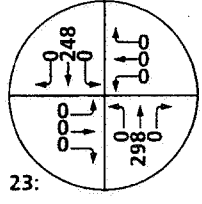
20: EUCLID AVE. / SR-60 WB RAMP



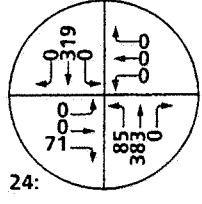
21: EUCLID AVE. / SR-60 EB RAMP



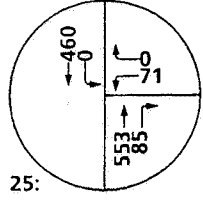
22: EUCLID AVE. / WALNUT AVE.



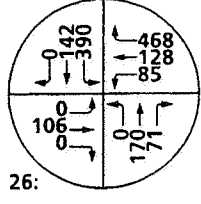
23: EUCLID AVE. / RIVERSIDE DR.



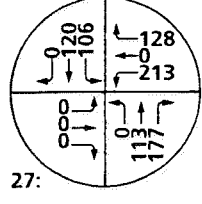
24: EUCLID AVE. / EDISON AVE.



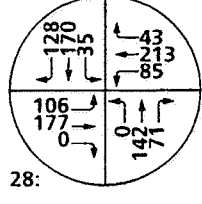
25: EUCLID AVE. / MERRILL AVE.



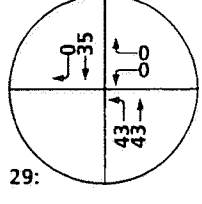
26: EUCLID AVE. / KIMBALL AVE.



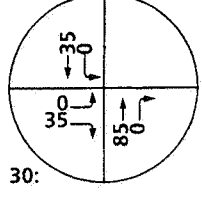
27: EUCLID AVE. / BICKMORE AVE.



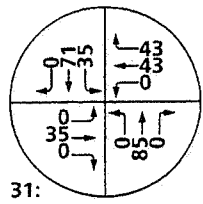
28: EUCLID AVE. / PINE AVE.



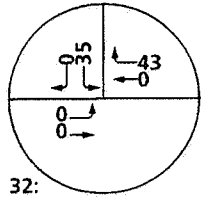
29: GROVE AVE. / SR-60 WB RAMP



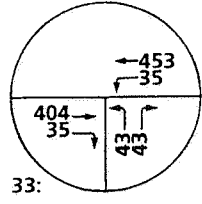
30: GROVE AVE. / SR-60 EB RAMP



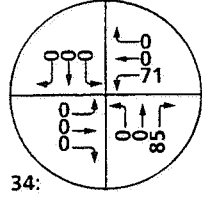
31: GROVE AVE. / EDISON AVE.



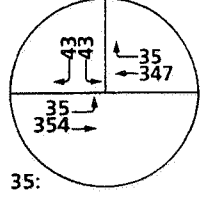
32: GROVE AVE. / MERRILL AVE.



33: GROVE AVE. / KIMBALL AVE.



34: GROVE AVE. / BICKMORE AVE.



35: GROVE AVE. / PINE AVE.



INTERIM (2010) PROJECT PM PEAK HOUR INTERSECTION VOLUMES (PART 2/2)

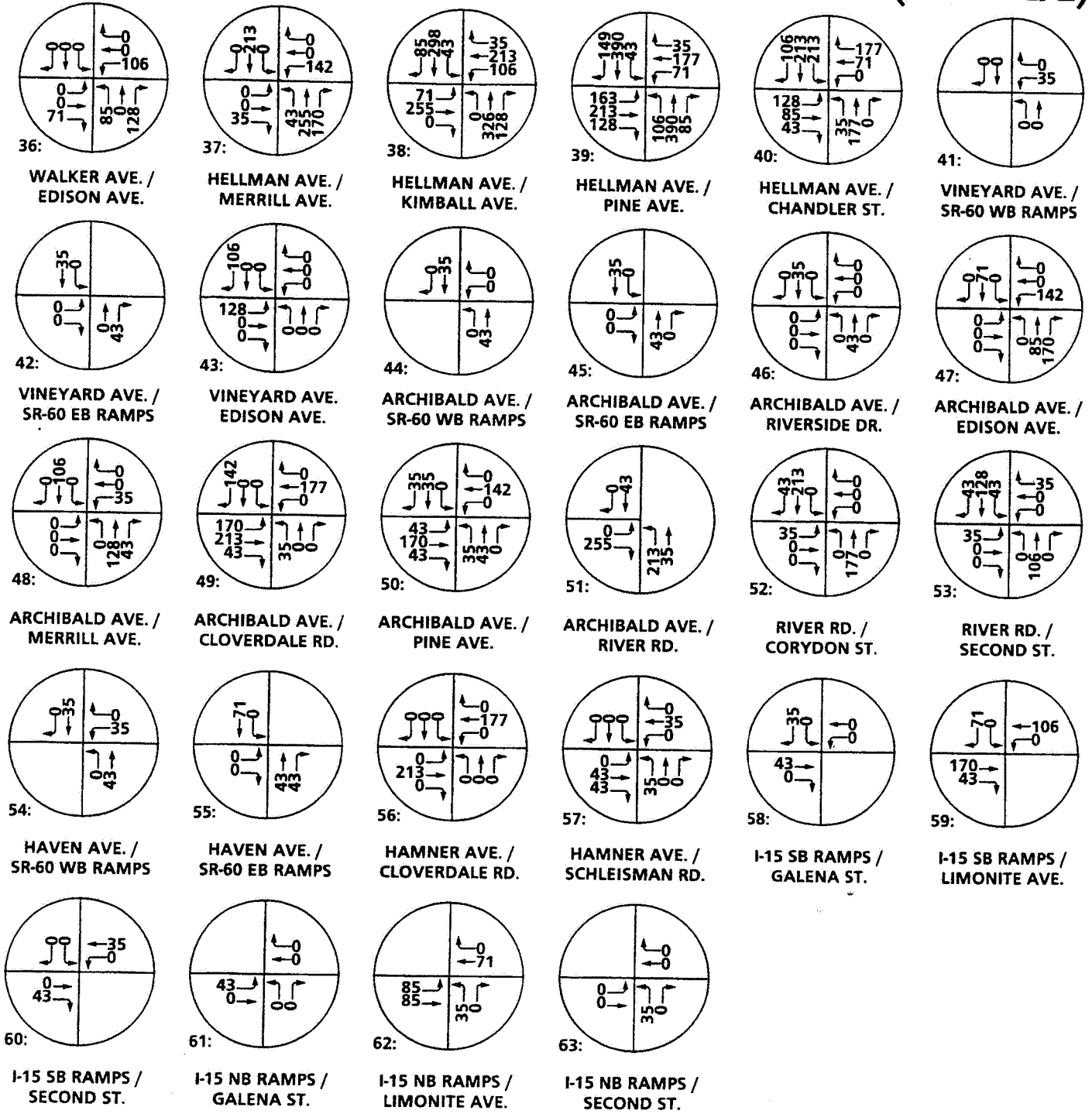
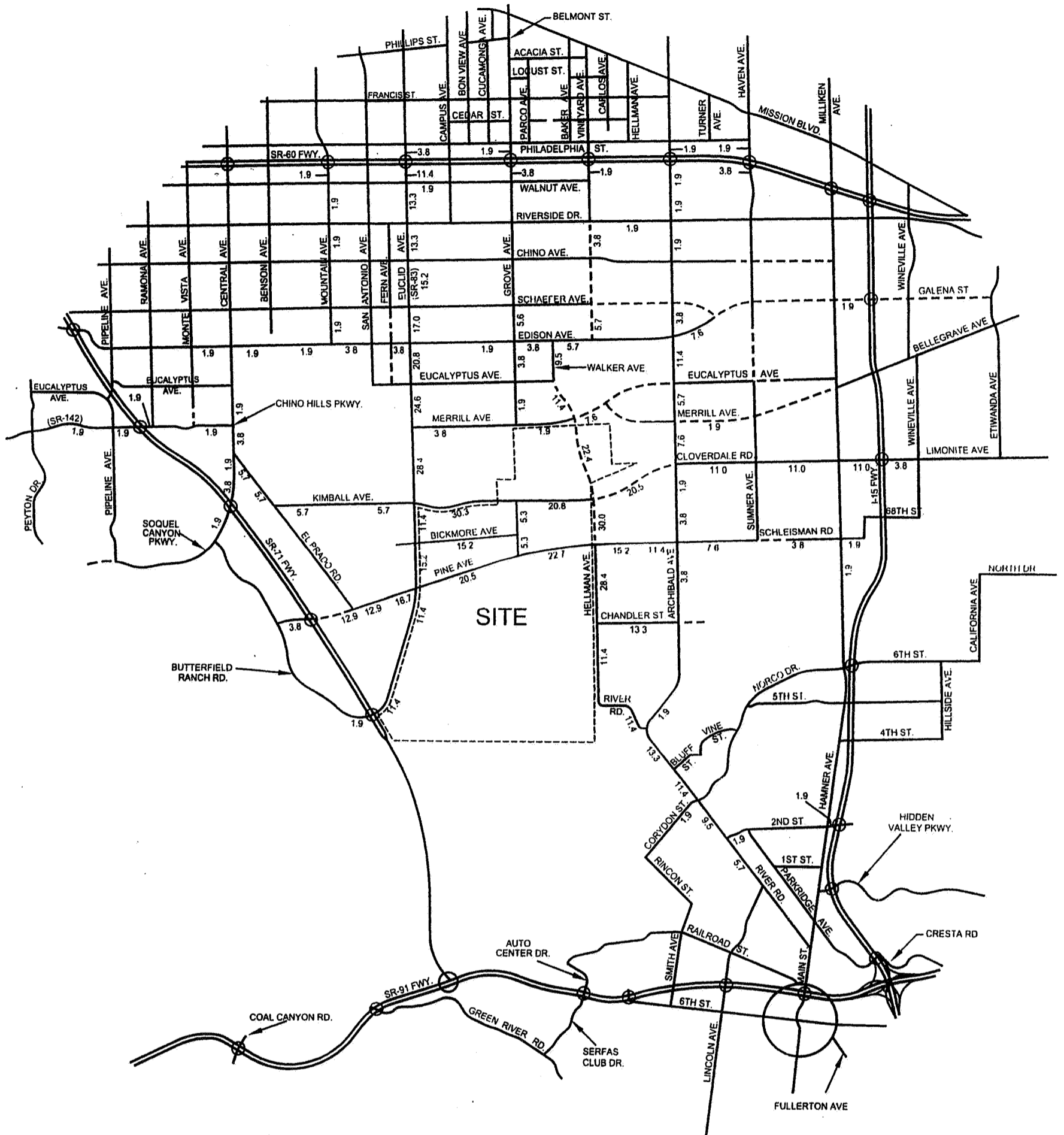


EXHIBIT 2-G
2020 PROJECT
AVERAGE DAILY TRAFFIC (ADT)

2-23



LEGEND:

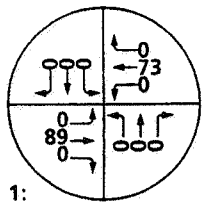
5.7 = VEHICLES PER DAY (1000'S)



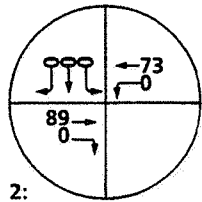
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2020 PROJECT

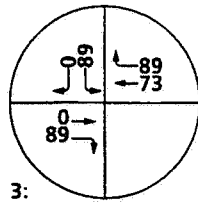
AM PEAK HOUR INTERSECTION VOLUMES (PART 1/2)



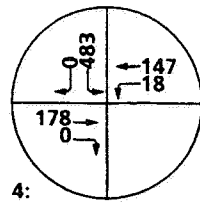
1:
PIPELINE AVE. /
CHINO HILLS PKWY.



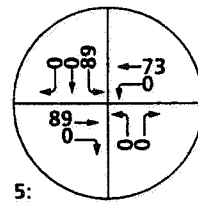
2:
SR-71 SB RAMP /
CHINO HILLS PKWY.



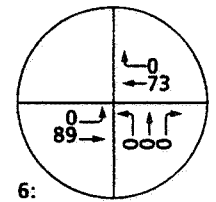
3:
SR-71 SB RAMP /
SOQUEL
CANYON PKWY.



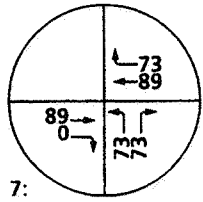
4:
SR-71 SB RAMP /
PINE AVE.



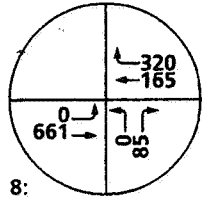
5:
SR-71 SB RAMP /
EUCLID AVE.



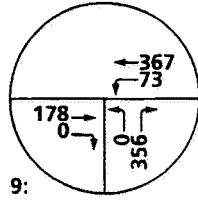
6:
SR-71 NB RAMP /
CHINO HILLS PKWY.



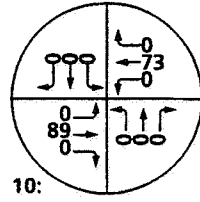
7:
SR-71 NB RAMP /
SOQUEL
CANYON PKWY.



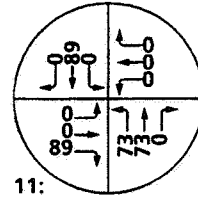
8:
SR-71 NB RAMP /
PINE AVE.



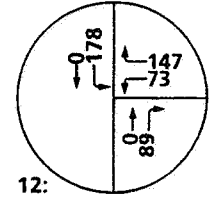
9:
SR-71 NB RAMP /
EUCLID AVE.



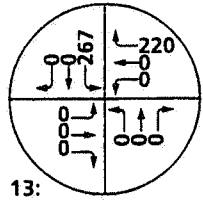
10:
CENTRAL AVE. /
EDISON AVE.



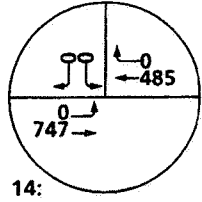
11:
CENTRAL AVE. /
CHINO HILLS PKWY.



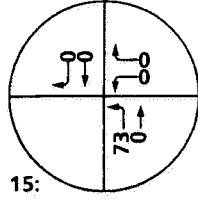
12:
CENTRAL AVE. /
EL PRADO RD.



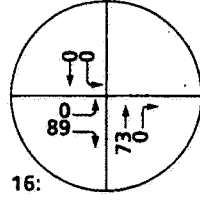
13:
EL PRADO RD. /
KIMBALL AVE.



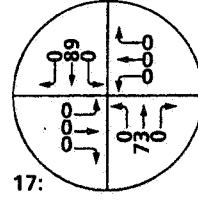
14:
EL PRADO RD. /
PINE AVE.



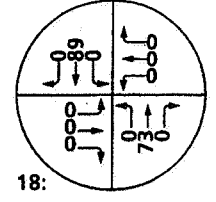
15:
MOUNTAIN AVE. /
SR-60 WB RAMP



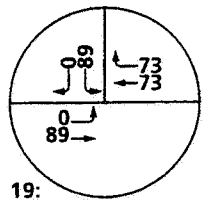
16:
MOUNTAIN AVE. /
SR-60 EB RAMP



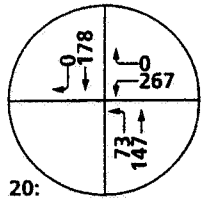
17:
MOUNTAIN AVE. /
WALNUT AVE.



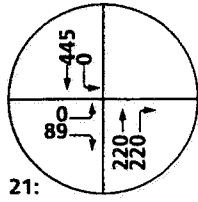
18:
MOUNTAIN AVE. /
RIVERSIDE DR.



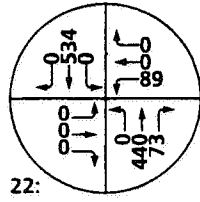
19:
MOUNTAIN AVE. /
EDISON AVE.



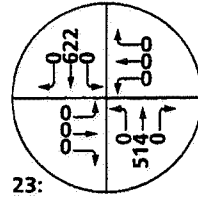
20:
EUCLID AVE. /
SR-60 WB RAMP



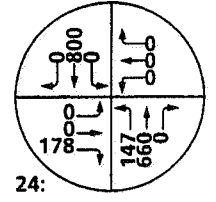
21:
EUCLID AVE. /
SR-60 EB RAMP



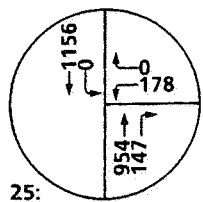
22:
EUCLID AVE. /
WALNUT AVE.



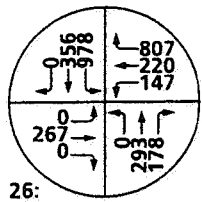
23:
EUCLID AVE. /
RIVERSIDE DR.



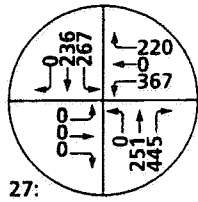
24:
EUCLID AVE. /
EDISON AVE.



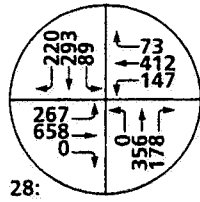
25:
EUCLID AVE. /
MERRILL AVE.



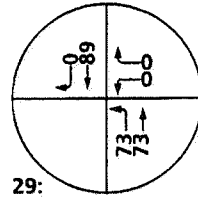
26:
EUCLID AVE. /
KIMBALL AVE.



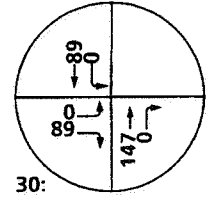
27:
EUCLID AVE. /
BICKMORE AVE.



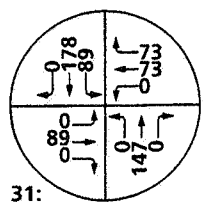
28:
EUCLID AVE. /
PINE AVE.



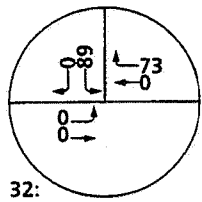
29:
GROVE AVE. /
SR-60 WB RAMP



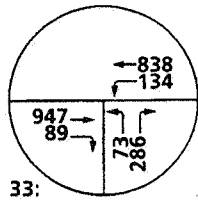
30:
GROVE AVE. /
SR-60 EB RAMP



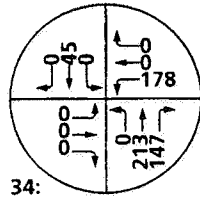
31:
GROVE AVE. /
EDISON AVE.



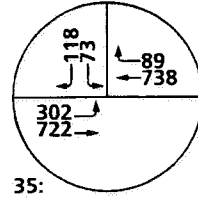
32:
GROVE AVE. /
MERRILL AVE.



33:
GROVE AVE. /
KIMBALL AVE.



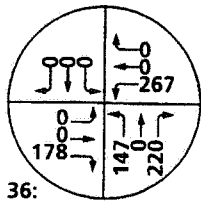
34:
GROVE AVE. /
BICKMORE AVE.



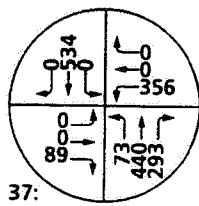
35:
GROVE AVE. /
PINE AVE.



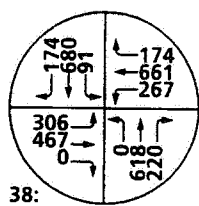
2020 PROJECT AM PEAK HOUR INTERSECTION VOLUMES (PART 2/2)



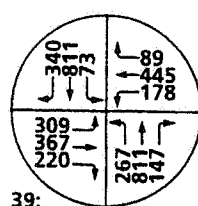
WALKER AVE. / EDISON AVE.



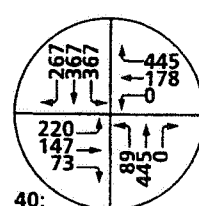
HELLMAN AVE. / MERRILL AVE.



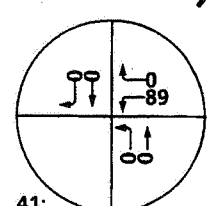
HELLMAN AVE. / KIMBALL AVE.



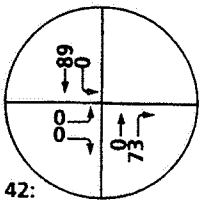
HELLMAN AVE. / PINE AVE.



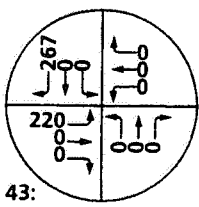
HELLMAN AVE. / CHANDLER ST.



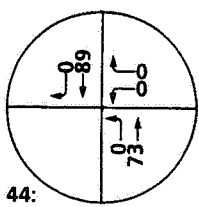
VINEYARD AVE. / SR-60 WB RAMP



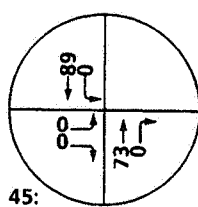
VINEYARD AVE. / SR-60 EB RAMP



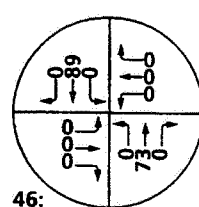
VINEYARD AVE. / EDISON AVE.



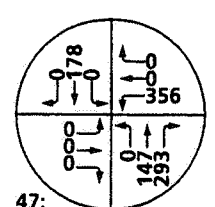
ARCHIBALD AVE. / SR-60 WB RAMP



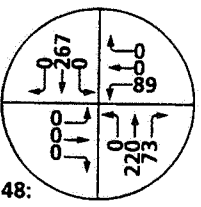
ARCHIBALD AVE. / SR-60 EB RAMP



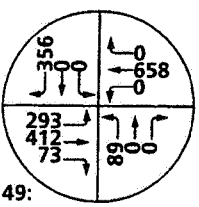
ARCHIBALD AVE. / RIVERSIDE DR.



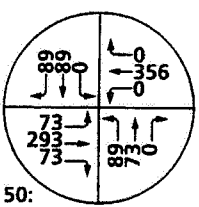
ARCHIBALD AVE. / EDISON AVE.



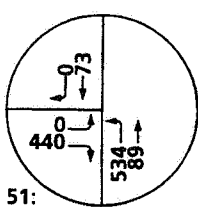
ARCHIBALD AVE. / MERRILL AVE.



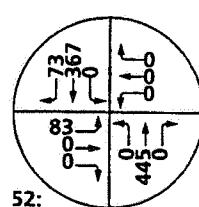
ARCHIBALD AVE. / CLOVERDALE RD.



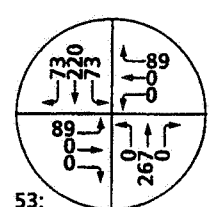
ARCHIBALD AVE. / PINE AVE.



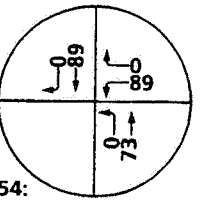
ARCHIBALD AVE. / RIVER RD.



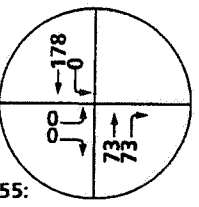
RIVER RD. / CORYDON ST.



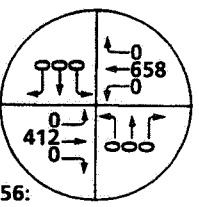
RIVER RD. / SECOND ST.



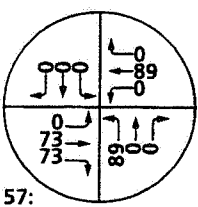
HAVEN AVE. / SR-60 WB RAMP



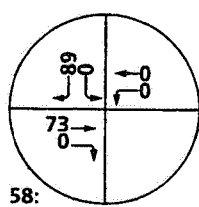
HAVEN AVE. / SR-60 EB RAMP



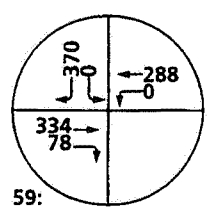
HAMNER AVE. / CLOVERDALE RD.



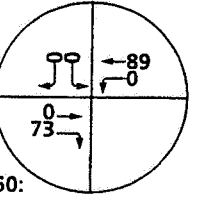
HAMNER AVE. / SCHLEISMAN RD.



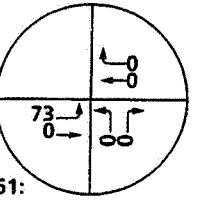
I-15 SB RAMP / GALENA ST.



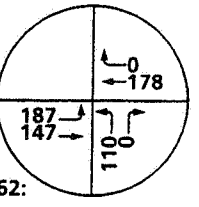
I-15 SB RAMP / LIMONITE AVE.



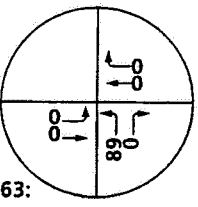
I-15 SB RAMP / SECOND ST.



I-15 NB RAMP / GALENA ST.



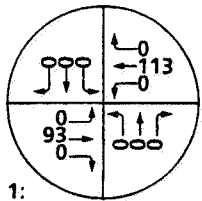
I-15 NB RAMP / LIMONITE AVE.



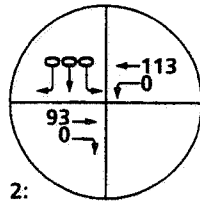
I-15 NB RAMP / SECOND ST.



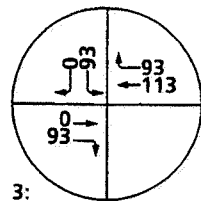
2020 PROJECT PM PEAK HOUR INTERSECTION VOLUMES (PART 1/2)



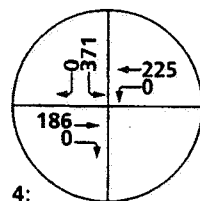
1:
PIPELINE AVE. /
CHINO HILLS PKWY.



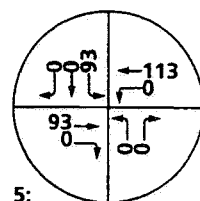
2:
SR-71 SB RAMPS /
CHINO HILLS PKWY.



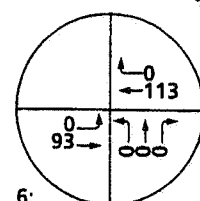
3:
SR-71 SB RAMPS /
SOQUEL
CANYON PKWY.



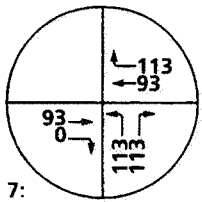
4:
SR-71 SB RAMPS /
PINE AVE.



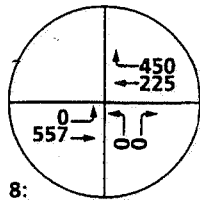
5:
SR-71 SB RAMPS /
EUCLID AVE.



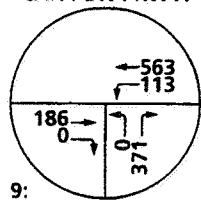
6:
SR-71 NB RAMPS /
CHINO HILLS PKWY.



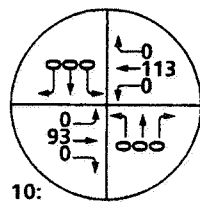
7:
SR-71 NB RAMPS /
SOQUEL
CANYON PKWY.



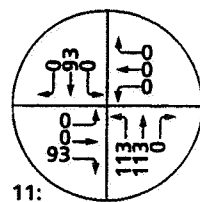
8:
SR-71 NB RAMPS /
PINE AVE.



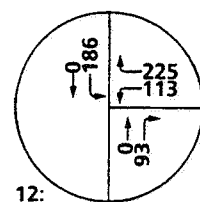
9:
SR-71 NB RAMPS /
EUCLID AVE.



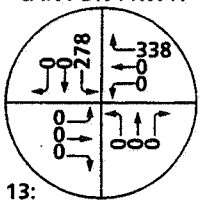
10:
CENTRAL AVE. /
EDISON AVE.



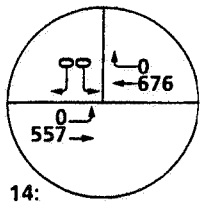
11:
CENTRAL AVE. /
CHINO HILLS PKWY.



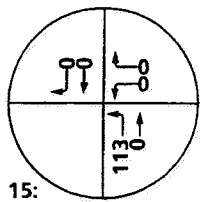
12:
CENTRAL AVE. /
EL PRADO RD.



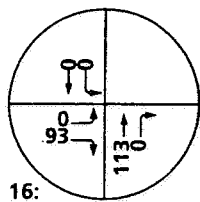
13:
EL PRADO RD. /
KIMBALL AVE.



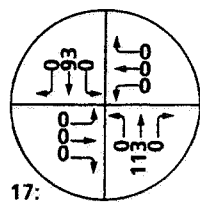
14:
EL PRADO RD. /
PINE AVE.



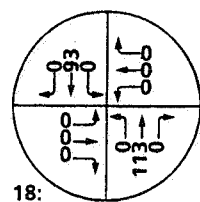
15:
MOUNTAIN AVE. /
SR-60 WB RAMPS



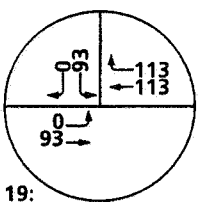
16:
MOUNTAIN AVE. /
SR-60 EB RAMPS



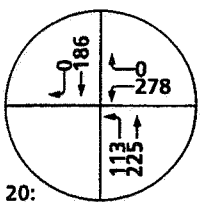
17:
MOUNTAIN AVE. /
WALNUT AVE.



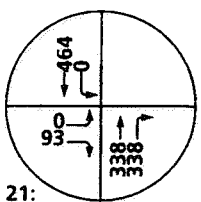
18:
MOUNTAIN AVE. /
RIVERSIDE DR.



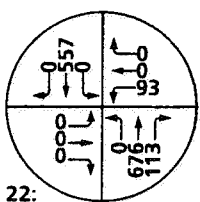
19:
MOUNTAIN AVE. /
EDISON AVE.



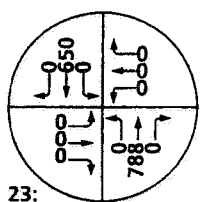
20:
EUCLID AVE. /
SR-60 WB RAMPS



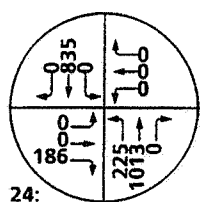
21:
EUCLID AVE. /
SR-60 EB RAMPS



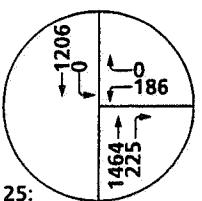
22:
EUCLID AVE. /
WALNUT AVE.



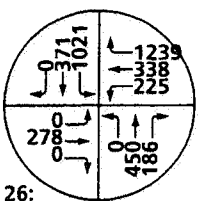
23:
EUCLID AVE. /
RIVERSIDE DR.



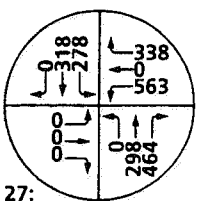
24:
EUCLID AVE. /
EDISON AVE.



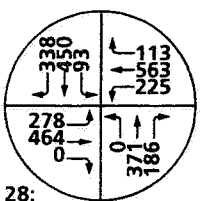
25:
EUCLID AVE. /
MERRILL AVE.



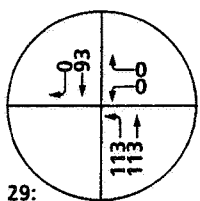
26:
EUCLID AVE. /
KIMBALL AVE.



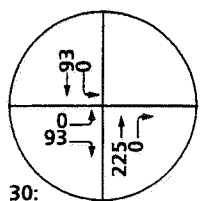
27:
EUCLID AVE. /
BICKMORE AVE.



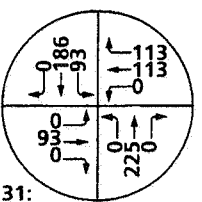
28:
EUCLID AVE. /
PINE AVE.



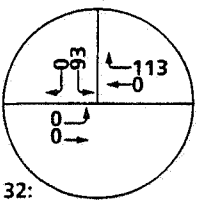
29:
GROVE AVE. /
SR-60 WB RAMPS



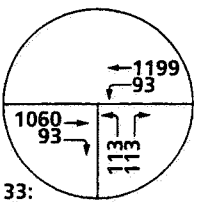
30:
GROVE AVE. /
SR-60 EB RAMPS



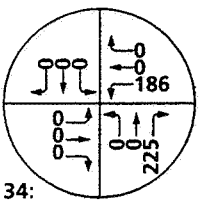
31:
GROVE AVE. /
EDISON AVE.



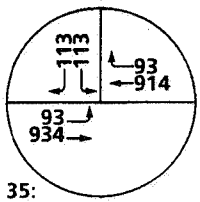
32:
GROVE AVE. /
MERRILL AVE.



33:
GROVE AVE. /
KIMBALL AVE.



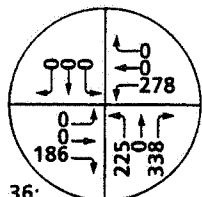
34:
GROVE AVE. /
BICKMORE AVE.



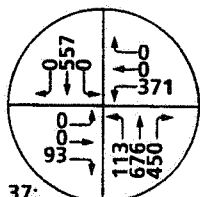
35:
GROVE AVE. /
PINE AVE.



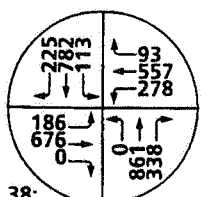
2020 PROJECT PM PEAK HOUR INTERSECTION VOLUMES (PART 2/2)



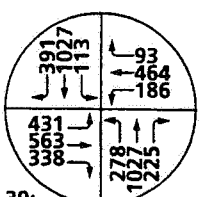
36: WALKER AVE. / EDISON AVE.



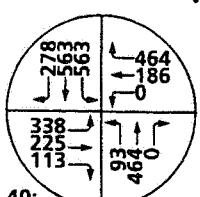
37: HELLMAN AVE. / MERRILL AVE.



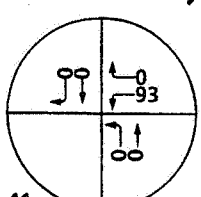
38: HELLMAN AVE. / KIMBALL AVE.



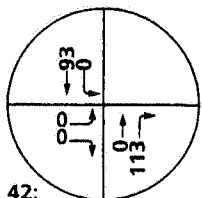
39: HELLMAN AVE. / PINE AVE.



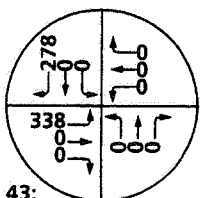
40: HELLMAN AVE. / CHANDLER ST.



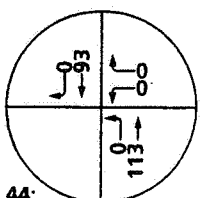
41: VINEYARD AVE. / SR-60 WB RAMP



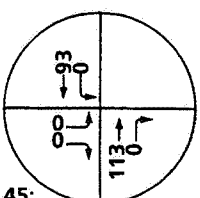
42: VINEYARD AVE. / SR-60 EB RAMP



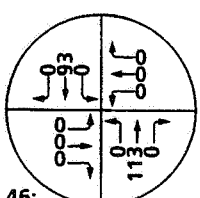
43: VINEYARD AVE. / EDISON AVE.



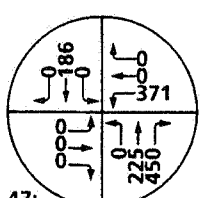
44: ARCHIBALD AVE. / SR-60 WB RAMP



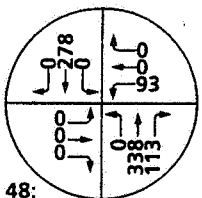
45: ARCHIBALD AVE. / SR-60 EB RAMP



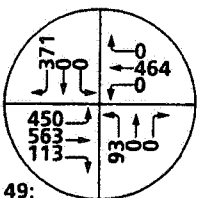
46: ARCHIBALD AVE. / RIVERSIDE DR.



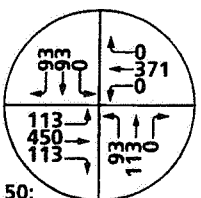
47: ARCHIBALD AVE. / EDISON AVE.



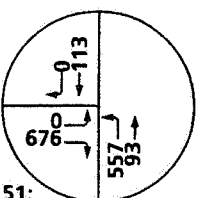
48: ARCHIBALD AVE. / MERRILL AVE.



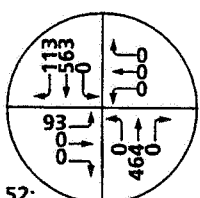
49: ARCHIBALD AVE. / CLOVERDALE RD.



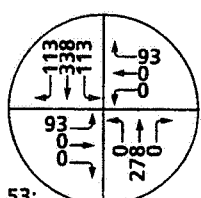
50: ARCHIBALD AVE. / PINE AVE.



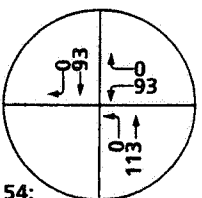
51: ARCHIBALD AVE. / RIVER RD.



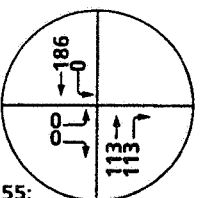
52: RIVER RD. / CORYDON ST.



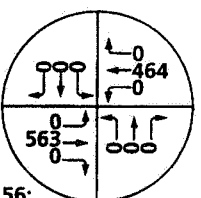
53: RIVER RD. / SECOND ST.



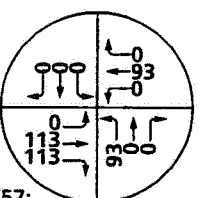
54: HAVEN AVE. / SR-60 WB RAMP



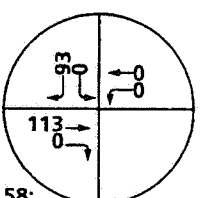
55: HAVEN AVE. / SR-60 EB RAMP



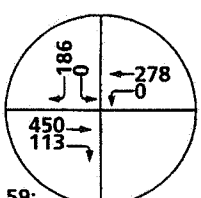
56: HAMNER AVE. / CLOVERDALE RD.



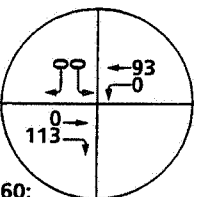
57: HAMNER AVE. / SCHLEISMAN RD.



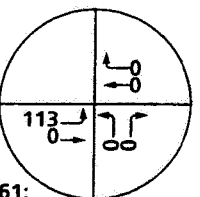
58: I-15 SB RAMP / GALENA ST.



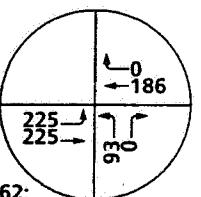
59: I-15 SB RAMP / LIMONITE AVE.



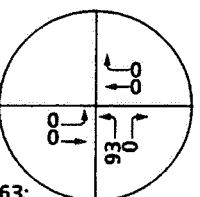
60: I-15 SB RAMP / SECOND ST.



61: I-15 NB RAMP / GALENA ST.



62: I-15 NB RAMP / LIMONITE AVE.

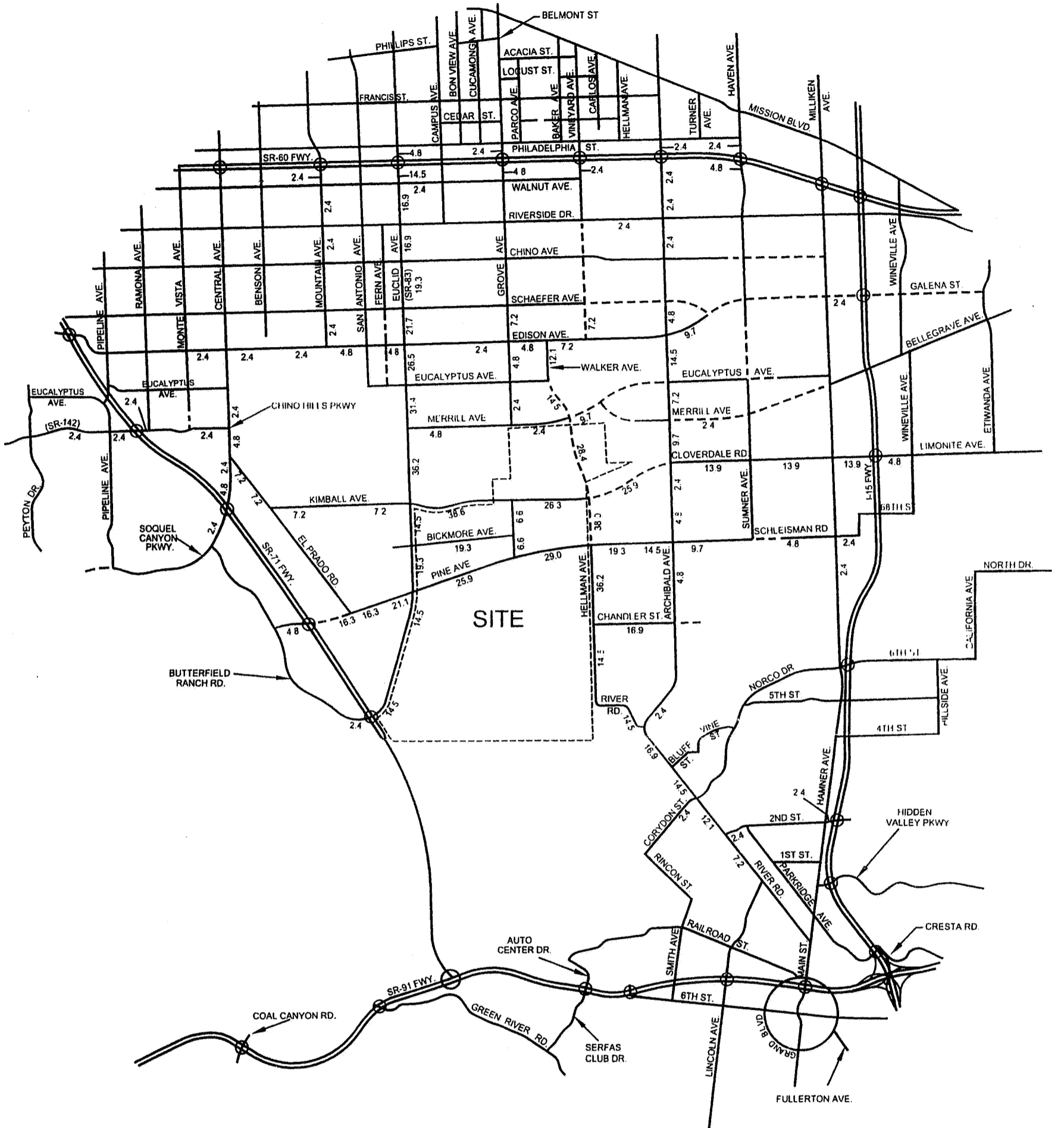


63: I-15 NB RAMP / SECOND ST.



EXHIBIT 2-J
BUILDOUT PROJECT
AVERAGE DAILY TRAFFIC (ADT)

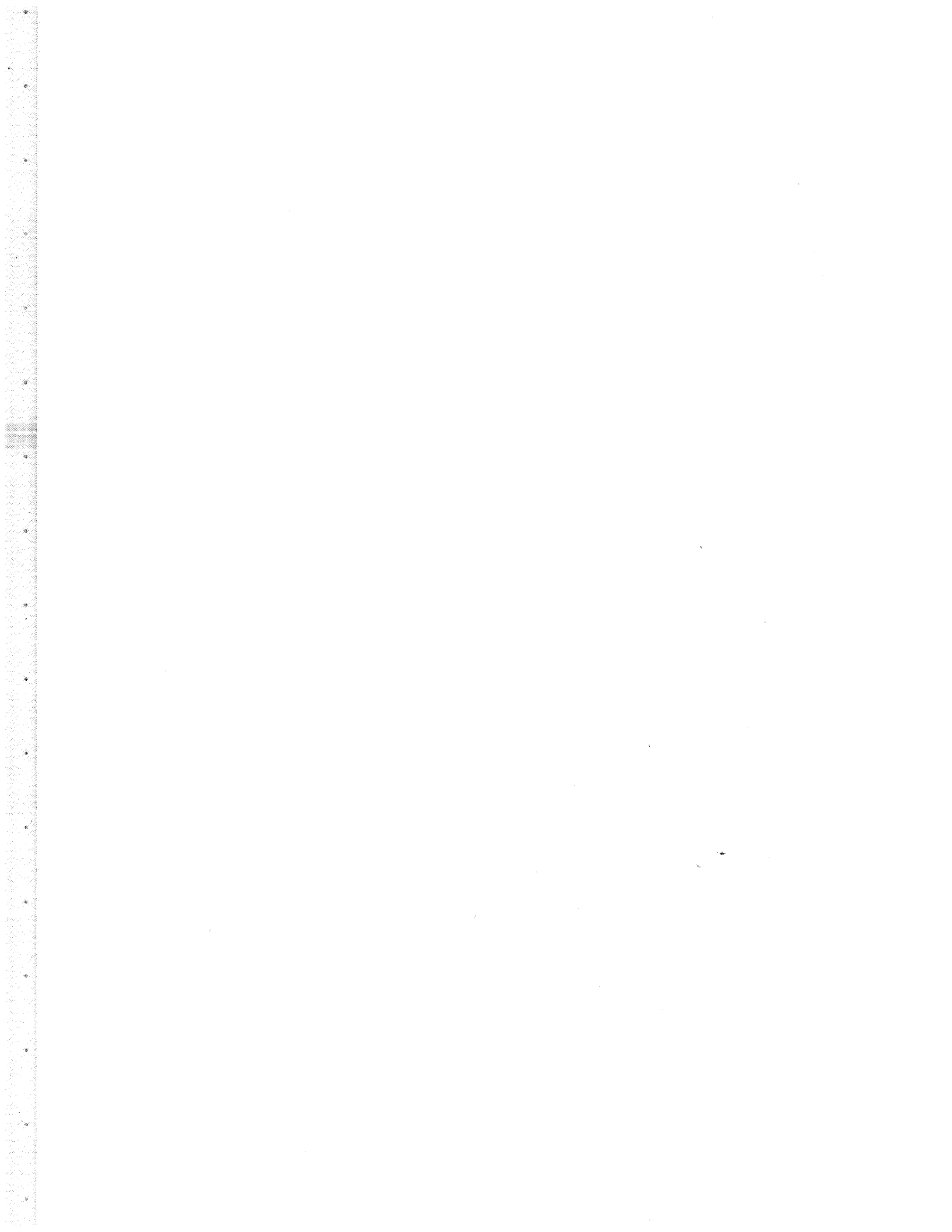
2-29



LEGEND:

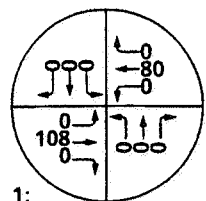
2.4 = VEHICLES PER DAY (1000'S)



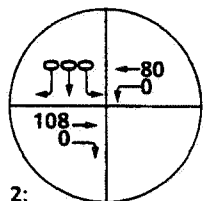


BUILDOUT PROJECT

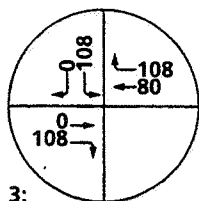
AM PEAK HOUR INTERSECTION VOLUMES (PART 1/2)



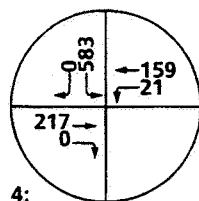
1:
PIPELINE AVE. /
CHINO HILLS PKWY.



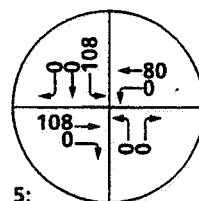
2:
SR-71 SB RAMP /
CHINO HILLS PKWY.



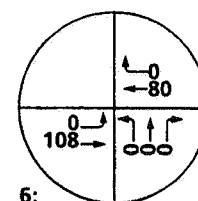
3:
SR-71 SB RAMP /
SOQUEL
CANYON PKWY.



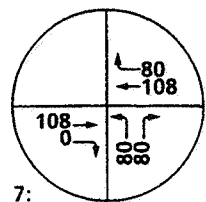
4:
SR-71 SB RAMP /
PINE AVE.



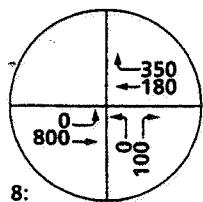
5:
SR-71 SB RAMP /
EUCLID AVE.



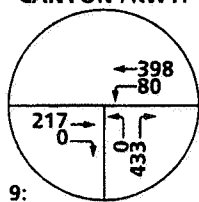
6:
SR-71 NB RAMP /
CHINO HILLS PKWY.



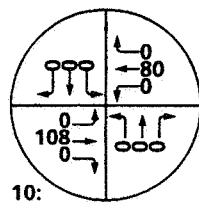
7:
SR-71 NB RAMP /
SOQUEL
CANYON PKWY.



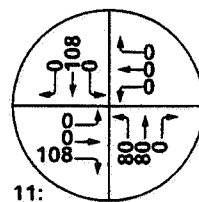
8:
SR-71 NB RAMP /
PINE AVE.



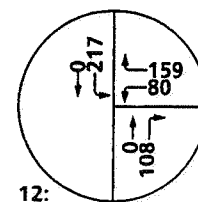
9:
SR-71 NB RAMP /
EUCLID AVE.



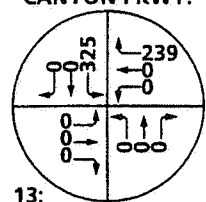
10:
CENTRAL AVE. /
EDISON AVE.



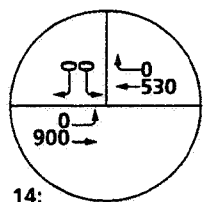
11:
CENTRAL AVE. /
CHINO HILLS PKWY.



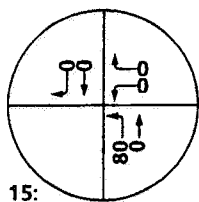
12:
CENTRAL AVE. /
EL PRADO RD.



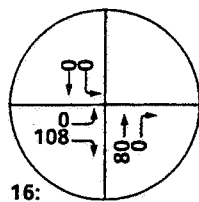
13:
EL PRADO RD. /
KIMBALL AVE.



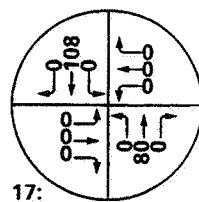
14:
EL PRADO RD. /
PINE AVE.



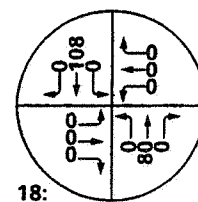
15:
MOUNTAIN AVE. /
SR-60 WB RAMP



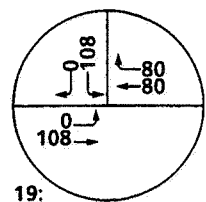
16:
MOUNTAIN AVE. /
SR-60 EB RAMP



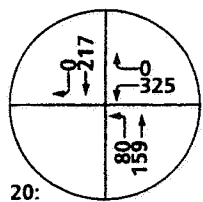
17:
MOUNTAIN AVE. /
WALNUT AVE.



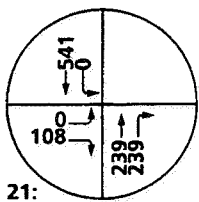
18:
MOUNTAIN AVE. /
RIVERSIDE DR.



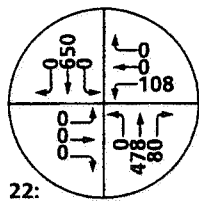
19:
MOUNTAIN AVE. /
EDISON AVE.



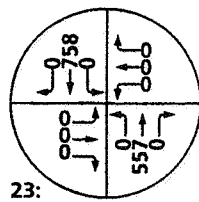
20:
EUCLID AVE. /
SR-60 WB RAMP



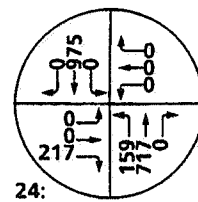
21:
EUCLID AVE. /
SR-60 EB RAMP



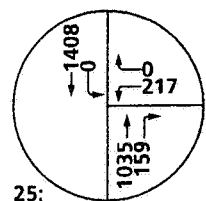
22:
EUCLID AVE. /
WALNUT AVE.



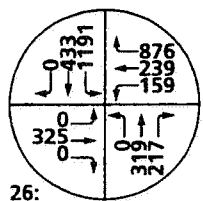
23:
EUCLID AVE. /
RIVERSIDE DR.



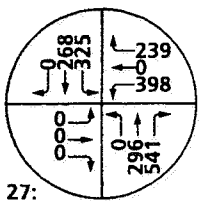
24:
EUCLID AVE. /
EDISON AVE.



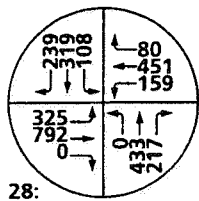
25:
EUCLID AVE. /
MERRILL AVE.



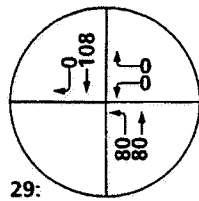
26:
EUCLID AVE. /
KIMBALL AVE.



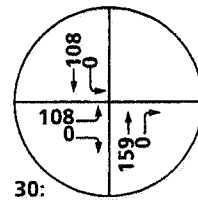
27:
EUCLID AVE. /
BICKMORE AVE.



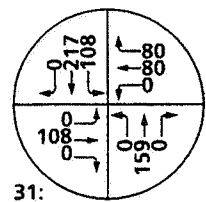
28:
EUCLID AVE. /
PINE AVE.



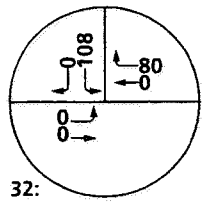
29:
GROVE AVE. /
SR-60 WB RAMP



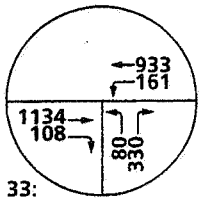
30:
GROVE AVE. /
SR-60 EB RAMP



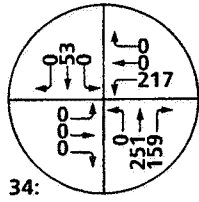
31:
GROVE AVE. /
EDISON AVE.



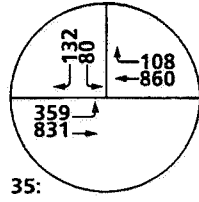
32:
GROVE AVE. /
MERRILL AVE.



33:
GROVE AVE. /
KIMBALL AVE.



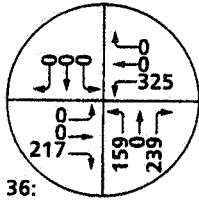
34:
GROVE AVE. /
BICKMORE AVE.



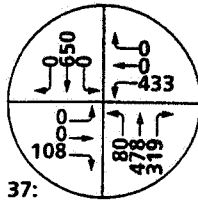
35:
GROVE AVE. /
PINE AVE.



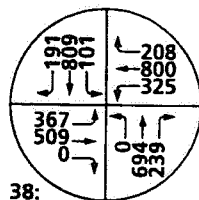
BUILDOUT PROJECT AM PEAK HOUR INTERSECTION VOLUMES (PART 2/2)



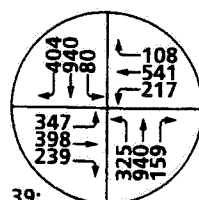
36:
WALKER AVE. /
EDISON AVE.



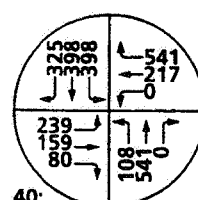
37:
HELLMAN AVE. /
MERRILL AVE.



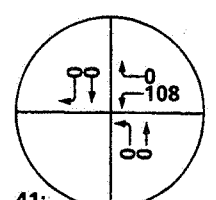
38:
HELLMAN AVE. /
KIMBALL AVE.



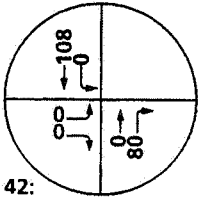
39:
HELLMAN AVE. /
PINE AVE.



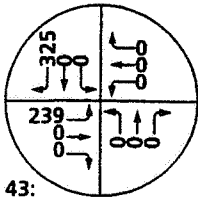
40:
HELLMAN AVE. /
CHANDLER ST.



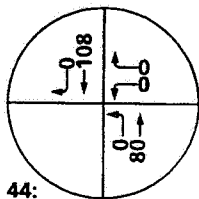
41:
VINEYARD AVE. /
SR-60 WB RAMP



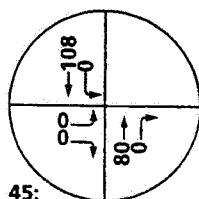
42:
VINEYARD AVE. /
SR-60 EB RAMP



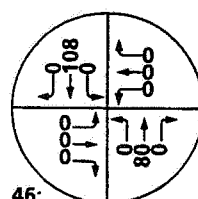
43:
VINEYARD AVE. /
EDISON AVE.



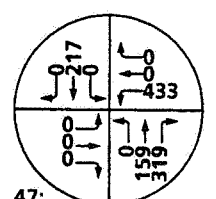
44:
ARCHIBALD AVE. /
SR-60 WB RAMP



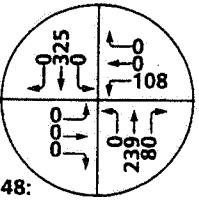
45:
ARCHIBALD AVE. /
SR-60 EB RAMP



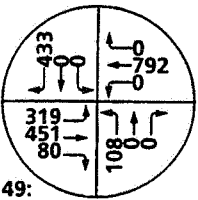
46:
ARCHIBALD AVE. /
RIVERSIDE DR.



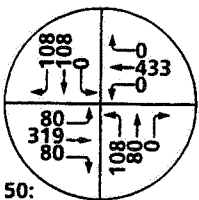
47:
ARCHIBALD AVE. /
EDISON AVE.



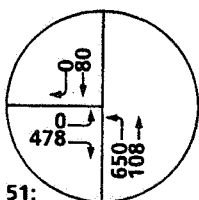
48:
ARCHIBALD AVE. /
MERRILL AVE.



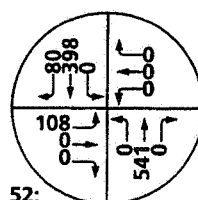
49:
ARCHIBALD AVE. /
CLOVERDALE RD.



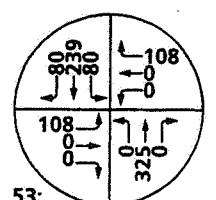
50:
ARCHIBALD AVE. /
PINE AVE.



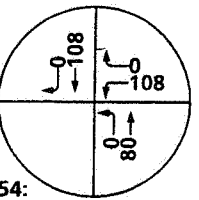
51:
ARCHIBALD AVE. /
RIVER RD.



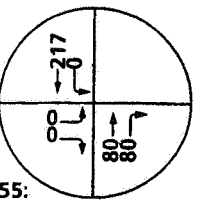
52:
RIVER RD. /
CORYDON ST.



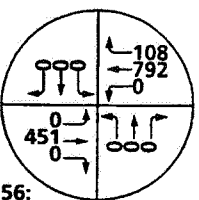
53:
RIVER RD. /
SECOND ST.



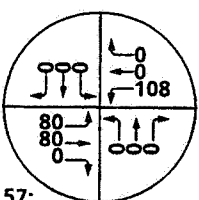
54:
HAVEN AVE. /
SR-60 WB RAMP



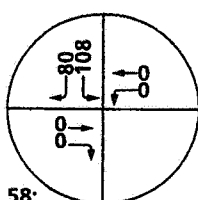
55:
HAVEN AVE. /
SR-60 EB RAMP



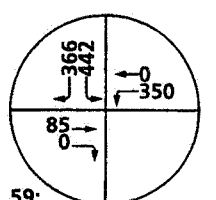
56:
HAMNER AVE. /
CLOVERDALE RD.



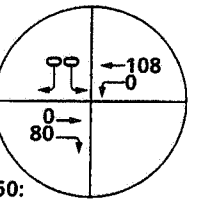
57:
HAMNER AVE. /
SCHLEISMAN RD.



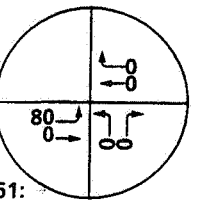
58:
I-15 SB RAMP /
GALENA ST.



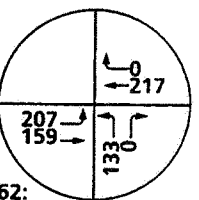
59:
I-15 SB RAMP /
LIMONITE AVE.



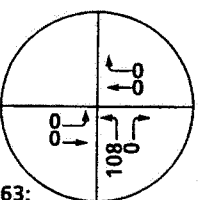
60:
I-15 SB RAMP /
SECOND ST.



61:
I-15 NB RAMP /
GALENA ST.



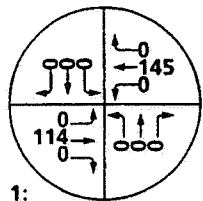
62:
I-15 NB RAMP /
LIMONITE AVE.



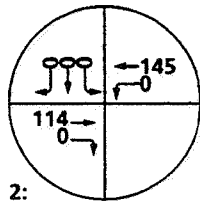
63:
I-15 NB RAMP /
SECOND ST.



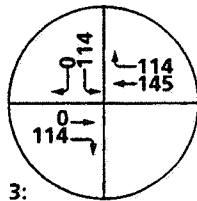
BUILDOUT PROJECT PM PEAK HOUR INTERSECTION VOLUMES (PART 1/2)



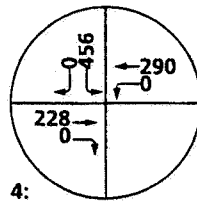
1:
PIPELINE AVE. /
CHINO HILLS PKWY.



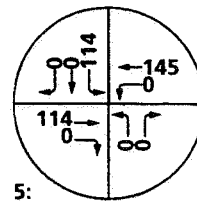
2:
SR-71 SB RAMPs /
CHINO HILLS PKWY.



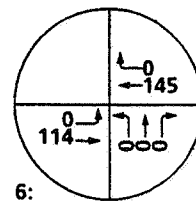
3:
SR-71 SB RAMPs /
SOQUEL
CANYON PKWY.



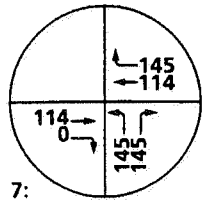
4:
SR-71 SB RAMPs /
PINE AVE.



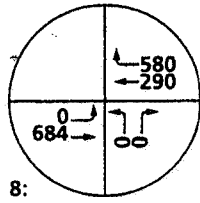
5:
SR-71 SB RAMPs /
EUCLID AVE.



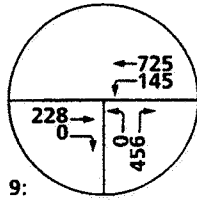
6:
SR-71 NB RAMPs /
CHINO HILLS PKWY.



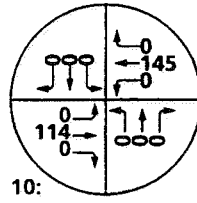
7:
SR-71 NB RAMPs /
SOQUEL
CANYON PKWY.



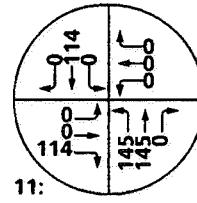
8:
SR-71 NB RAMPs /
PINE AVE.



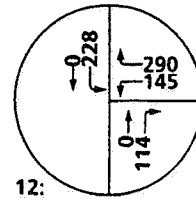
9:
SR-71 NB RAMPs /
EUCLID AVE.



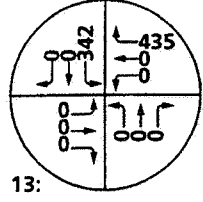
10:
CENTRAL AVE. /
EDISON AVE.



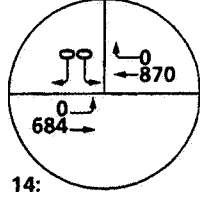
11:
CENTRAL AVE. /
CHINO HILLS PKWY.



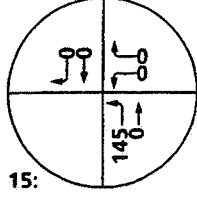
12:
CENTRAL AVE. /
EL PRADO RD.



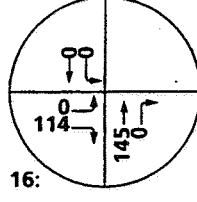
13:
EL PRADO RD. /
KIMBALL AVE.



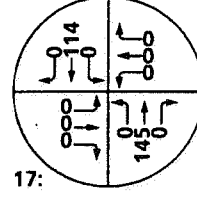
14:
EL PRADO RD. /
PINE AVE.



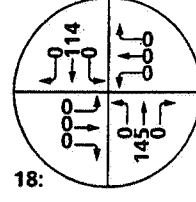
15:
MOUNTAIN AVE. /
SR-60 WB RAMPs



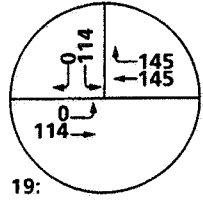
16:
MOUNTAIN AVE. /
SR-60 EB RAMPs



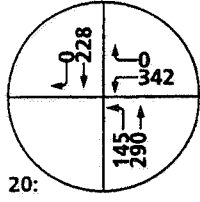
17:
MOUNTAIN AVE. /
WALNUT AVE.



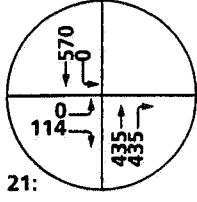
18:
MOUNTAIN AVE. /
RIVERSIDE DR.



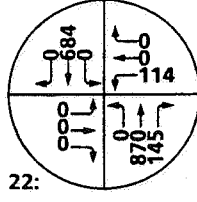
19:
MOUNTAIN AVE. /
EDISON AVE.



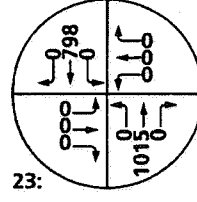
20:
EUCLID AVE. /
SR-60 WB RAMPs



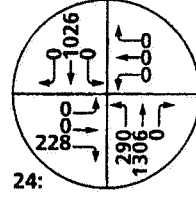
21:
EUCLID AVE. /
SR-60 EB RAMPs



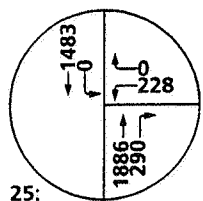
22:
EUCLID AVE. /
WALNUT AVE.



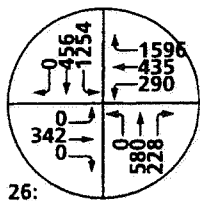
23:
EUCLID AVE. /
RIVERSIDE DR.



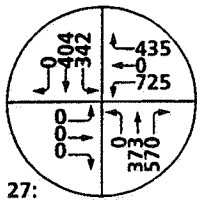
24:
EUCLID AVE. /
EDISON AVE.



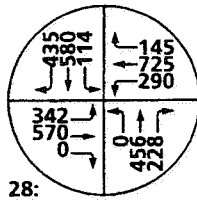
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EUCLID AVE. /
MERRILL AVE.



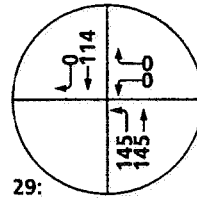
26:
EUCLID AVE. /
KIMBALL AVE.



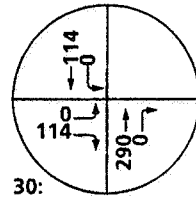
27:
EUCLID AVE. /
BICKMORE AVE.



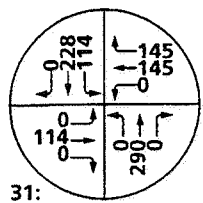
28:
EUCLID AVE. /
PINE AVE.



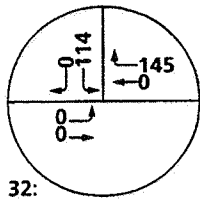
29:
GROVE AVE. /
SR-60 WB RAMPs



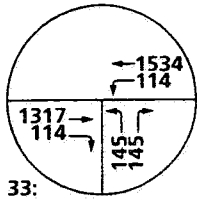
30:
GROVE AVE. /
SR-60 EB RAMPs



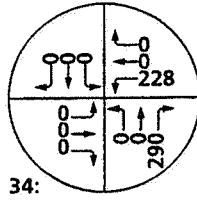
31:
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EDISON AVE.



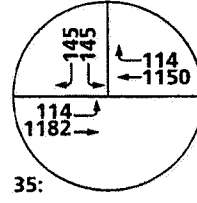
32:
GROVE AVE. /
MERRILL AVE.



33:
GROVE AVE. /
KIMBALL AVE.



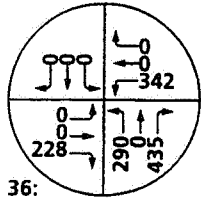
34:
GROVE AVE. /
BICKMORE AVE.



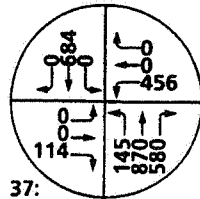
35:
GROVE AVE. /
PINE AVE.



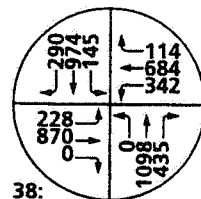
BUILDOUT PROJECT PM PEAK HOUR INTERSECTION VOLUMES (PART 2/2)



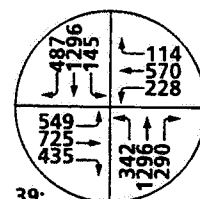
36:
WALKER AVE. /
EDISON AVE.



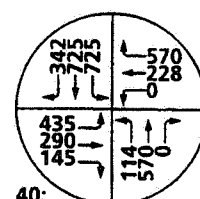
37:
HELLMAN AVE. /
MERRILL AVE.



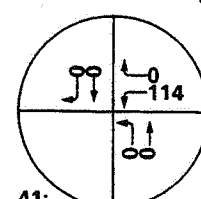
38:
HELLMAN AVE. /
KIMBALL AVE.



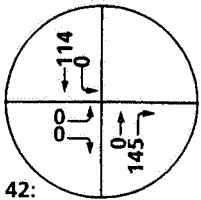
39:
HELLMAN AVE. /
PINE AVE.



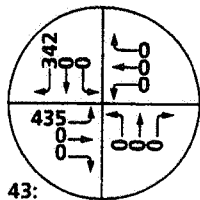
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CHANDLER ST.



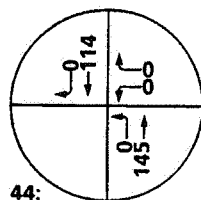
41:
VINEYARD AVE. /
SR-60 WB RAMP



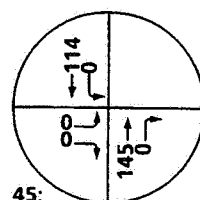
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VINEYARD AVE. /
SR-60 EB RAMP



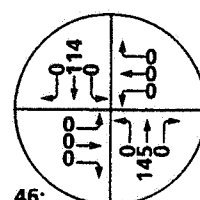
43:
VINEYARD AVE. /
EDISON AVE.



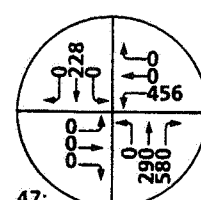
44:
ARCHIBALD AVE. /
SR-60 WB RAMP



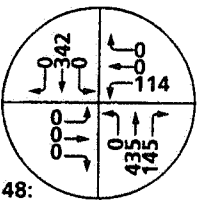
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SR-60 EB RAMP



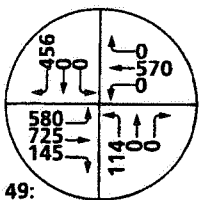
46:
ARCHIBALD AVE. /
RIVERSIDE DR.



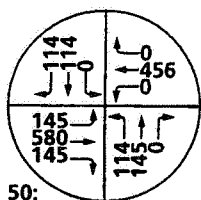
47:
ARCHIBALD AVE. /
EDISON AVE.



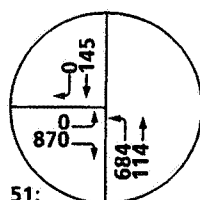
48:
ARCHIBALD AVE. /
MERRILL AVE.



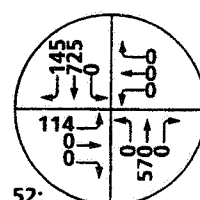
49:
ARCHIBALD AVE. /
CLOVERDALE RD.



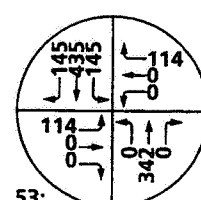
50:
ARCHIBALD AVE. /
PINE AVE.



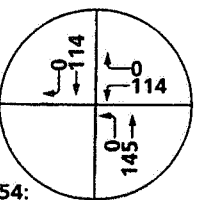
51:
ARCHIBALD AVE. /
RIVER RD.



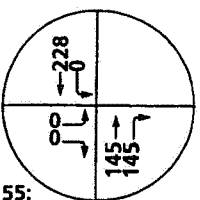
52:
RIVER RD. /
CORYDON ST.



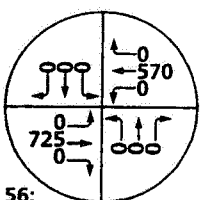
53:
RIVER RD. /
SECOND ST.



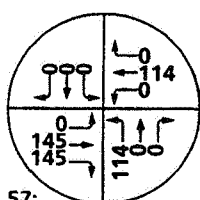
54:
HAVEN AVE. /
SR-60 WB RAMP



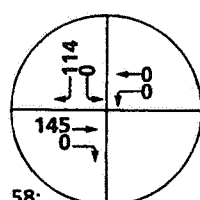
55:
HAVEN AVE. /
SR-60 EB RAMP



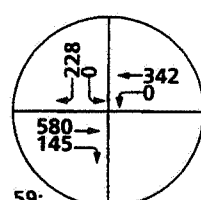
56:
HAMNER AVE. /
CLOVERDALE RD.



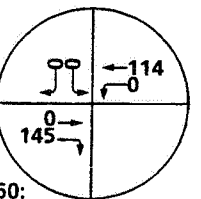
57:
HAMNER AVE. /
SCHLEISMAN RD.



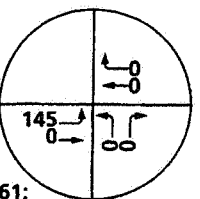
58:
I-15 SB RAMP /
GALENA ST.



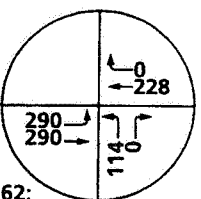
59:
I-15 SB RAMP /
LIMONITE AVE.



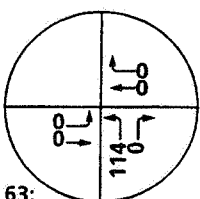
60:
I-15 SB RAMP /
SECOND ST.



61:
I-15 NB RAMP /
GALENA ST.



62:
I-15 NB RAMP /
LIMONITE AVE.



63:
I-15 NB RAMP /
SECOND ST.



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.

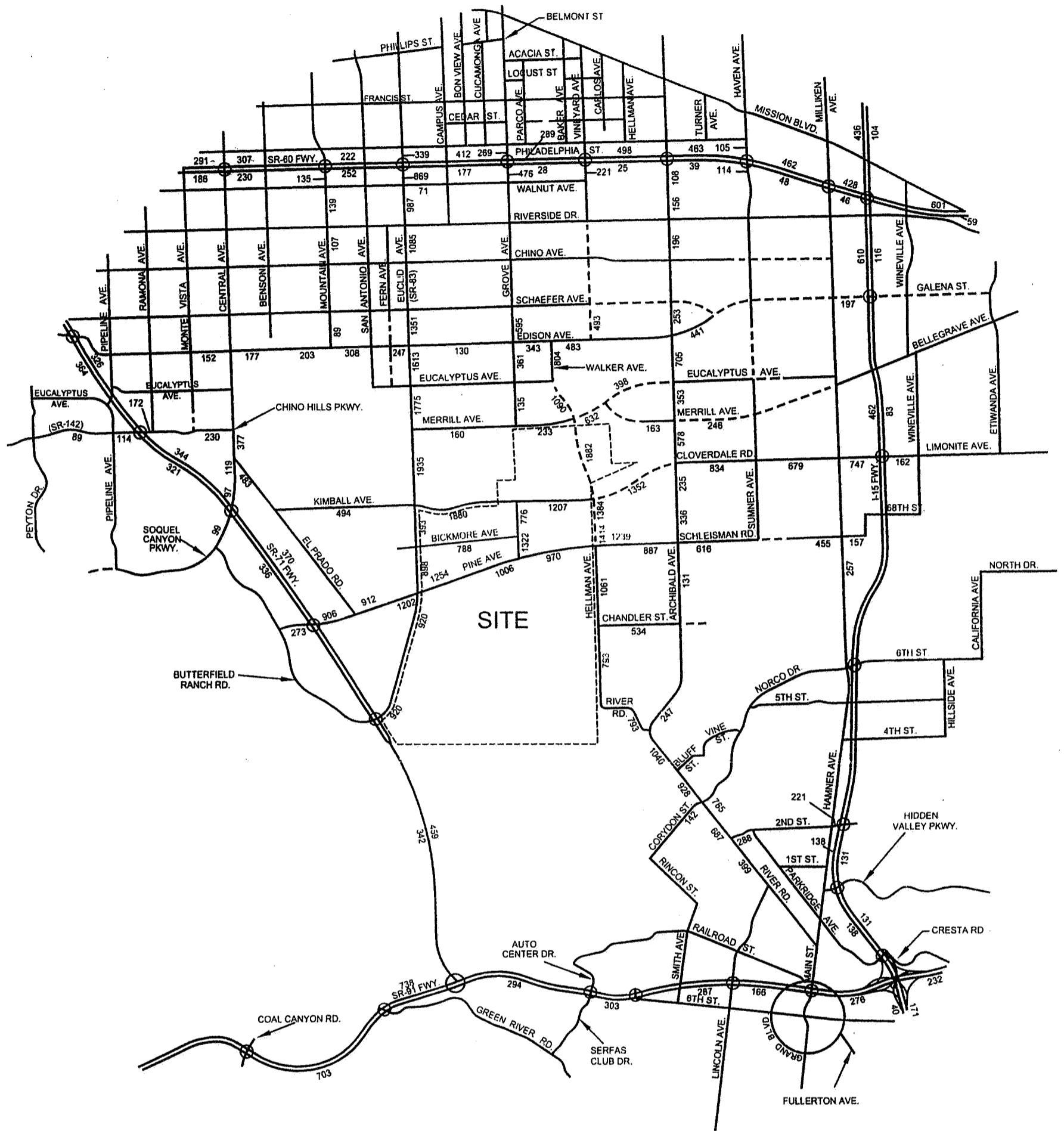
Table 2-6 summarizes the CMP traffic contribution test for the potential freeway segments in the study area. Only freeway segments with 100 or more two-way (total) trips need to be analyzed in accordance with CMP requirements. Exhibit 2-O presents the resulting final CMP 2020 analysis locations. Overall, 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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CMP AM PEAK HOUR PROJECT TRAFFIC CONTRIBUTION TEST VOLUMES

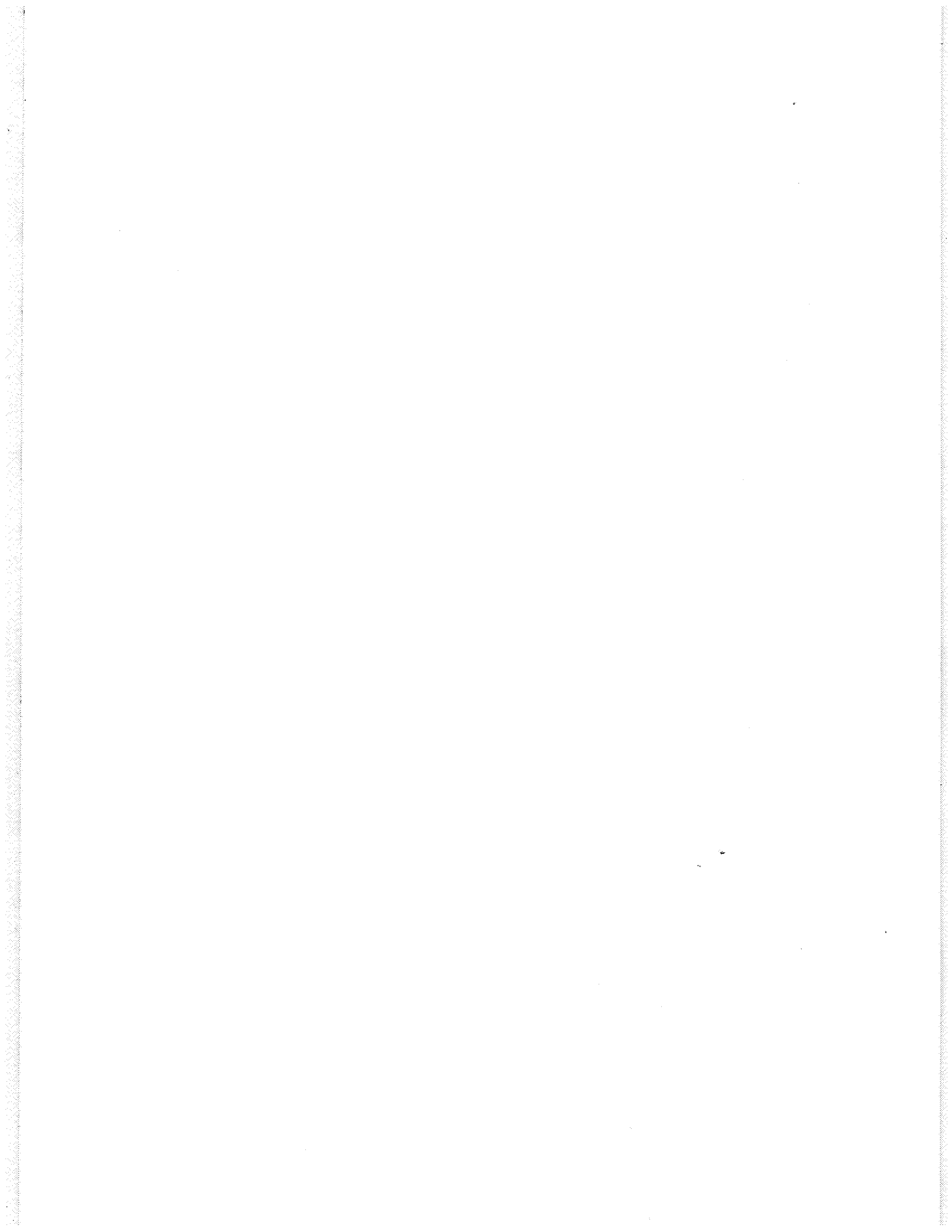
2-37



LEGEND:

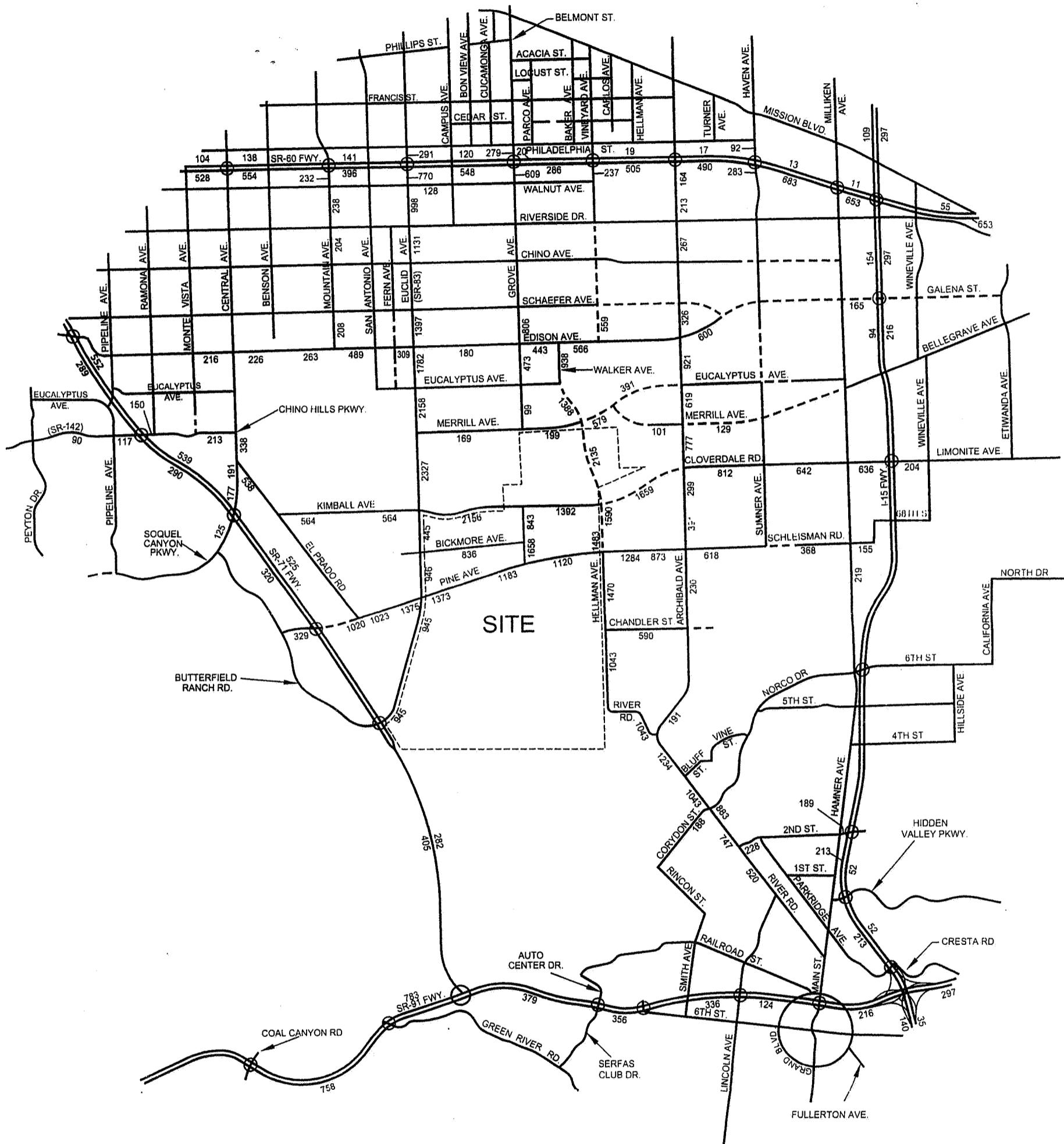
262 = PROJECT AM PEAK HOUR VOLUME





CMP PM PEAK HOUR PROJECT TRAFFIC CONTRIBUTION TEST VOLUMES

2-39



LEGEND:

262 = PROJECT PM PEAK HOUR VOLUME



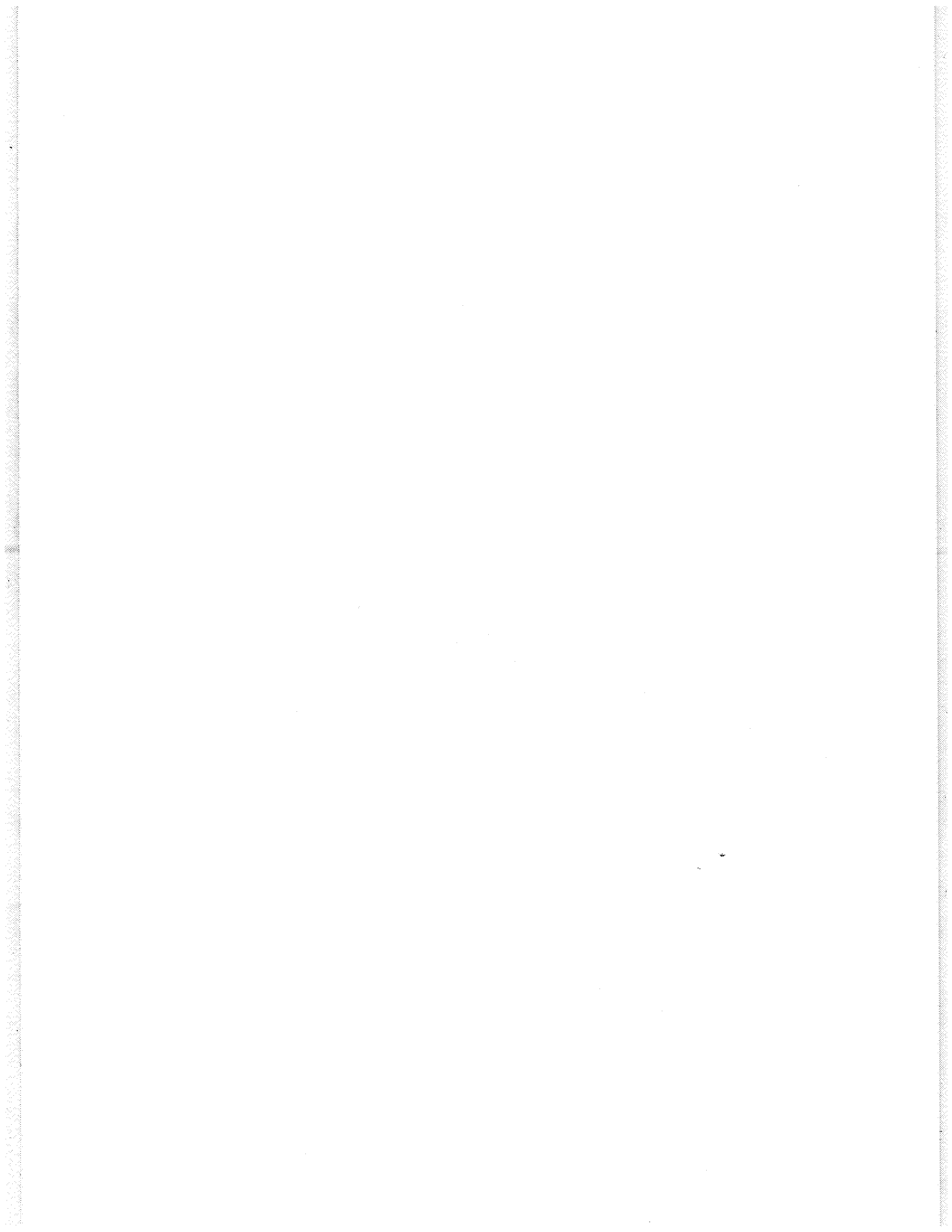
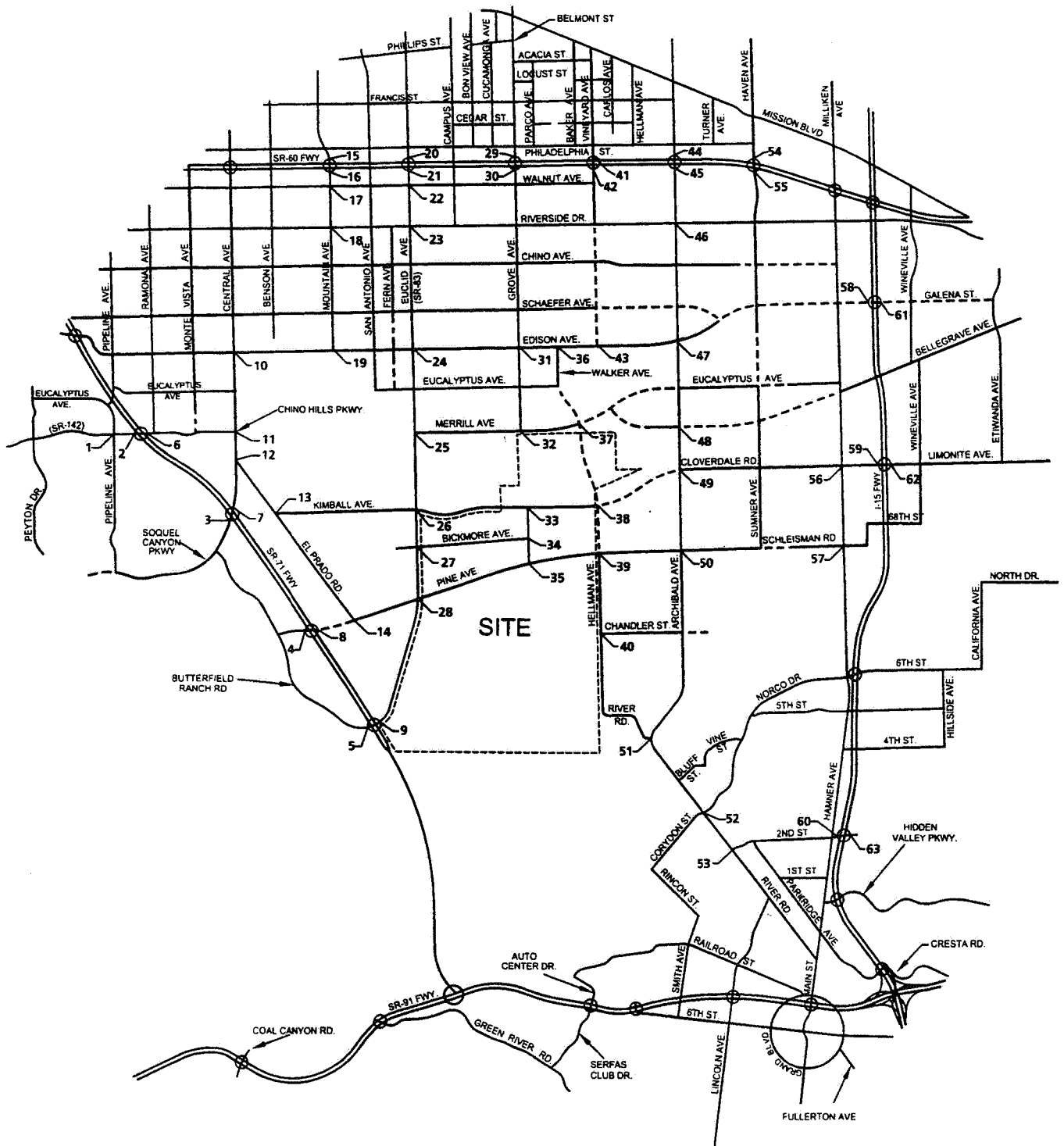


TABLE 2-6

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

CMP HORIZON YEAR (2020) ANALYSIS LOCATIONS



LEGEND:

1 = LOCATION NUMBER



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.

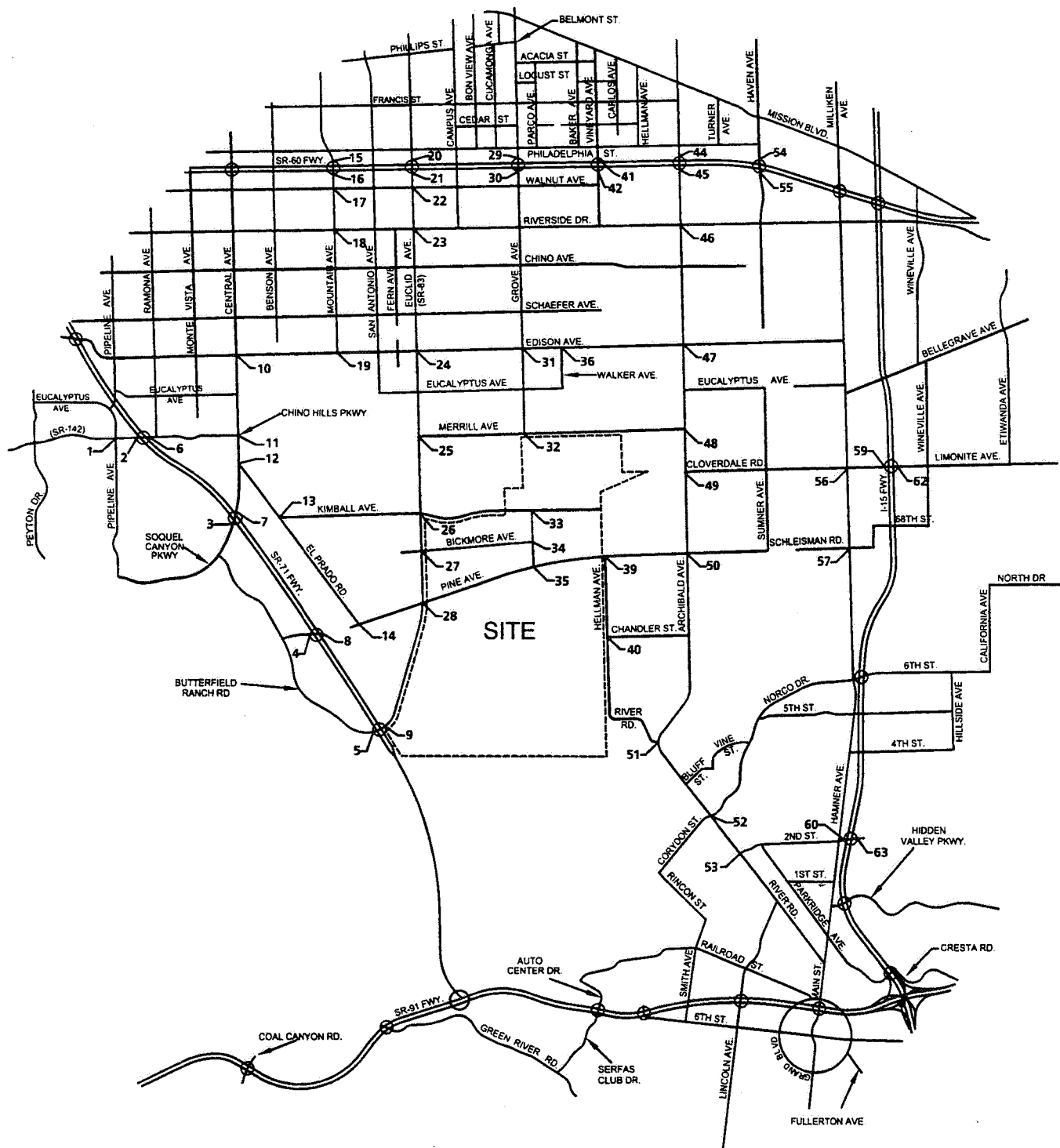
3.1 Existing Roadway System and Daily Traffic Volumes

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:

$$\text{PM Peak Hour (Approach + Exit Volume)} \times 11.5 = \text{Daily Leg Volume.}$$

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,

EXISTING ANALYSIS LOCATIONS

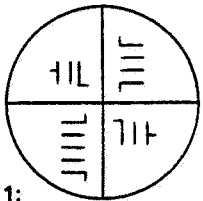


LEGEND:

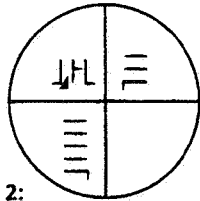
1 = LOCATION NUMBER



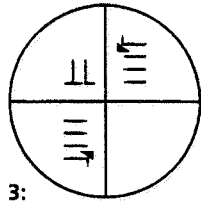
EXISTING NUMBER OF THROUGH LANES (PART 1/2)



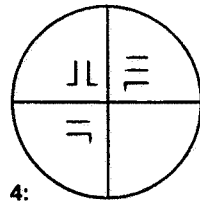
1:
PIPELINE AVE. /
CHINO HILLS PKWY.



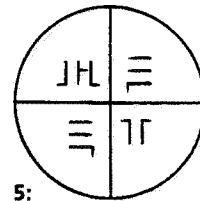
2:
SR-71 SB RAMP /
CHINO HILLS PKWY.



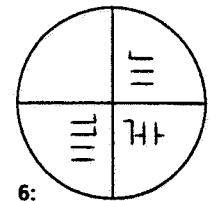
3:
SR-71 SB RAMP /
SOQUEL
CANYON PKWY.



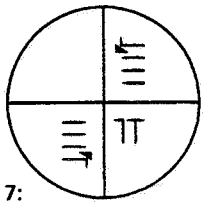
4:
SR-71 SB RAMP /
PINE AVE.



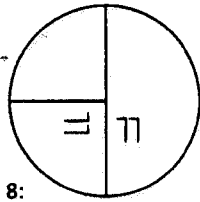
5:
SR-71 SB RAMP /
EUCLID AVE.



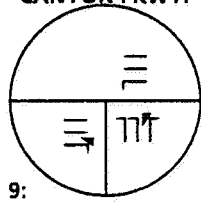
6:
SR-71 NB RAMP /
CHINO HILLS PKWY.



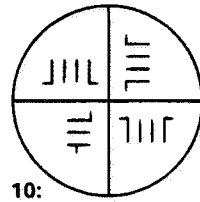
7:
SR-71 NB RAMP /
SOQUEL
CANYON PKWY.



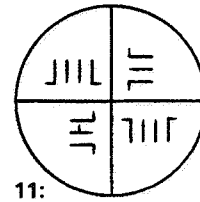
8:
SR-71 NB RAMP /
PINE AVE.



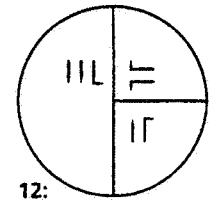
9:
SR-71 NB RAMP /
EUCLID AVE.



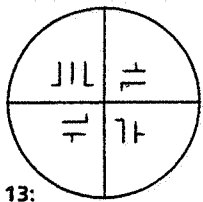
10:
CENTRAL AVE. /
EDISON AVE.



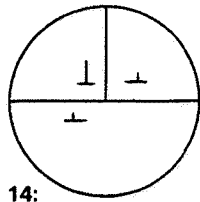
11:
CENTRAL AVE. /
CHINO HILLS PKWY.



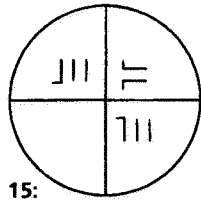
12:
CENTRAL AVE. /
EL PRADO RD.



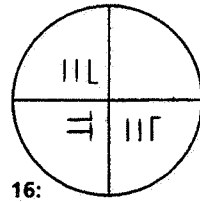
13:
EL PRADO RD. /
KIMBALL AVE.



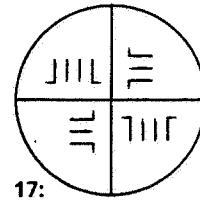
14:
EL PRADO RD. /
PINE AVE.



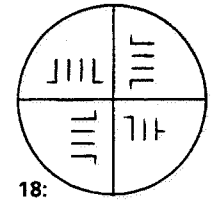
15:
MOUNTAIN AVE. /
SR-60 WB RAMP



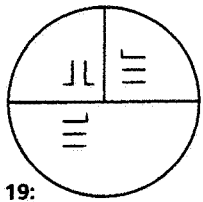
16:
MOUNTAIN AVE. /
SR-60 EB RAMP



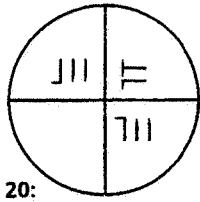
17:
MOUNTAIN AVE. /
WALNUT AVE.



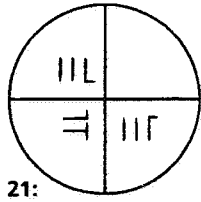
18:
MOUNTAIN AVE. /
RIVERSIDE DR.



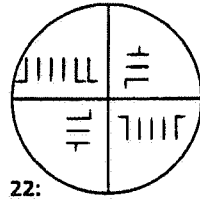
19:
MOUNTAIN AVE. /
EDISON AVE.



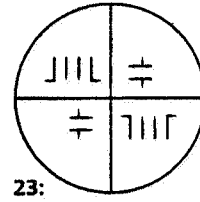
20:
EUCLID AVE. /
SR-60 WB RAMP



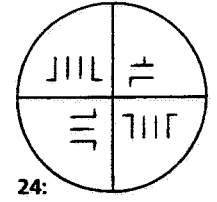
21:
EUCLID AVE. /
SR-60 EB RAMP



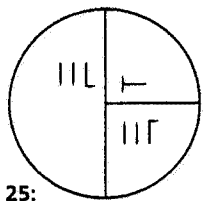
22:
EUCLID AVE. /
WALNUT AVE.



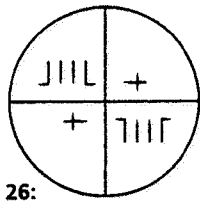
23:
EUCLID AVE. /
RIVERSIDE DR.



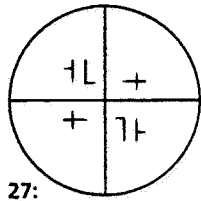
24:
EUCLID AVE. /
EDISON AVE.



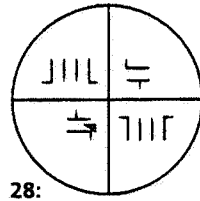
25:
EUCLID AVE. /
MERRILL AVE.



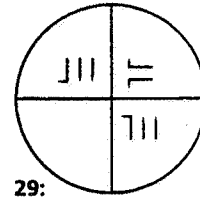
26:
EUCLID AVE. /
KIMBALL AVE.



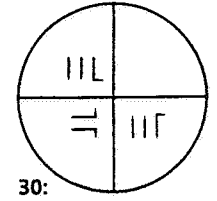
27:
EUCLID AVE. /
BICKMORE AVE.



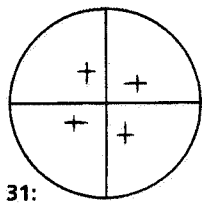
28:
EUCLID AVE. /
PINE AVE.



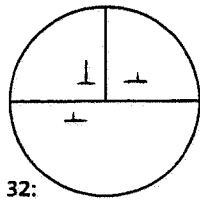
29:
GROVE AVE. /
SR-60 WB RAMP



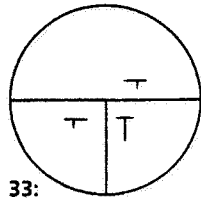
30:
GROVE AVE. /
SR-60 EB RAMP



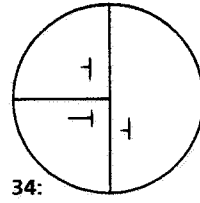
31:
GROVE AVE. /
EDISON AVE.



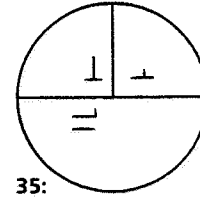
32:
GROVE AVE. /
MERRILL AVE.



33:
GROVE AVE. /
KIMBALL AVE.



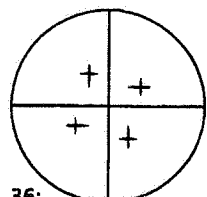
34:
GROVE AVE. /
BICKMORE AVE.



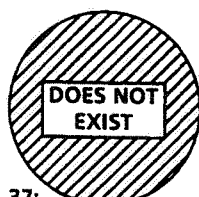
35:
GROVE AVE. /
PINE AVE.



EXISTING NUMBER OF THROUGH LANES (PART 2/2)



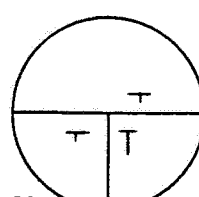
36:
WALKER AVE. /
EDISON AVE.



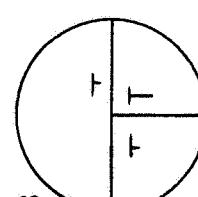
37:
HELLMAN AVE. /
MERRILL AVE.



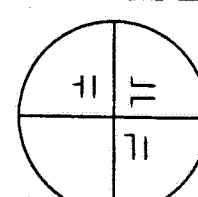
38:
HELLMAN AVE. /
KIMBALL AVE.



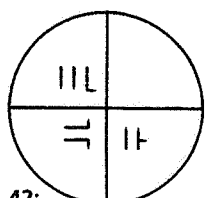
39:
HELLMAN AVE. /
PINE AVE.



40:
HELLMAN AVE. /
CHANDLER ST.



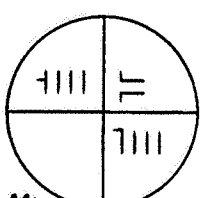
41:
VINEYARD AVE. /
SR-60 WB RAMP



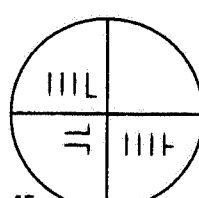
42:
VINEYARD AVE. /
SR-60 EB RAMP



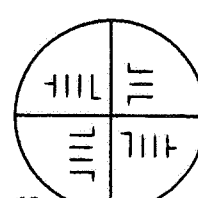
43:
VINEYARD AVE. /
EDISON AVE.



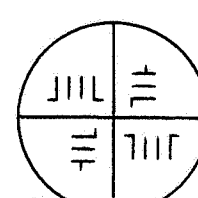
44:
ARCHIBALD AVE. /
SR-60 WB RAMP



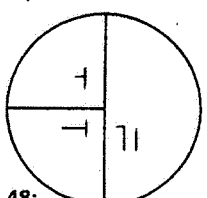
45:
ARCHIBALD AVE. /
SR-60 EB RAMP



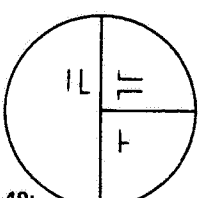
46:
ARCHIBALD AVE. /
RIVERSIDE DR.



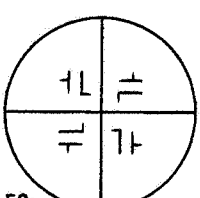
47:
ARCHIBALD AVE. /
EDISON AVE.



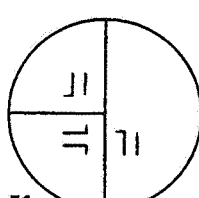
48:
ARCHIBALD AVE. /
MERRILL AVE.



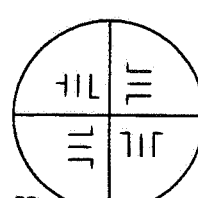
49:
ARCHIBALD AVE. /
CLOVERDALE RD.



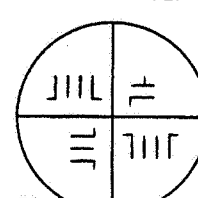
50:
ARCHIBALD AVE. /
PINE AVE.



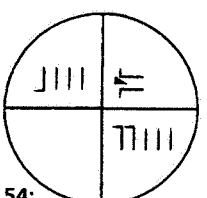
51:
ARCHIBALD AVE. /
RIVER RD.



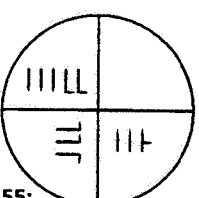
52:
RIVER RD. /
CORYDON ST.



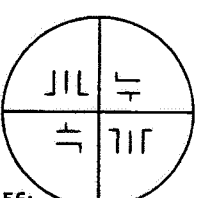
53:
RIVER RD. /
SECOND ST.



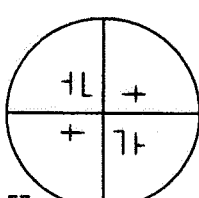
54:
HAVEN AVE. /
SR-60 WB RAMP



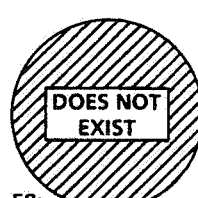
55:
HAVEN AVE. /
SR-60 EB RAMP



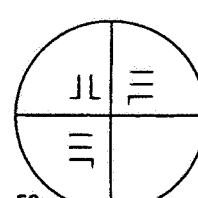
56:
HAMNER AVE. /
CLOVERDALE RD.



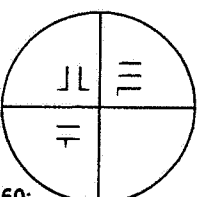
57:
HAMNER AVE. /
SCHLEISMAN RD.



58:
I-15 SB RAMP /
GALENA ST.



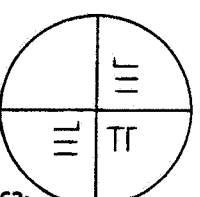
59:
I-15 SB RAMP /
LIMONITE AVE.



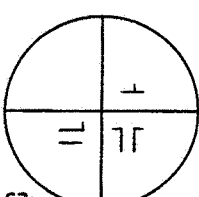
60:
I-15 SB RAMP /
SECOND ST.



61:
I-15 NB RAMP /
GALENA ST.



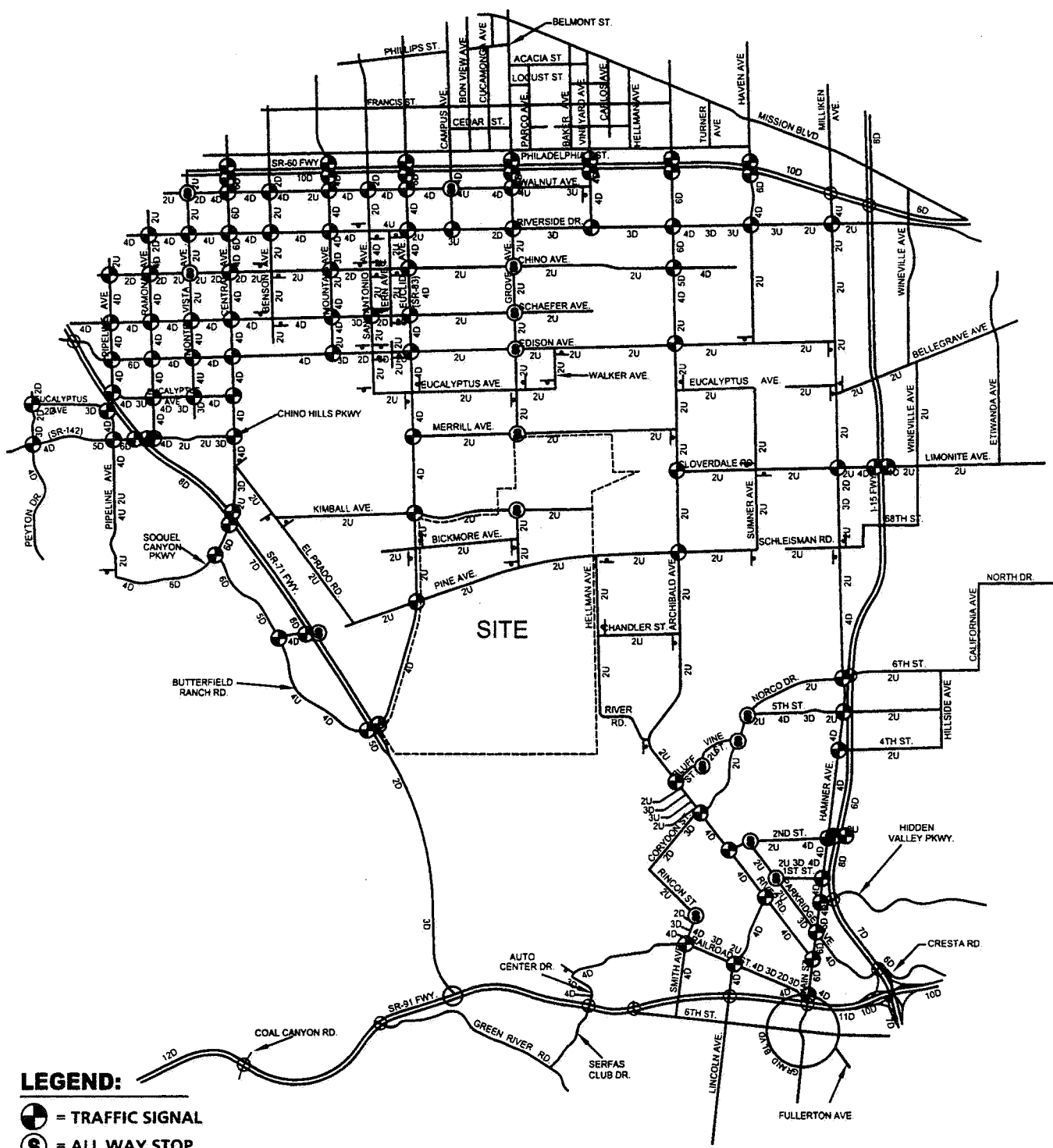
62:
I-15 NB RAMP /
LIMONITE AVE.



63:
I-15 NB RAMP /
SECOND ST.



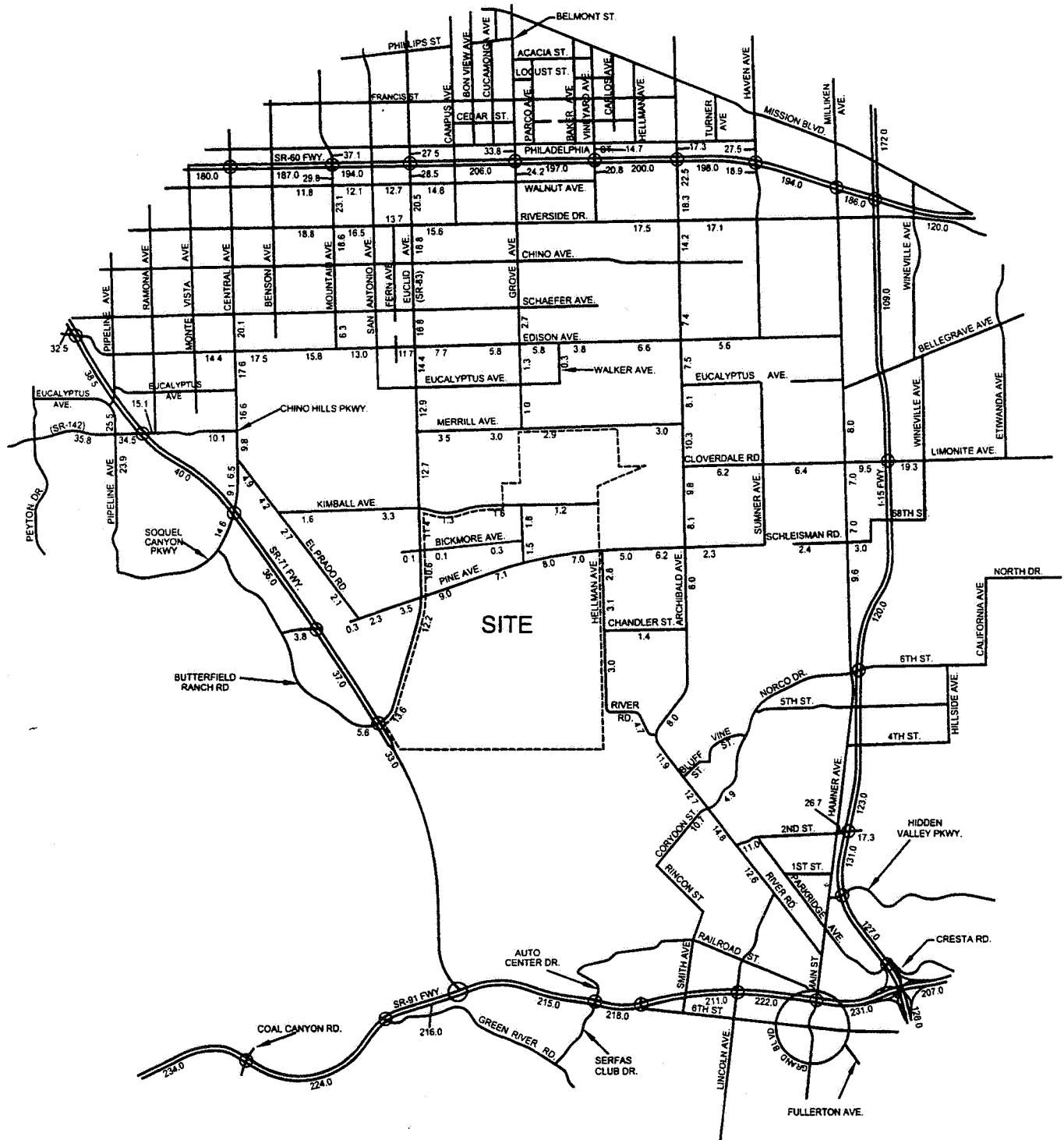
EXHIBIT 3-C EXISTING INTERSECTION CONTROLS



- LEGEND:**
- = TRAFFIC SIGNAL
 - = ALL WAY STOP
 - = STOP SIGN
 - 4 = NUMBER OF LANES
 - D = DIVIDED
 - U = UNDIVIDED



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.

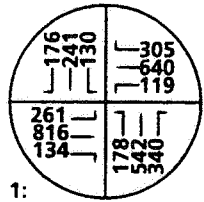
3.2 Existing Peak Hour Traffic Volumes

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.

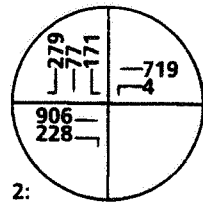
3.3 Existing Traffic Operations

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.

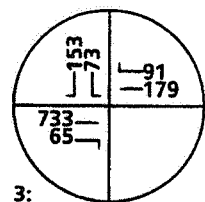
EXISTING AM PEAK HOUR INTERSECTION VOLUMES (PART 1/2)



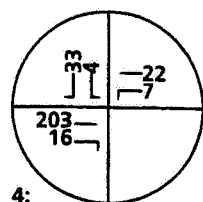
1:
PIPELINE AVE. /
CHINO HILLS PKWY.



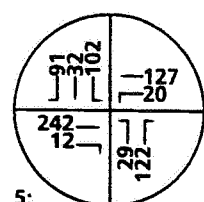
2:
SR-71 SB RAMPS /
CHINO HILLS PKWY.



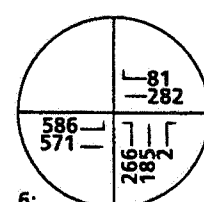
3:
SR-71 SB RAMPS /
SOQUEL
CANYON PKWY.



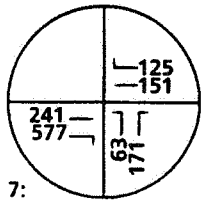
4:
SR-71 SB RAMPS /
PINE AVE.



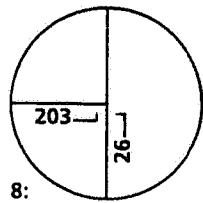
5:
SR-71 SB RAMPS /
EUCLID AVE.



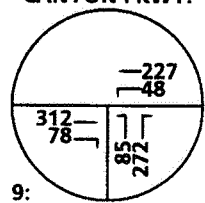
6:
SR-71 NB RAMPS /
CHINO HILLS PKWY.



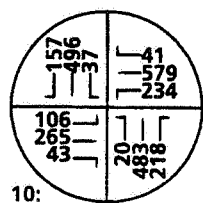
7:
SR-71 NB RAMPS /
SOQUEL
CANYON PKWY.



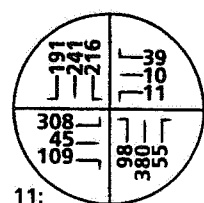
8:
SR-71 NB RAMPS /
PINE AVE.



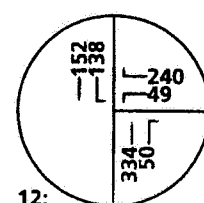
9:
SR-71 NB RAMPS /
EUCLID AVE.



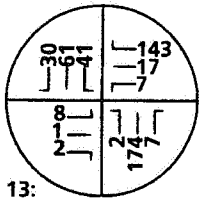
10:
CENTRAL AVE. /
EDISON AVE.



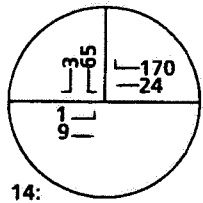
11:
CENTRAL AVE. /
CHINO HILLS PKWY.



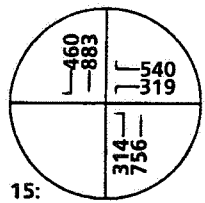
12:
CENTRAL AVE. /
EL PRADO RD.



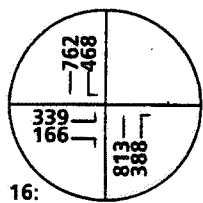
13:
EL PRADO RD. /
KIMBALL AVE.



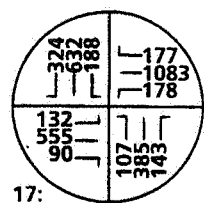
14:
EL PRADO RD. /
PINE AVE.



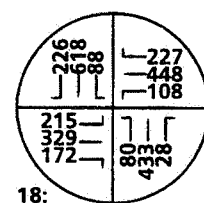
15:
MOUNTAIN AVE. /
SR-60 WB RAMPS



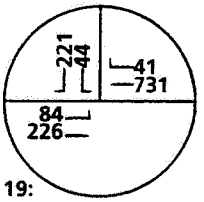
16:
MOUNTAIN AVE. /
SR-60 EB RAMPS



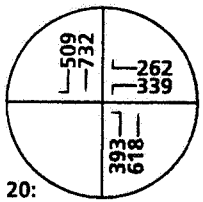
17:
MOUNTAIN AVE. /
WALNUT AVE.



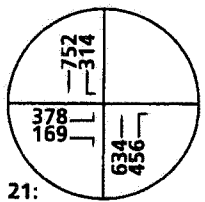
18:
MOUNTAIN AVE. /
RIVERSIDE DR.



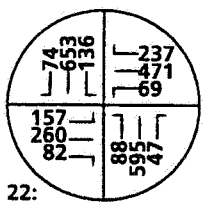
19:
MOUNTAIN AVE. /
EDISON AVE.



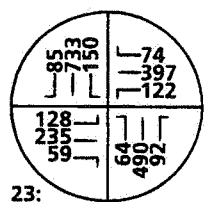
20:
EUCLID AVE. /
SR-60 WB RAMPS



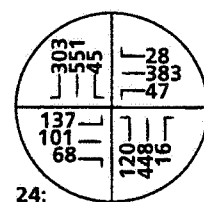
21:
EUCLID AVE. /
SR-60 EB RAMPS



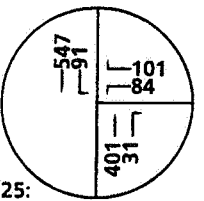
22:
EUCLID AVE. /
WALNUT AVE.



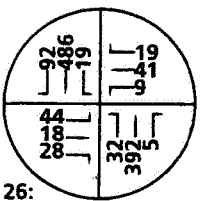
23:
EUCLID AVE. /
RIVERSIDE DR.



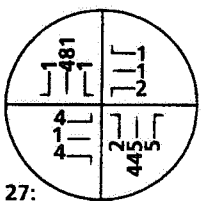
24:
EUCLID AVE. /
EDISON AVE.



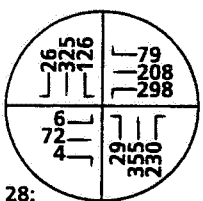
25:
EUCLID AVE. /
MERRILL AVE.



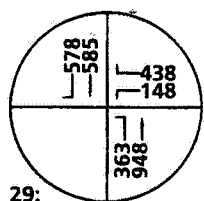
26:
EUCLID AVE. /
KIMBALL AVE.



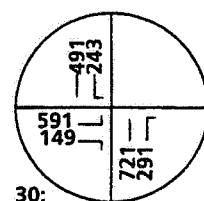
27:
EUCLID AVE. /
BICKMORE AVE.



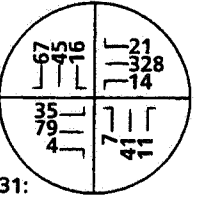
28:
EUCLID AVE. /
PINE AVE.



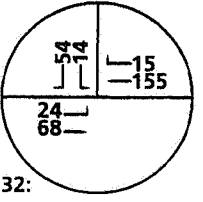
29:
GROVE AVE. /
SR-60 WB RAMPS



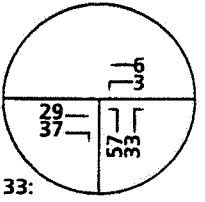
30:
GROVE AVE. /
SR-60 EB RAMPS



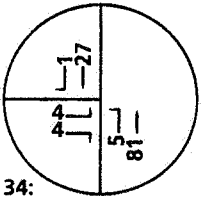
31:
GROVE AVE. /
EDISON AVE.



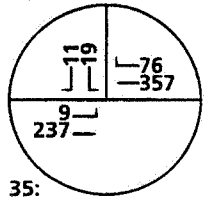
32:
GROVE AVE. /
MERRILL AVE.



33:
GROVE AVE. /
KIMBALL AVE.



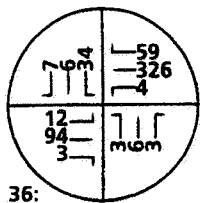
34:
GROVE AVE. /
BICKMORE AVE.



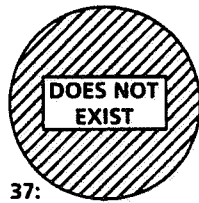
35:
GROVE AVE. /
PINE AVE.



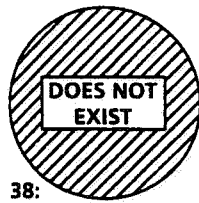
EXISTING AM PEAK HOUR INTERSECTION VOLUMES (PART 2/2)



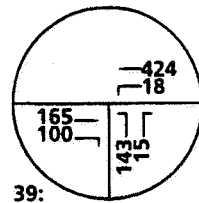
36:
WALKER AVE. /
EDISON AVE.



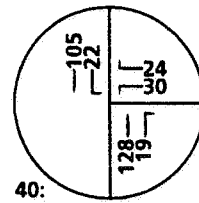
37:
HELLMAN AVE. /
MERRILL AVE.



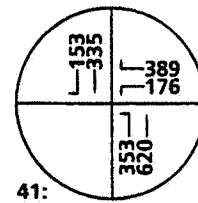
38:
HELLMAN AVE. /
KIMBALL AVE.



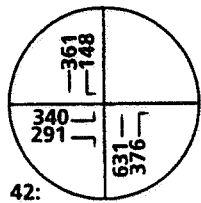
39:
HELLMAN AVE. /
PINE AVE.



40:
HELLMAN AVE. /
CHANDLER ST.



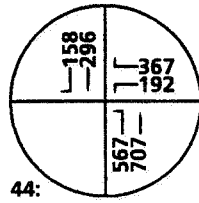
41:
VINEYARD AVE. /
SR-60 WB RAMPs



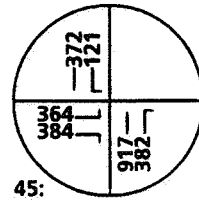
42:
VINEYARD AVE. /
SR-60 EB RAMPs



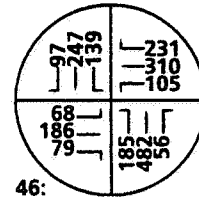
43:
VINEYARD AVE. /
EDISON AVE.



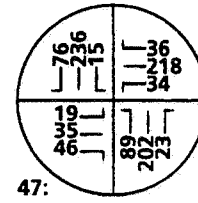
44:
ARCHIBALD AVE. /
SR-60 WB RAMPs



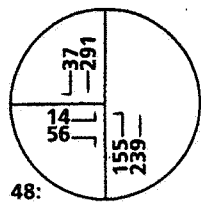
45:
ARCHIBALD AVE. /
SR-60 EB RAMPs



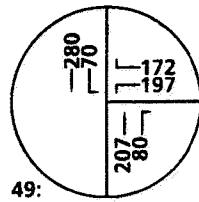
46:
ARCHIBALD AVE. /
RIVERSIDE DR.



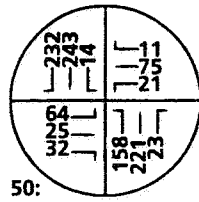
47:
ARCHIBALD AVE. /
EDISON AVE.



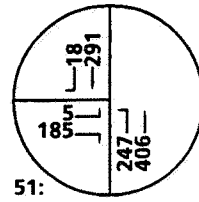
48:
ARCHIBALD AVE. /
MERRILL AVE.



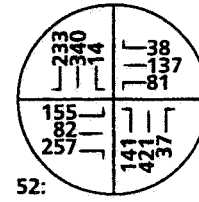
49:
ARCHIBALD AVE. /
CLOVERDALE RD.



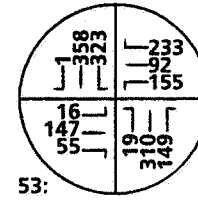
50:
ARCHIBALD AVE. /
PINE AVE.



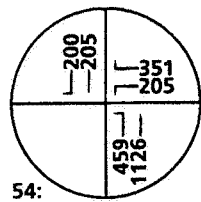
51:
ARCHIBALD AVE. /
RIVER RD.



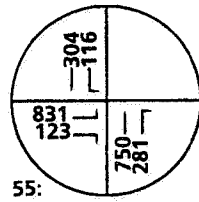
52:
RIVER RD. /
CORYDON ST.



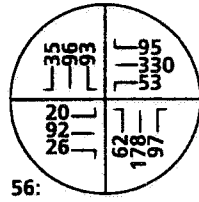
53:
RIVER RD. /
SECOND ST.



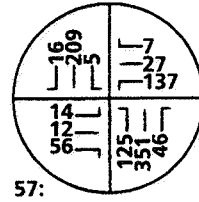
54:
HAVEN AVE. /
SR-60 WB RAMPs



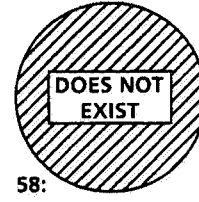
55:
HAVEN AVE. /
SR-60 EB RAMPs



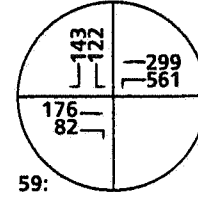
56:
HAMNER AVE. /
CLOVERDALE RD.



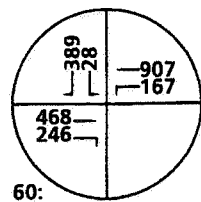
57:
HAMNER AVE. /
SCHLEISMAN RD.



58:
I-15 SB RAMPs /
GALENA ST.



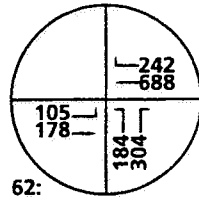
59:
I-15 SB RAMPs /
LIMONITE AVE.



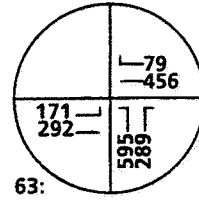
60:
I-15 SB RAMPs /
SECOND ST.



61:
I-15 NB RAMPs /
GALENA ST.



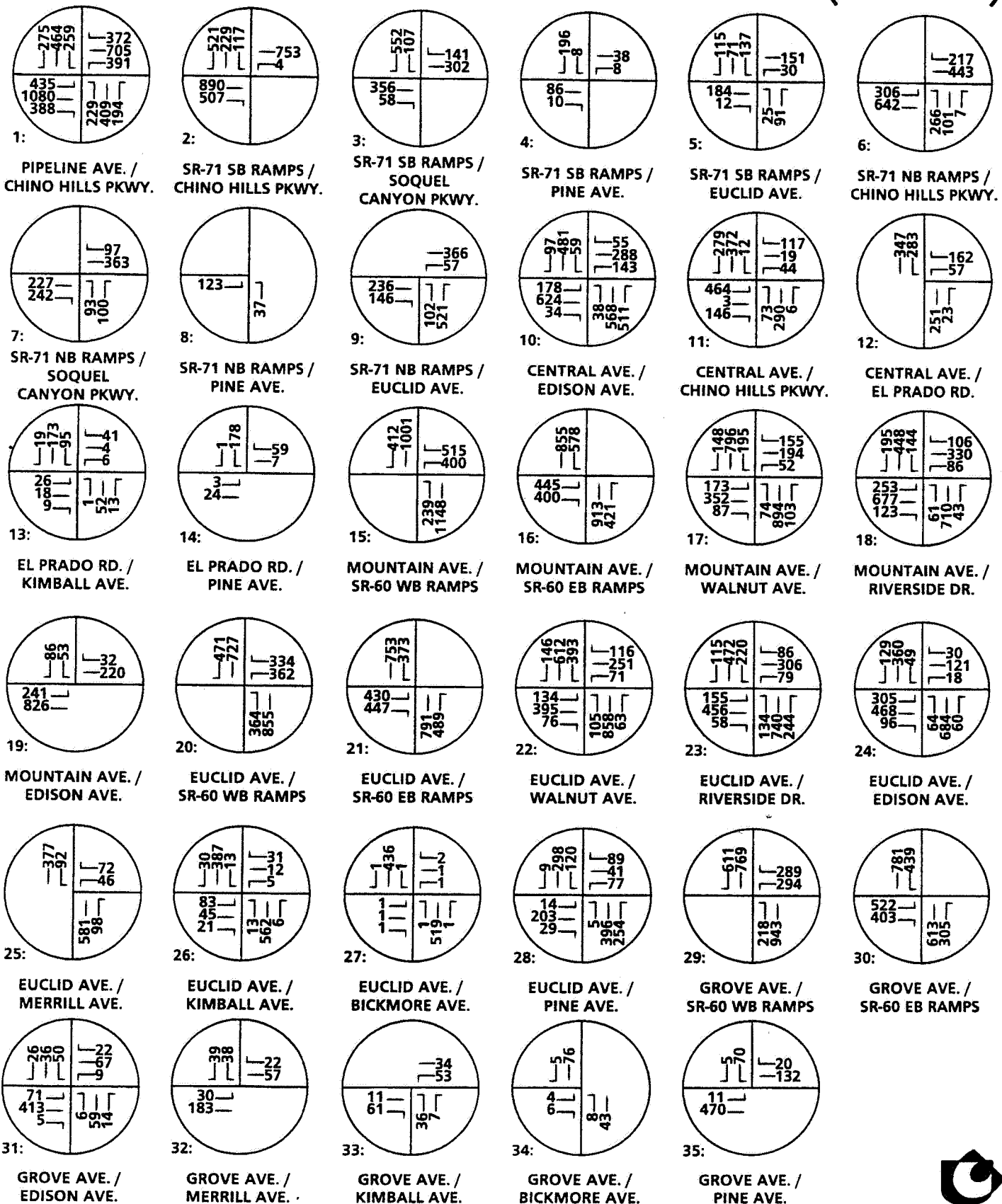
62:
I-15 NB RAMPs /
LIMONITE AVE.



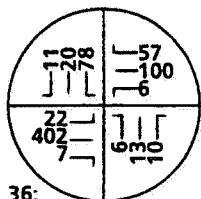
63:
I-15 NB RAMPs /
SECOND ST.



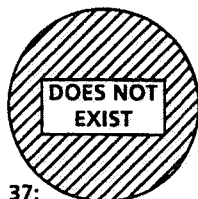
EXISTING PM PEAK HOUR INTERSECTION VOLUMES (PART 1/2)



EXISTING PM PEAK HOUR INTERSECTION VOLUMES (PART 2/2)



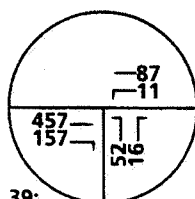
36:
WALKER AVE. /
EDISON AVE.



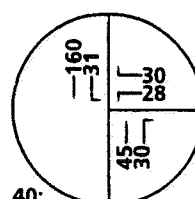
37:
HELLMAN AVE. /
MERRILL AVE.



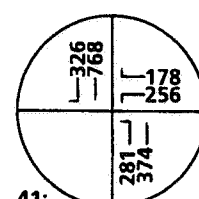
38:
HELLMAN AVE. /
KIMBALL AVE.



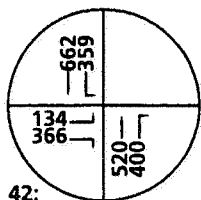
39:
HELLMAN AVE. /
PINE AVE.



40:
HELLMAN AVE. /
CHANDLER ST.



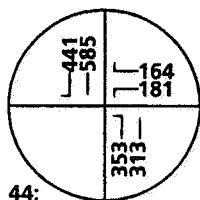
41:
VINEYARD AVE. /
SR-60 WB RAMP



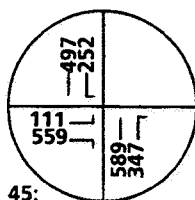
42:
VINEYARD AVE. /
SR-60 EB RAMP



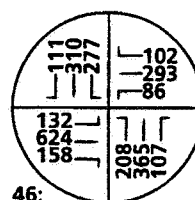
43:
VINEYARD AVE. /
EDISON AVE.



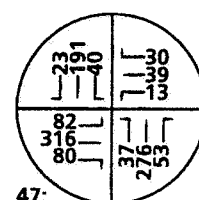
44:
ARCHIBALD AVE. /
SR-60 WB RAMP



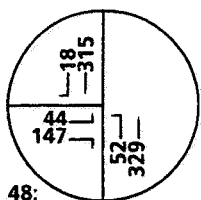
45:
ARCHIBALD AVE. /
SR-60 EB RAMP



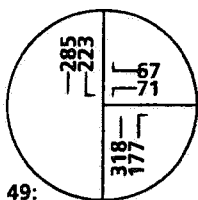
46:
ARCHIBALD AVE. /
RIVERSIDE DR.



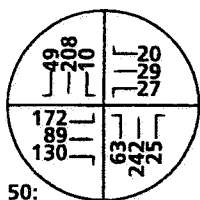
47:
ARCHIBALD AVE. /
EDISON AVE.



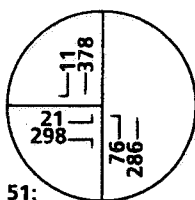
48:
ARCHIBALD AVE. /
MERRILL AVE.



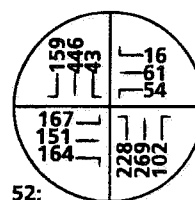
49:
ARCHIBALD AVE. /
CLOVERDALE RD.



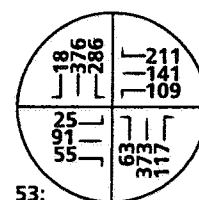
50:
ARCHIBALD AVE. /
PINE AVE.



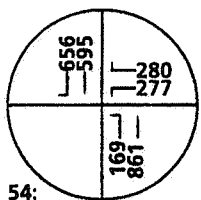
51:
ARCHIBALD AVE. /
RIVER RD.



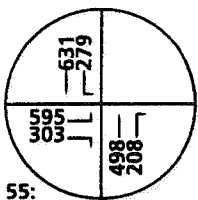
52:
RIVER RD. /
CORYDON ST.



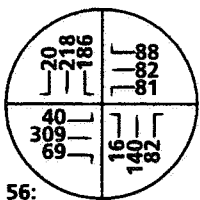
53:
RIVER RD. /
SECOND ST.



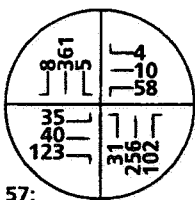
54:
HAVEN AVE. /
SR-60 WB RAMP



55:
HAVEN AVE. /
SR-60 EB RAMP



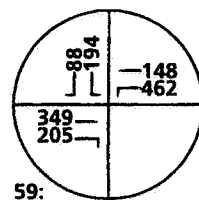
56:
HAMNER AVE. /
CLOVERDALE RD.



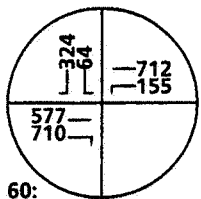
57:
HAMNER AVE. /
SCHLEISMAN RD.



58:
I-15 SB RAMP /
GALENA ST.



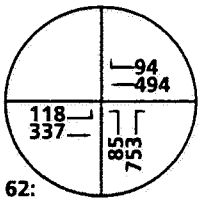
59:
I-15 SB RAMP /
LIMONITE AVE.



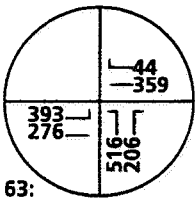
60:
I-15 SB RAMP /
SECOND ST.



61:
I-15 NB RAMP /
GALENA ST.



62:
I-15 NB RAMP /
LIMONITE AVE.



63:
I-15 NB RAMP /
SECOND ST.



TABLE 3-1

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		AM	PM	AM	PM		
		L	T	R	L	T	R	L	T	R	L					T	R
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	28.0	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".

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		AM	PM	AM	PM		
		L	T	R	L	T	R	L	T	R	L					T	R
Grove Ave. (NS) at: • SR-60 Fwy. WB Ramps (EW) • SR-60 Fwy. EB Ramps (EW) • Edison St. (EW) • Merrill Ave. (EW) • Kimball Ave. (EW) • Bickmore Ave. (EW) • Pine Ave. (EW)	TS TS AWS AWS AWS CSS CSS	1 0 0 0 0 0 0	2 2 1 0 1 1 0	0 1 0 0 0 1 0	0 2 1 0 0 0 1	1 2 0 1 0 0 0	0 1 0 0 1 0 1	0 0 1 0 1 0 1	1 0 0 0 1 0 0	1 0 0 1 0 0 1	27.4 22.5 11.6 7.9 7.5 8.9 13.7	14.9 24.6 14.0 8.6 7.6 9.0 17.7	C C B A A A B	B C B A A A 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) • Chandler St. (EW)	CSS CSS	0	1	0	0	0	0	0	1	0	0	1	0	24.2	15.3	C	C
		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) • SR-60 Fwy. EB Ramps (EW)	TS TS	1	1	0	0	2	0	0	0	0	1	0	1	19.0	18.4	B	B
		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) • SR-60 Fwy. EB Ramps (EW) • Riverside Dr. (EW) • Edison Ave. (EW) • Merrill Ave. (EW) • Cloverdale Rd. (EW) • Pine Ave. (EW) • River Rd. (EW)	TS TS TS TS CSS TS TS CSS	1 0 1 1 1 0 1 1	3 4 3 2 2 1 1 1	0 0 1 1 0 1 1 0	0 1 3 2 1 1 1 1	0 3 3 2 1 1 1 1	0 1 1 2 0 0 1 1	0 0 2 2 1 0 0 1	0 1 1 2 0 0 1 1	1 0 1 1 0 0 1 0	21.8 15.6 27.5 19.4 13.1 13.0 31.1 34.1	17.2 22.8 50.1 19.8 15.5 15.4 24.4 18.8	C B C B B B C D	B C D B C B C C			
River Rd. (NS) at: • Corydon St. (EW) • Second St. (EW)	TS TS	1	1	1	1	2	0	1	1	1	1	1	1	28.6	28.0	C	C
		1	2	1	1	2	1	1	1	1	1	0	0	35.2	26.0	D	C
Haven Ave. (NS) at: • SR-60 Fwy. WB Ramps (EW) • SR-60 Fwy. EB Ramps (EW)	TS TS	2	3	0	0	3	1	0	0	0	1	0	1>>	10.8	9.2	B	A
		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) • Schleisman Rd. (EW)	TS CSS	1	1	1	1	1	1	0	1	1	0	1	1	26.0	23.2	C	C
		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) • Second St. (EW)	TS TS	0	0	0	1	0	1	0	2	1	1	2	0	15.2	17.4	B	B
		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) • Second St. (EW)	TS TS	0.5	0	1.5	0	0	0	1	2	0	0	2	1	14.7	15.0	B	B
		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".

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)

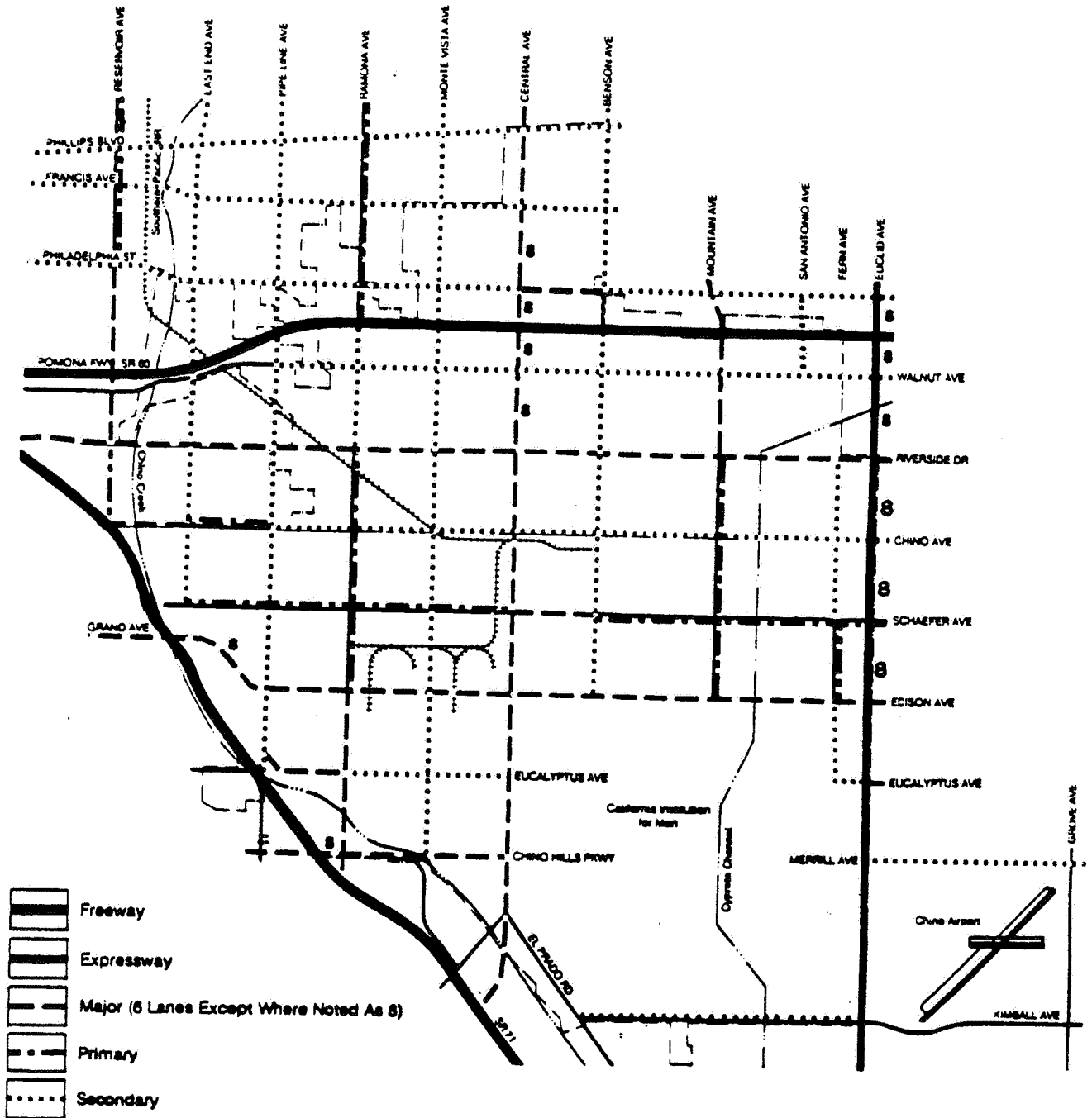
3.4 Planned Transportation Improvements and Relationships to General Plan

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

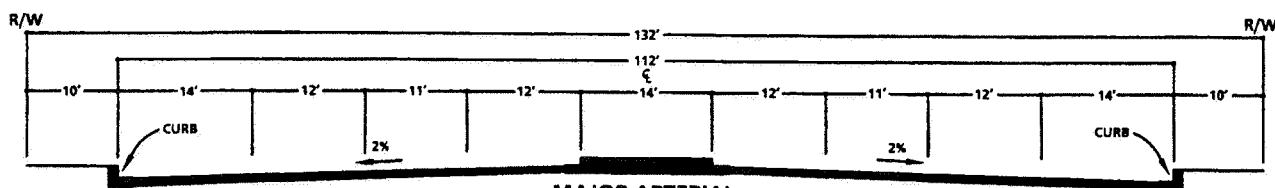


SITE
 *

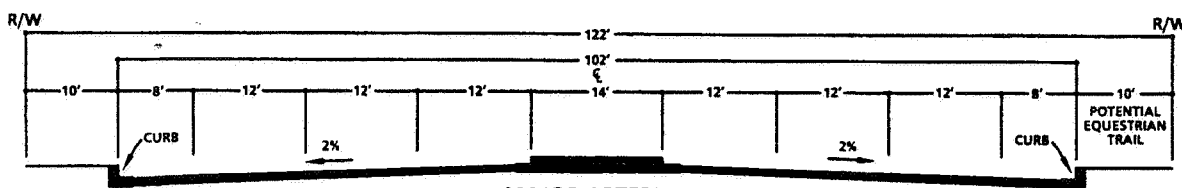
SOURCE: CITY OF CHINO



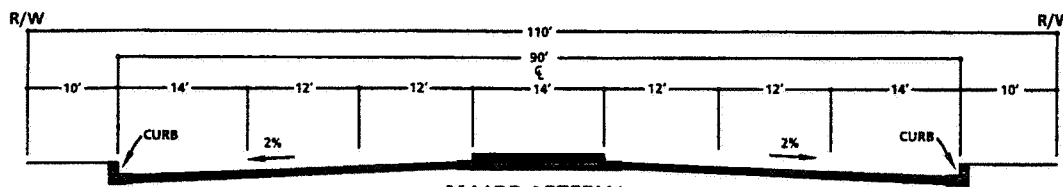
CITY OF CHINO TYPICAL ROADWAY CROSS-SECTIONS



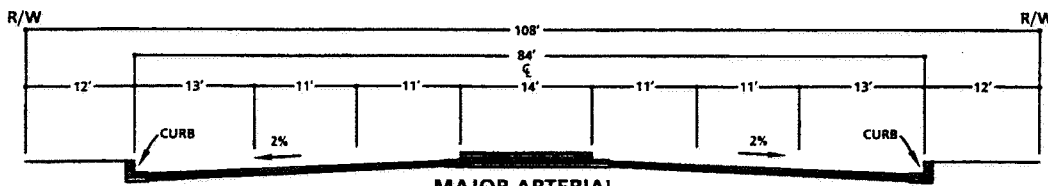
**MAJOR ARTERIAL
MINIMUM 8 LANE**
PROVIDES 8 TRAFFIC LANES
SEPARATED BY A MEDIAN WITHOUT PARKING



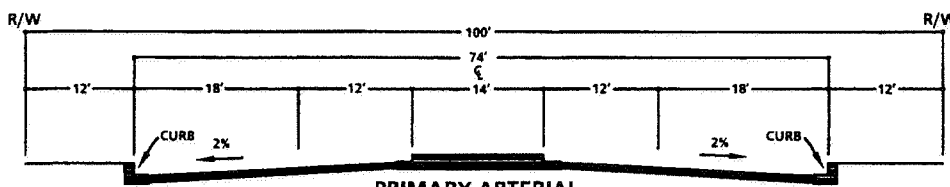
**MAJOR ARTERIAL
TYPICAL 6 LANE**
PROVIDES 6 TRAFFIC LANES WITH BIKE LANE
SEPARATED BY A MEDIAN WITHOUT PARKING



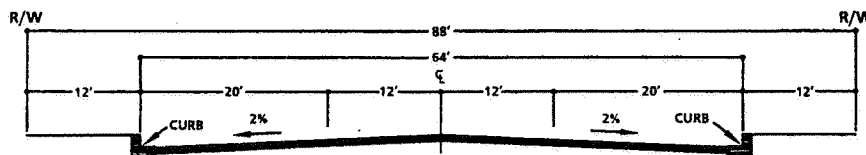
**MAJOR ARTERIAL
TYPICAL 6 LANE**
NO BIKE LANES



**MAJOR ARTERIAL
MINIMUM 6 LANE**
NO BIKE LANES



**PRIMARY ARTERIAL
TYPICAL 4 LANE**
PROVIDES 4 TRAFFIC LANES
SEPARATED BY A MEDIAN WITHOUT PARKING



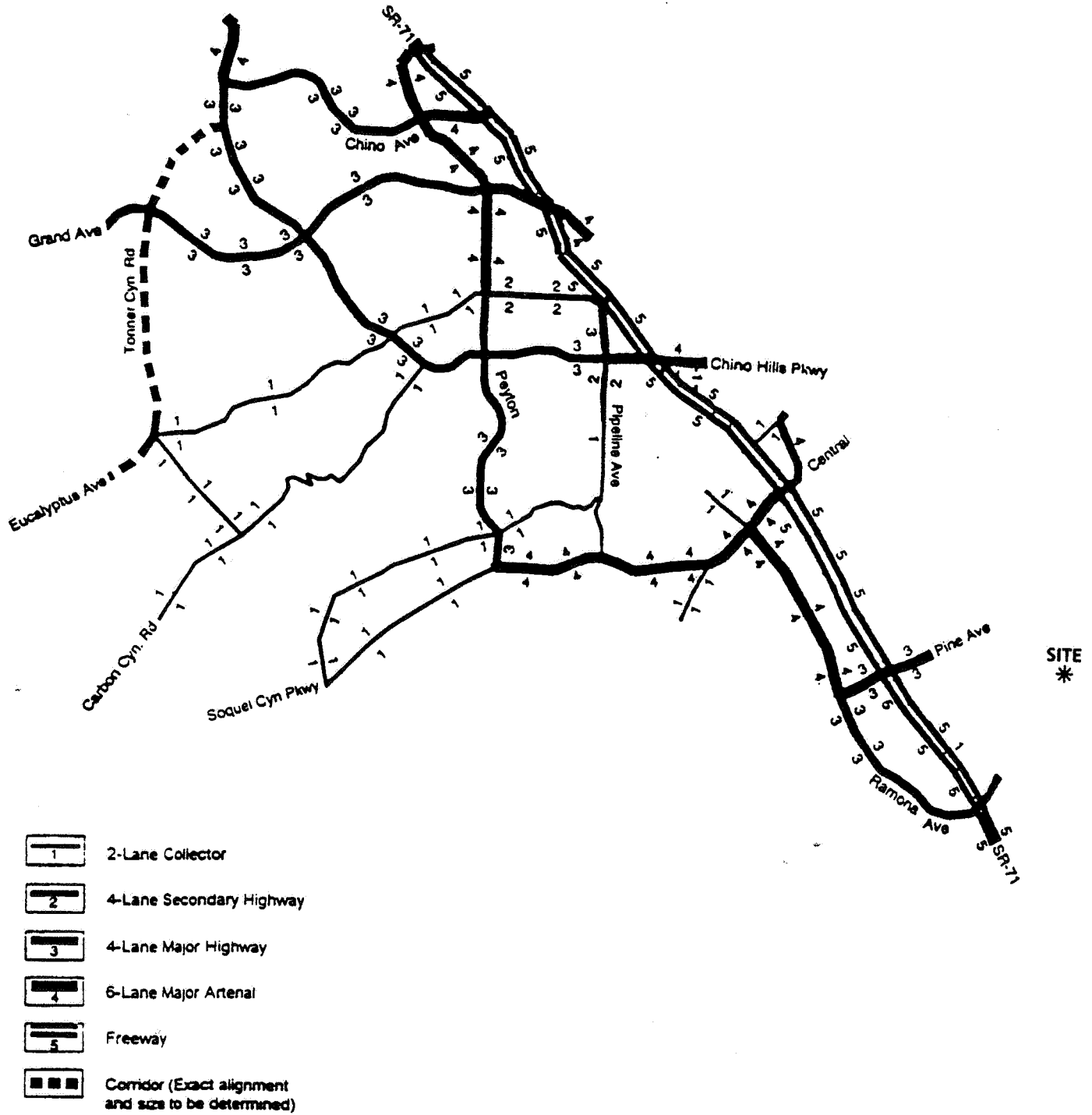
SECONDARY ARTERIAL
PROVIDES 4 TRAFFIC LANES WITH PARKING *

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



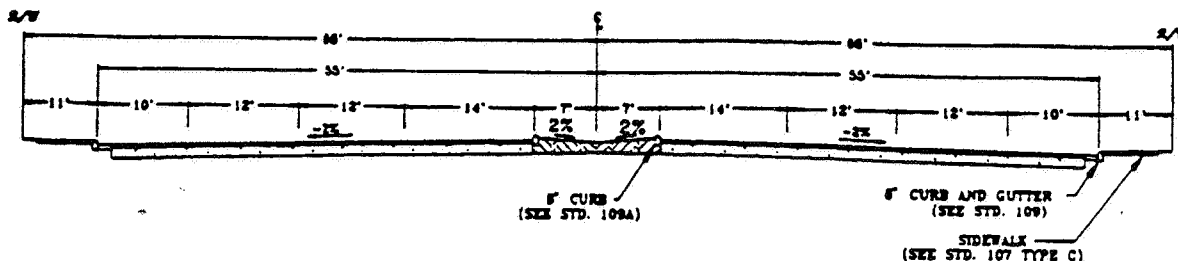
EXHIBIT 3-1
**CITY OF CHINO HILLS
 GENERAL PLAN CIRCULATION ELEMENT**



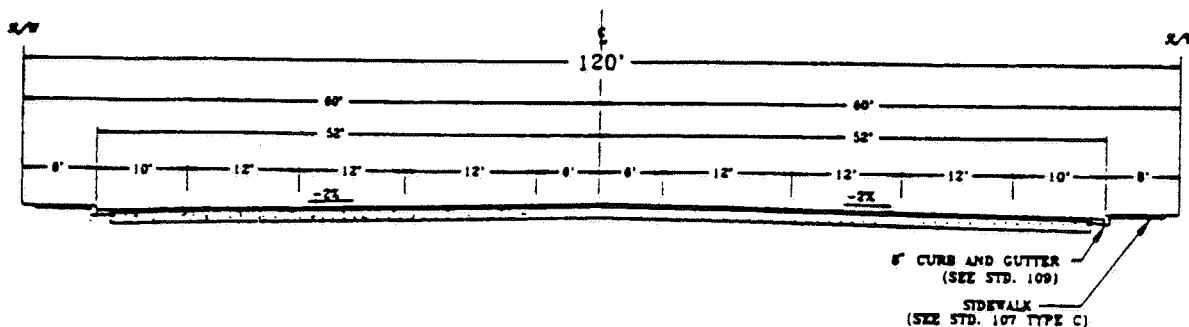
SOURCE: CITY OF CHINO HILLS



CITY OF CHINO HILLS TYPICAL ROADWAY CROSS-SECTIONS (PART 1/5)



TYPICAL SECTION
WITH RAISED MEDIAN



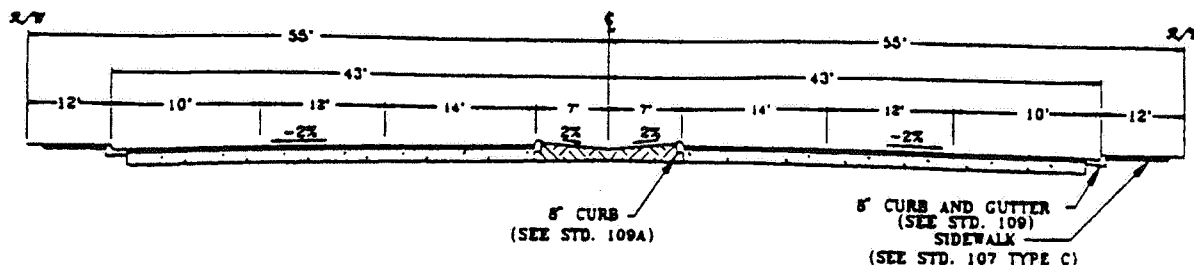
TYPICAL SECTION
WITH CONTINUOUS LEFT TURN LANE

NOTES:

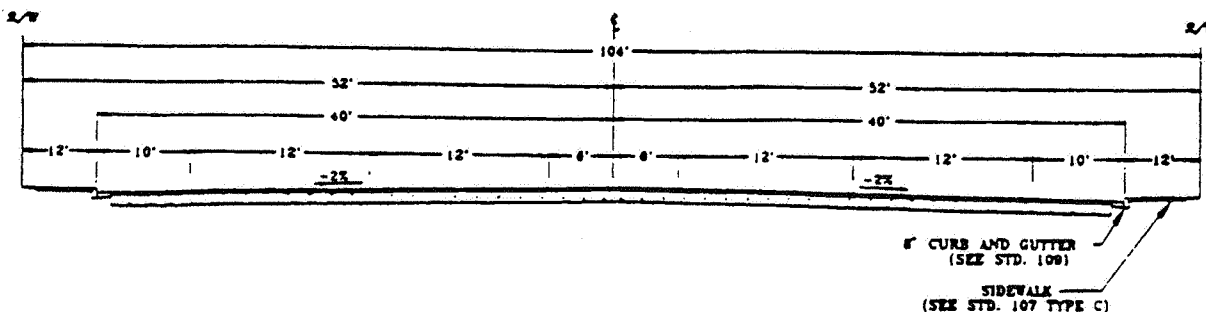
1. STRUCTURAL SECTION OF ROADWAY SHALL BE DETERMINED FROM SOILS TESTS AND SO INDICATED ON CONSTRUCTION PLANS. MINIMUM AC THICKNESS IS 0.45'
2. DRAINAGE FACILITIES SHALL BE PROVIDED TO DEWATER RAISED MEDIAN AREAS
3. TEN FEET (10') SHOULDER AREAS MAY BE DESIGNATED AS A BIKE LANE AND EMERGENCY PARKING ONLY
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

CITY OF CHINO HILLS TYPICAL ROADWAY CROSS-SECTIONS (PART 2/5)



TYPICAL SECTION
WITH RAISED MEDIAN



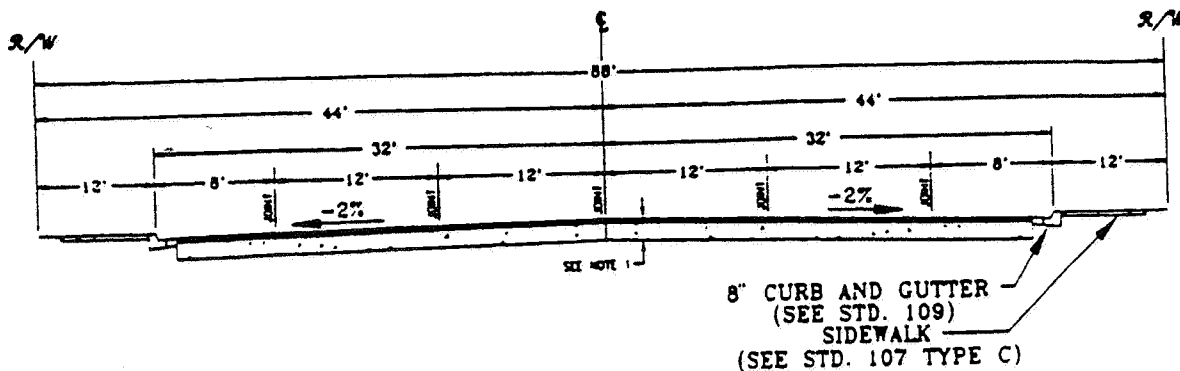
TYPICAL SECTION
WITH CONTINUOUS LEFT TURN LANE

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

CITY OF CHINO HILLS TYPICAL ROADWAY CROSS-SECTIONS (PART 3/5)



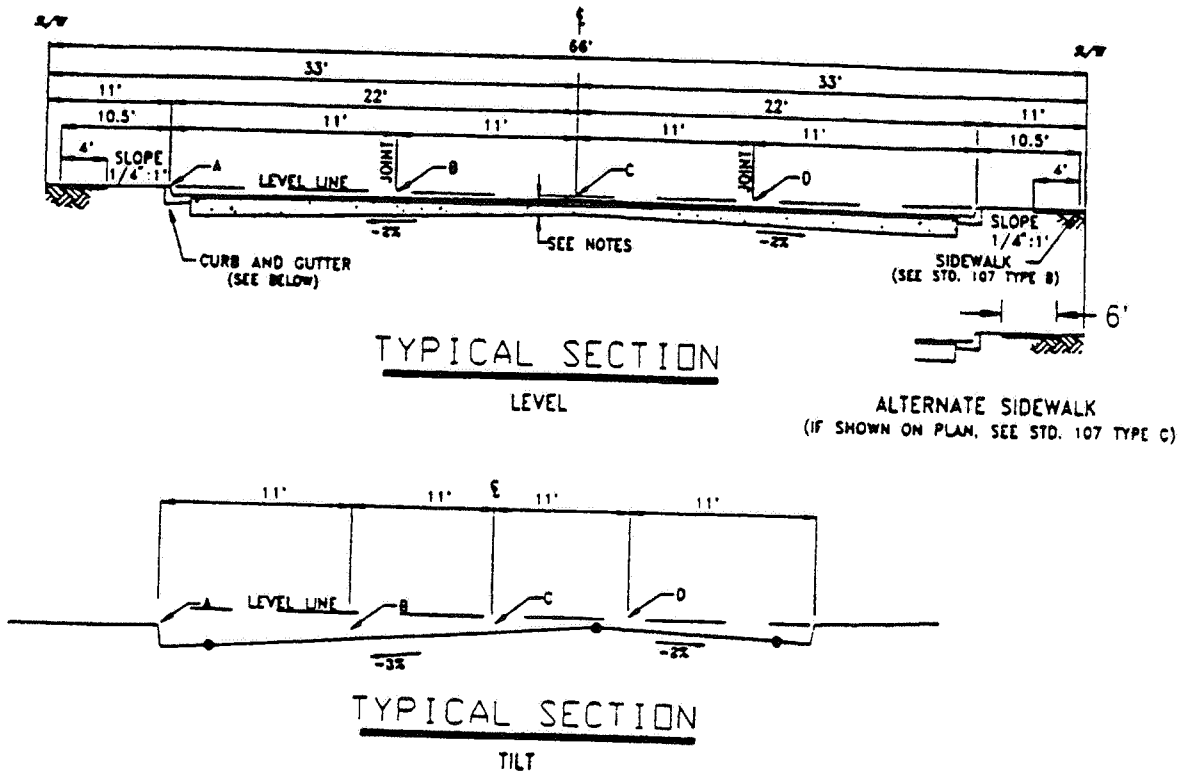
TYPICAL SECTION

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

CITY OF CHINO HILLS TYPICAL ROADWAY CROSS-SECTIONS (PART 4/5)



		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. 1098)	LEVEL	0.00'	0.19'	(0.03')	0.19'
	TILT	0.76'	0.85'	0.52'	0.19'

() INDICATES ABOVE LEVEL LINE

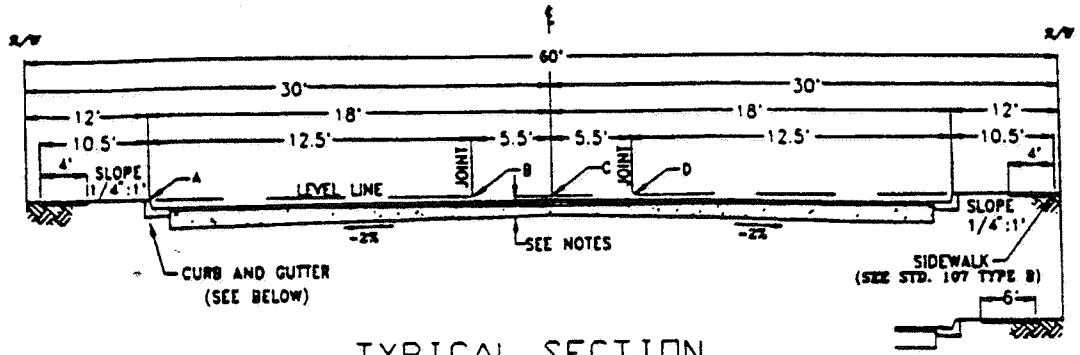
NOTES:

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



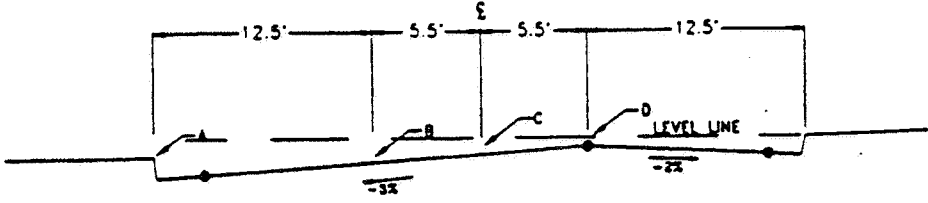
CITY OF CHINO HILLS TYPICAL ROADWAY CROSS-SECTIONS (PART 5/5)



TYPICAL SECTION

LEVEL

ALTERNATE SIDEWALK
(IF SHOWN ON PLAN)



TYPICAL SECTION

TILT

		A	B	C	D
8" CURB <small>(SEE STD. 100)</small>	LEVEL	0.00'	0.33'	0.22'	0.33'
	TILT	0.44'	0.66'	0.50'	0.33'
6" CURB <small>(SEE STD. 100B)</small>	LEVEL	0.00'	0.16'	0.05'	0.16'
	TILT	0.44'	0.49'	0.33'	0.16'

NOTES:

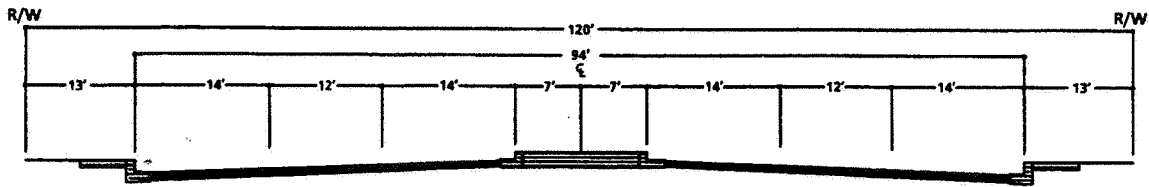
1. STRUCTURAL SECTION OF ROADWAY SHALL BE DETERMINED FROM SOIL TESTS AND SO INDICATED ON CONSTRUCTION PLANS.
2. MINIMUM DESIGN PAVING THICKNESS SHALL BE 0.25' ASPHALT CONCRETE.
3. CONSTRUCTION OUTSIDE R/W WILL REQUIRE SLOPE EASEMENTS.
4. WHEN PREPARING SUBGRADE FOR PAVING, CENTERLINE CROWN ON THE "LEVEL SECTION" SHALL BE RELOCATED EITHER LEFT OF RIGHT 0.50' TO MATCH CROWN BREAK IN PAVING MACHINE.

SOURCE: CITY OF CHINO HILLS

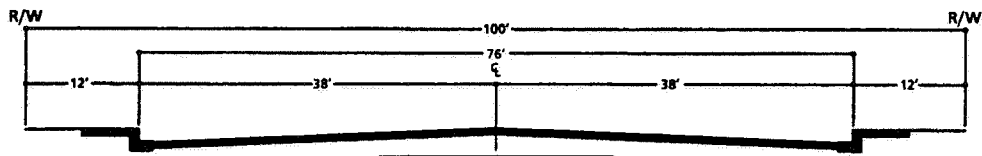


EXHIBIT 3-L

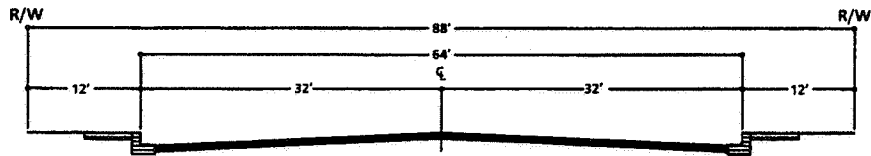
CITY OF ONTARIO TYPICAL ROADWAY CROSS-SECTIONS



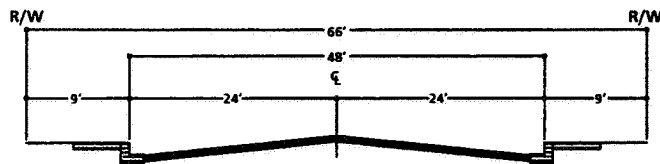
DIVIDED ARTERIAL



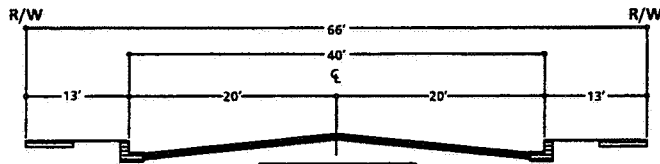
STANDARD ARTERIAL



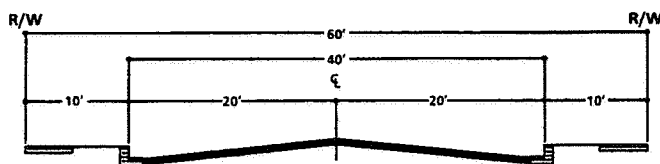
COLLECTOR STREET



LOCAL INDUSTRIAL STREET



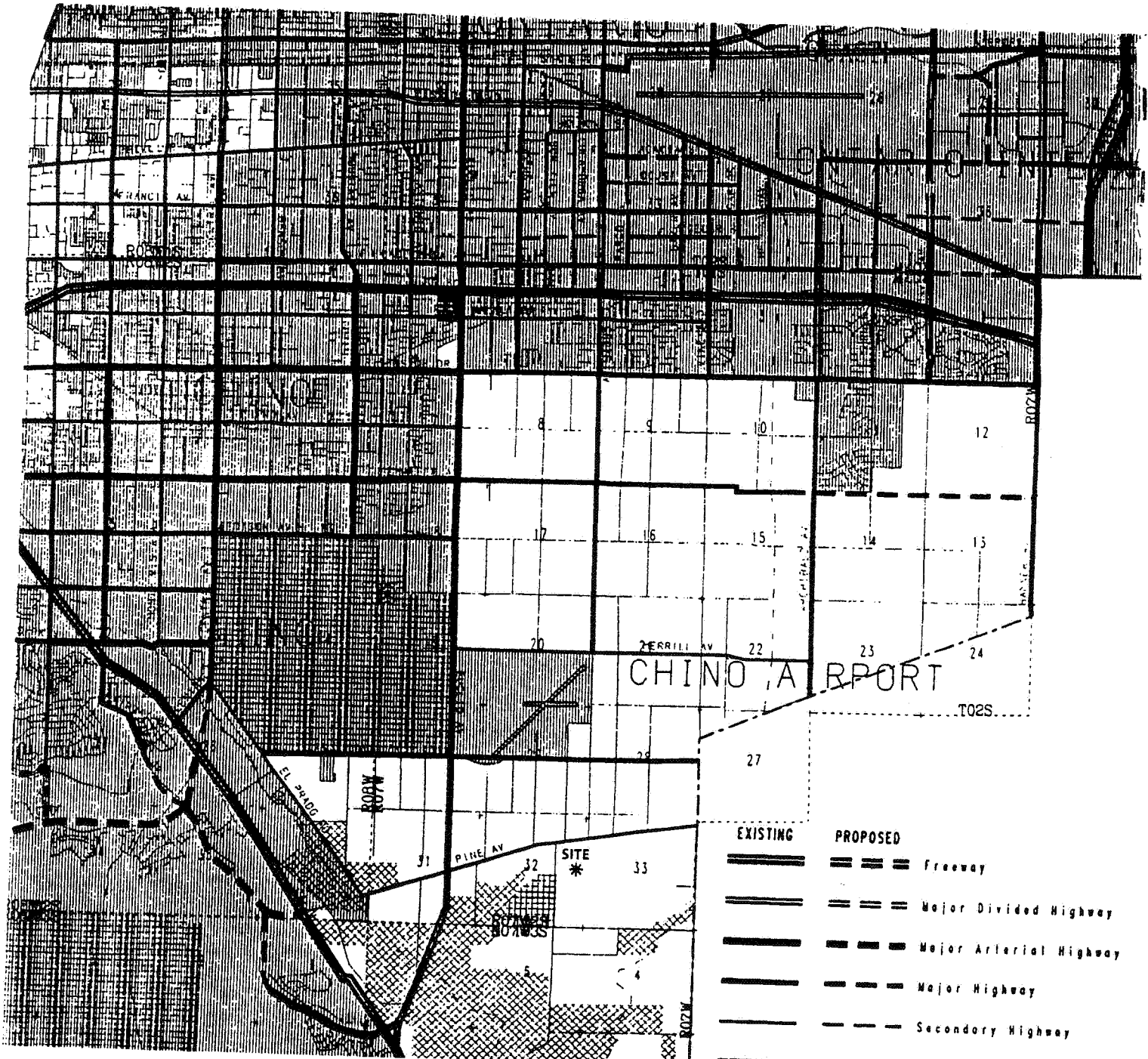
LOCAL STREET



LOCAL STREET

SOURCE: CITY OF ONTARIO

EXHIBIT 3-M
COUNTY OF SAN BERNARDINO
GENERAL PLAN CIRCULATION ELEMENT

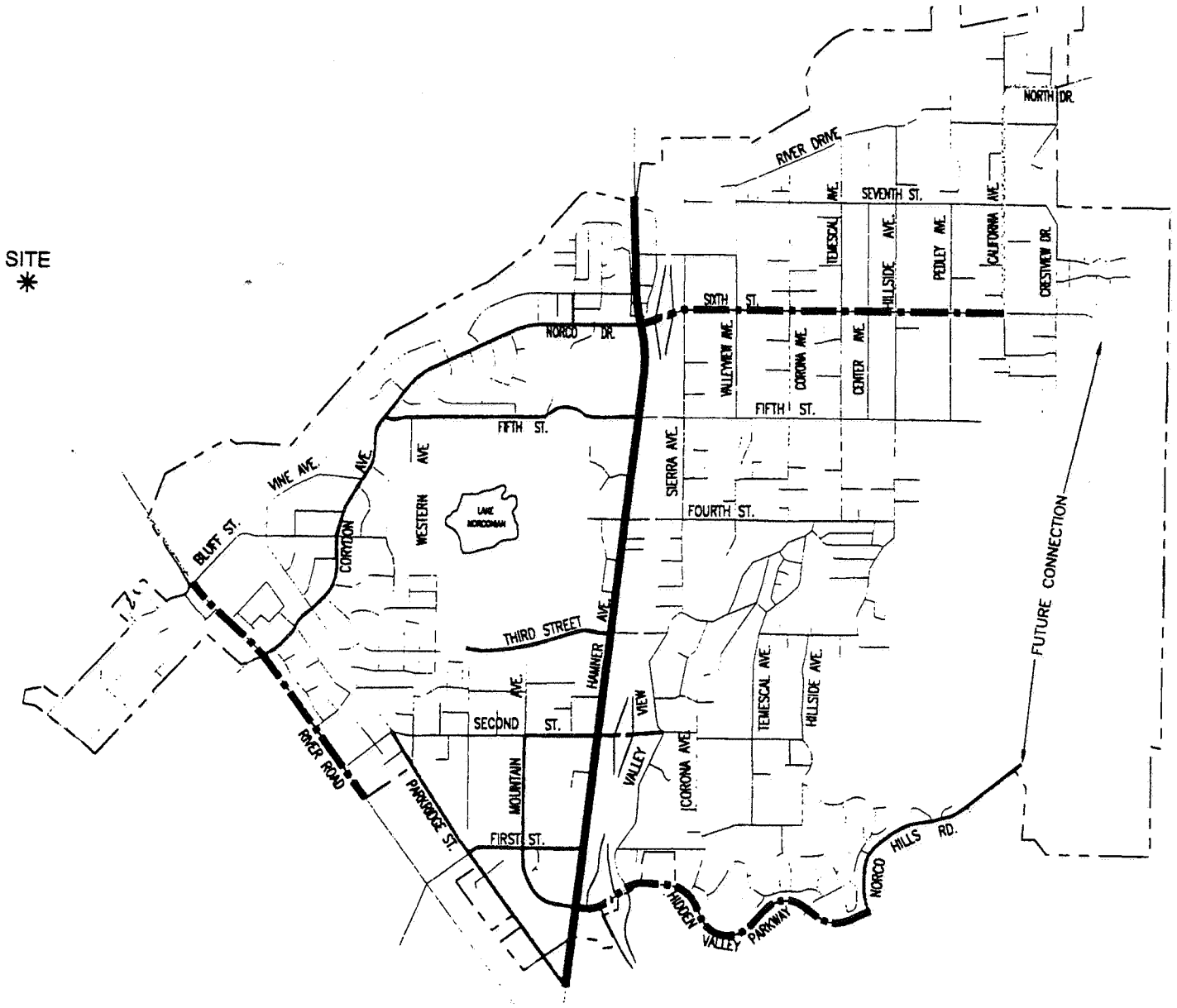


EXISTING	PROPOSED	
		Freeway
		Major Divided Highway
		Major Arterial Highway
		Major Highway
		Secondary Highway
		Controlled/Limited Access Collector
		Mountain Major Highway
		Mountain Secondary Highway
		State Highway (Special Standards or Conditions)

SOURCE: COUNTY OF SAN BERNARDINO




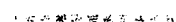




EXHIBIT 3-N
CITY OF NORCO
GENERAL PLAN CIRCULATION ELEMENT



SITE
 *

LEGEND

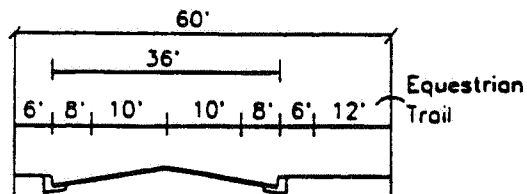
-  FREEWAY
-  URBAN ARTERIAL
-  MAJOR ARTERIAL 4 LN
-  MAJOR ARTERIAL 2 LN
-  COLLECTOR STREET
-  LOCAL STREETS

SOURCE: CITY OF NORCO

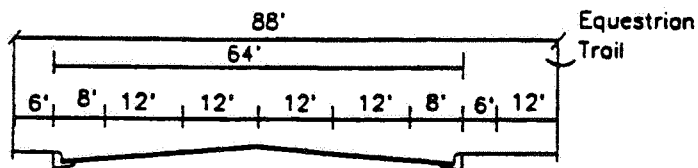


CITY OF NORCO TYPICAL ROADWAY CROSS-SECTIONS

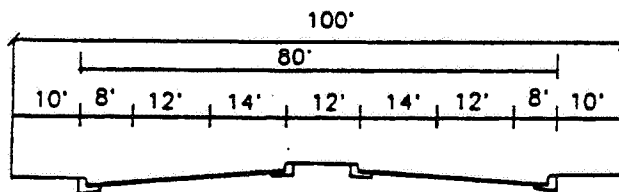
Local



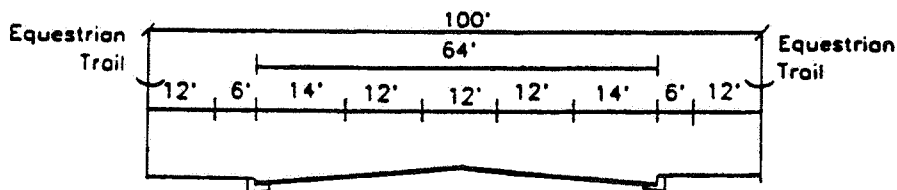
Collector



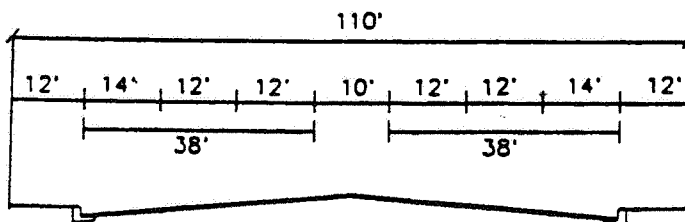
Major – 4
River Road



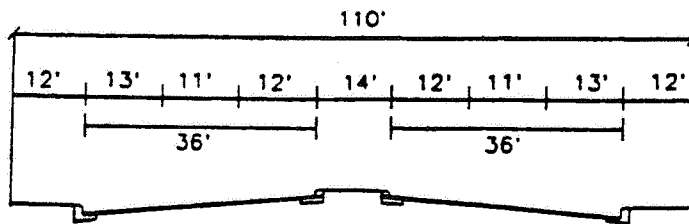
Major – 4E
Sixth Street
Hidden Valley Parkway (½)



Urban Arterial
Hamner Avenue Without Median



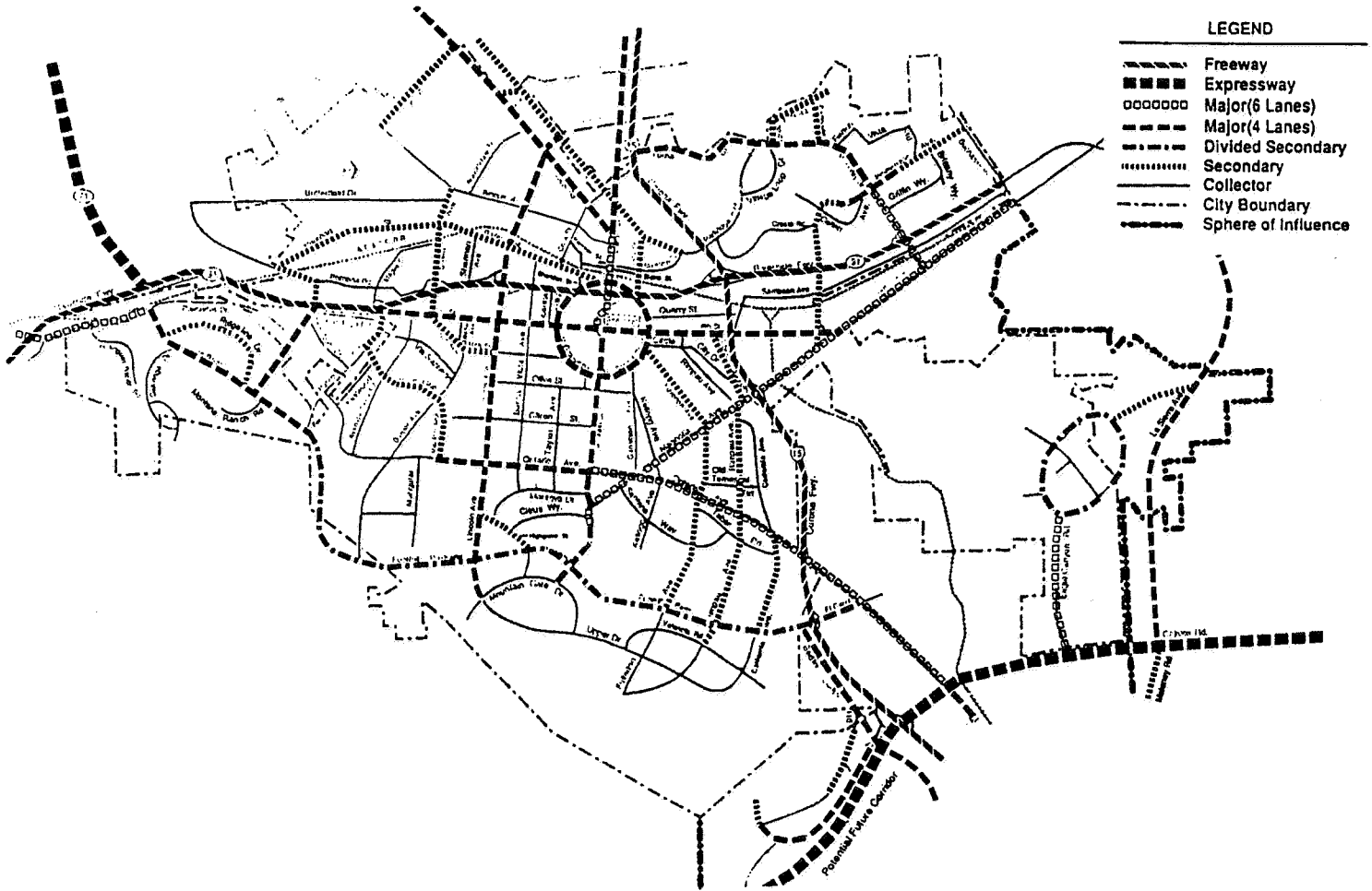
Urban Arterial
Hamner Avenue
With Raised Median



SOURCE: CITY OF NORCO

EXHIBIT 3-P
CITY OF CORONA
GENERAL PLAN CIRCULATION ELEMENT

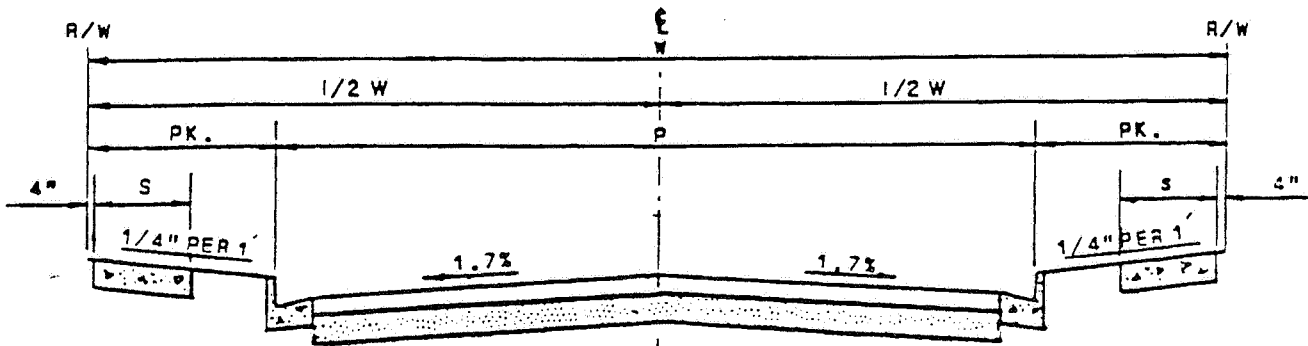
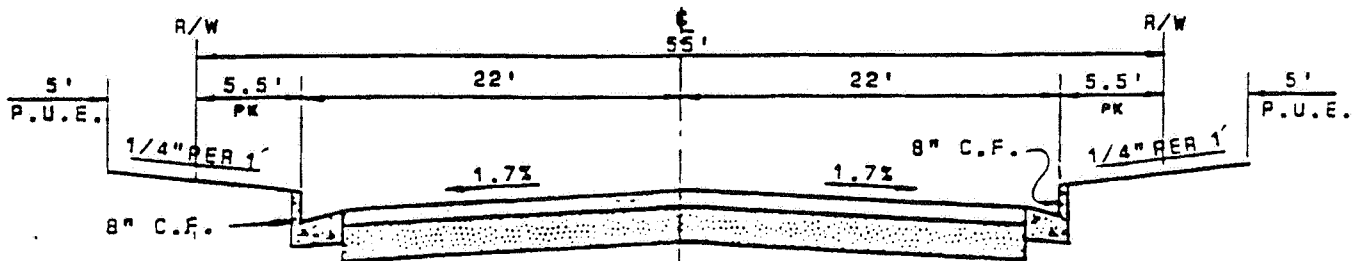
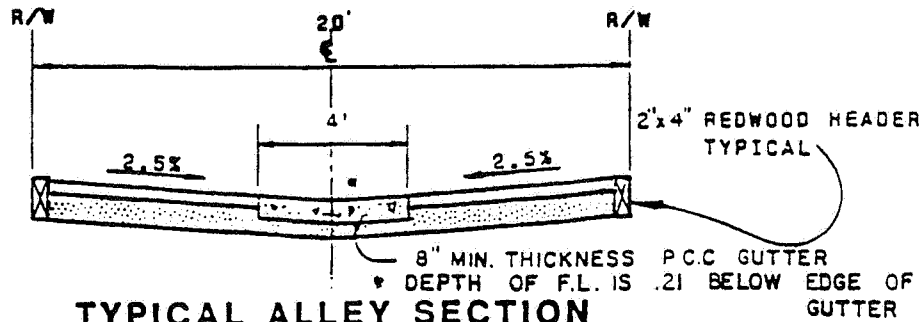
SITE
 *



SOURCE: CITY OF CORONA



CITY OF CORONA TYPICAL ROADWAY CROSS-SECTIONS (PART 1/2)



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:

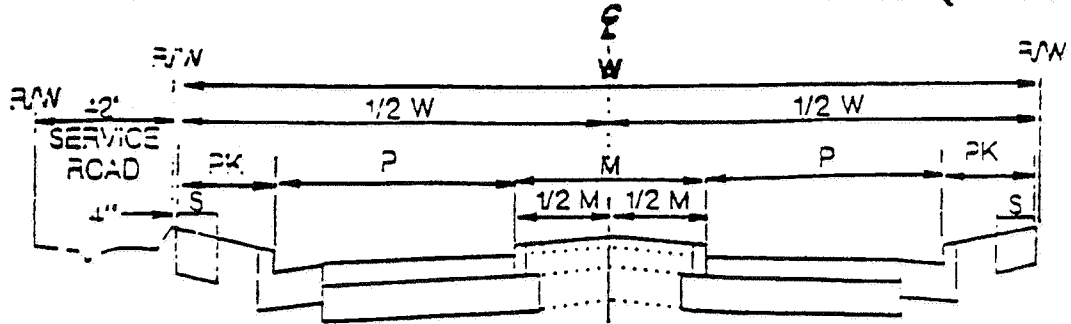
1. THICKNESS OF STREET SECTION TO BE DETERMINED BY SOIL TESTS TO DETERMINE STRUCTURAL SECTION OF FLEXIBLE PAVEMENT. (MIN. 30' AC. OVER .50' AB.)
2. FOR CURB AND GUTTER SEE STANDARD PLAN 104-0.
3. USE 8" CURB FOR ALL COLLECTOR, SECONDARY OR MAJOR STREETS - USE 6" CURB FOR ALL LOCAL STREETS.

SOURCE: CITY OF CORONA

CHINO SUBAREA 2, Chino, California - 00020:29



CITY OF CORONA TYPICAL ROADWAY CROSS-SECTIONS (PART 2/2)



MAJOR STREET SECTIONS

STREET & LIMIT	W	P	PK	M	S*	MEDIAN
FOOTHILL PKWY TM - GREEN RIVER - STATE ST.	88'	22'	5'	14'	5'	LANDSCAPE
GRAND BLVD - FULL CIRCLE	100'	33'	10'	14'	10'	STRIPED
GREEN RIVER RD. - 91 FWY TO PASO 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'	94'	10'	LANDSCAPE
- SIXTH TO I-15	100'	33'	10'	14'	10'	LANDSCAPE
- I-15 TO ONTARIO	222'	36'	17.5'	14'	10'	LANDSCAPE
- ONTARIO TO MAIN	20'	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	20'	44'	9'	14'	10'	LANDSCAPE
- FOOTHILL PKWY TO MOUNTAIN GATE	88'	22'	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	222'	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	222'	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	30'	33'	10'	94'	10'	LANDSCAPE
- I-15 TO MAPLE	88'	27'	12'	12'	2'	STRIPED
YUMA DRIVE - I-15 TO PARKRIDGE	88'	26'	12'	14'	5'	LANDSCAPE
- PARKRIDGE TO MCKINLEY	100'	33'	10'	14'	5'	LANDSCAPE

LEGEND

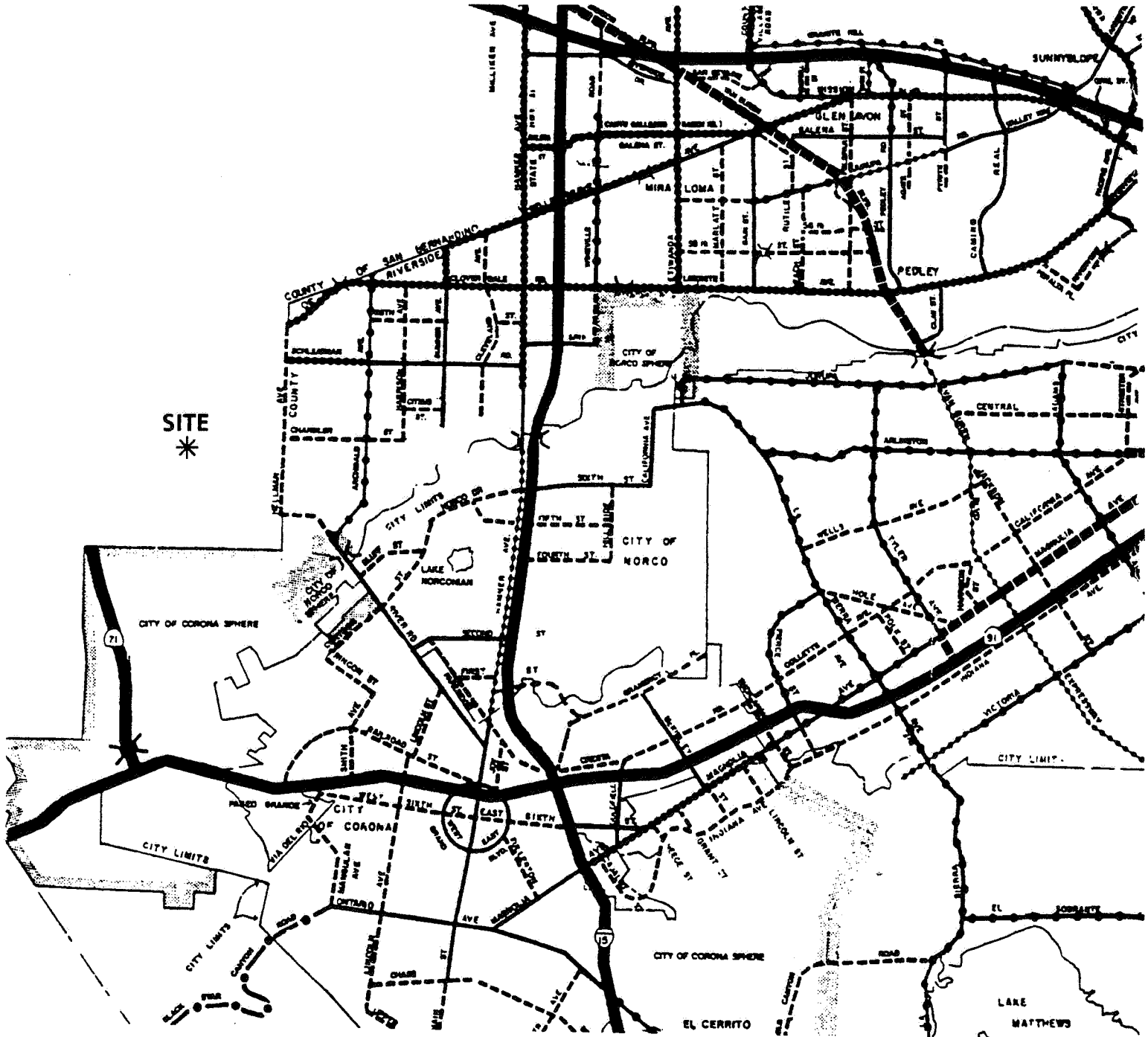
- W = MINIMUM RIGHT-OF-WAY WIDTH
- PK = PARKWAY WIDTH TO FACE OF CURB
- P = TOTAL CURB TO CURB WIDTH
- M = TOTAL MEDIAN WIDTH
- S = WIDTH OF SIDEWALK (← FULL PARKWAY WITH 4' X 4' TREE WELLS)
- ← SEE APPROPRIATE SPECIFIC PLAN
- ← FOOTHILL PKWY SHALL BE WIDENED AT ALL INTERSECTIONS TO PROVIDE ADEQUATE RIGHT & LEFT TURN LANES.

NOTE: ALL STREETS SHALL BE CONSTRUCTED IN MINIMUM OF 2 STAGES. THE FINAL STAGE (LEFT) SHALL BE A MINIMUM .2' THICK.

SOURCE: CITY OF CORONA



EXHIBIT 3-R
**RIVERSIDE COUNTY
 GENERAL PLAN CIRCULATION ELEMENT**



SITE
*

LEGEND:

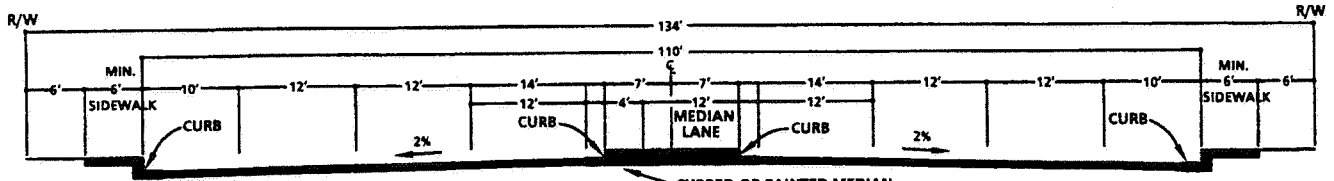
CLASSIFICATION	RIGHT OF WAY	SYMBOL
SECONDARY	88'	--- ---
MAJOR	100'	— — — —
ARTERIAL	110'	— ● — ● — ● — ● — ● — ● —
MOUNTAIN ARTERIAL	110'	— ● — ● — ● — ● — ● — ● —
URBAN ARTERIAL	134'	— ● — ● — ● — ● — ● — ● —
EXPRESSWAY	VARIABLE	— ● — ● — ● — ● — ● — ● —
FREEWAY	VARIABLE	— ● — ● — ● — ● — ● — ● —
SPECIFIC PLAN ROAD	VARIABLE	— ● — ● — ● — ● — ● — ● —
BRIDGE	VARIABLE	— ● — ● — ● — ● — ● — ● —
SPHERE OF INFLUENCE		— ● — ● — ● — ● — ● — ● —
STATE AND FEDERAL LANDS		— ● — ● — ● — ● — ● — ● —
1/2 MILE ACCESS RESTRICTION		— ● — ● — ● — ● — ● — ● —
25' TRANSPORTATION EASEMENT		— ● — ● — ● — ● — ● — ● —

SOURCE: COUNTY OF RIVERSIDE

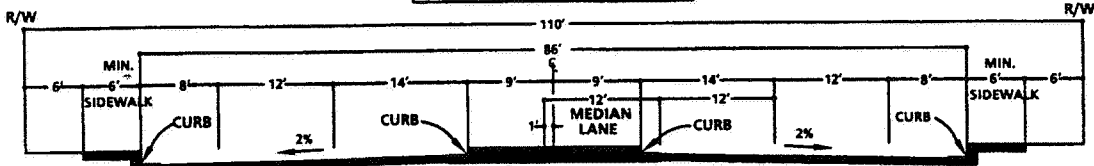


EXHIBIT 3-S

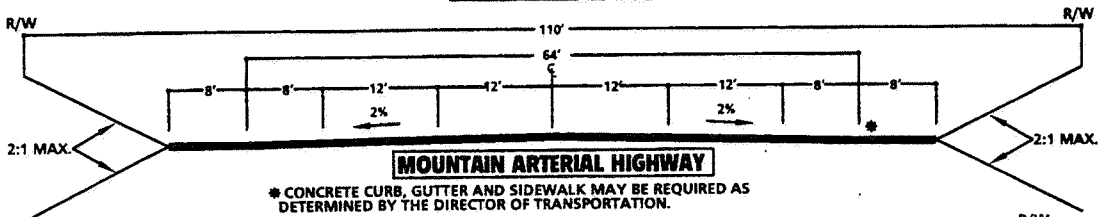
RIVERSIDE COUNTY TYPICAL ROADWAY CROSS-SECTIONS



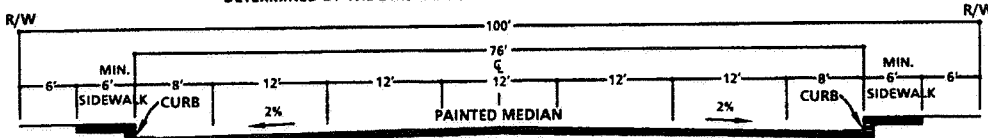
URBAN ARTERIAL HIGHWAY



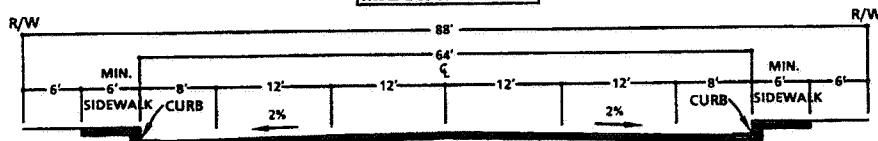
ARTERIAL HIGHWAY



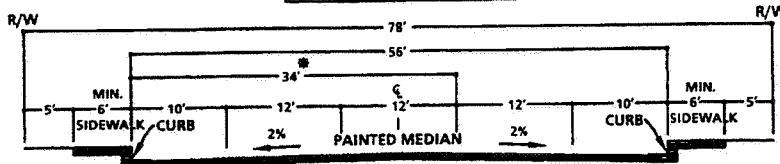
MOUNTAIN ARTERIAL HIGHWAY



MAJOR HIGHWAY

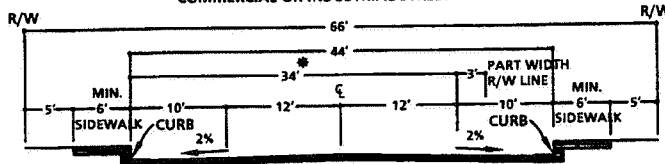


SECONDARY HIGHWAY



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:

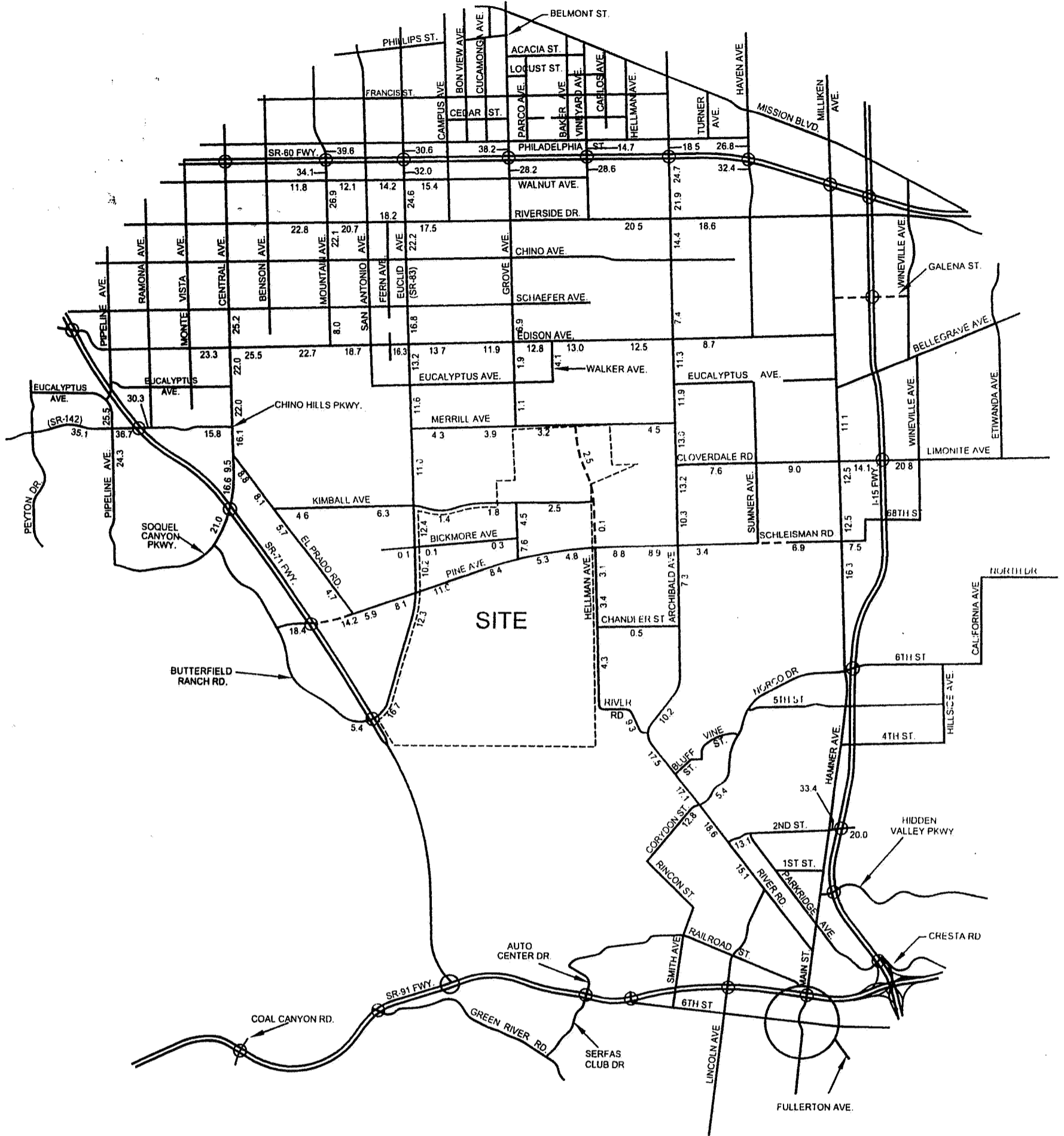
- Galena Street (EW)

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

INTERIM 2010 WITHOUT PROJECT AVERAGE DAILY TRAFFIC (ADT)

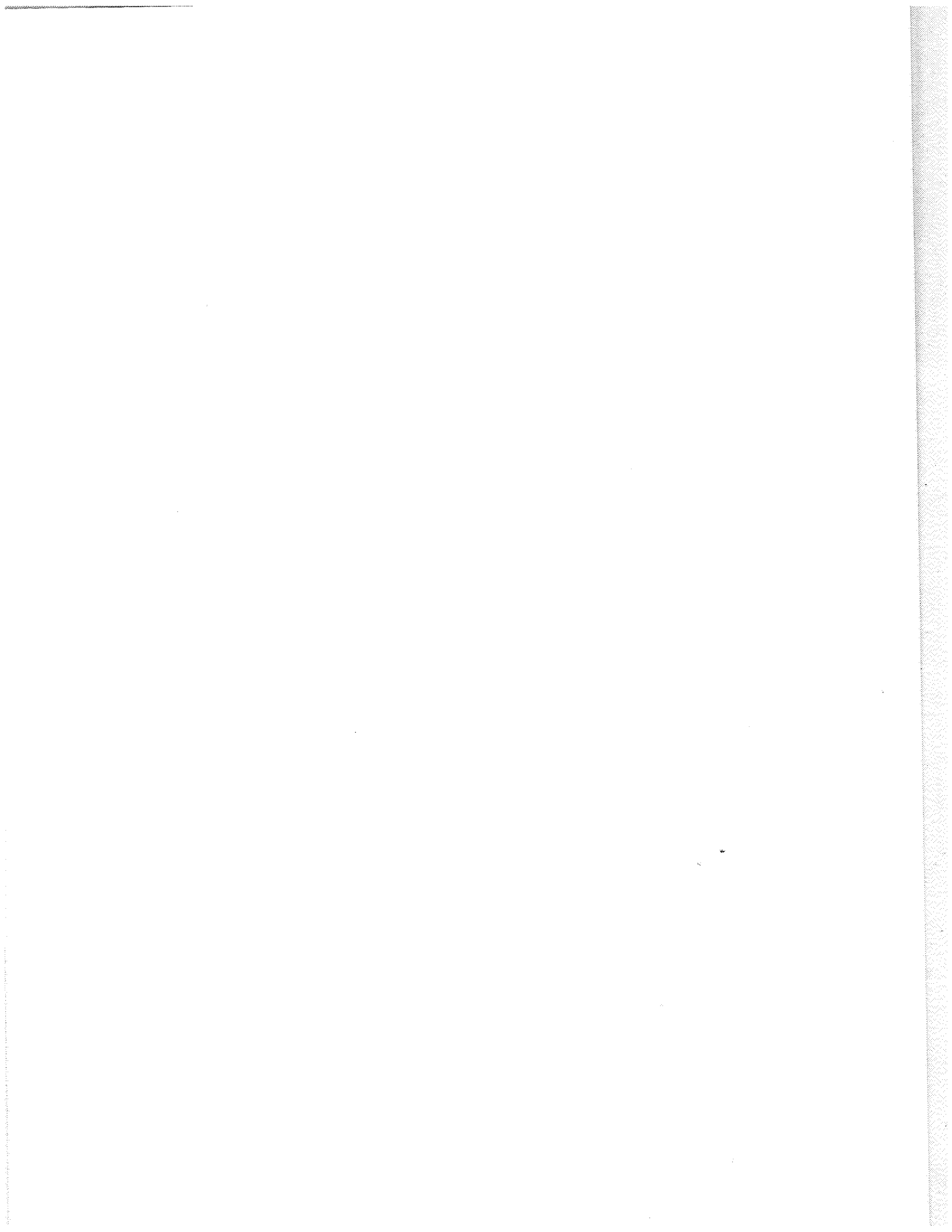
4-3



LEGEND:

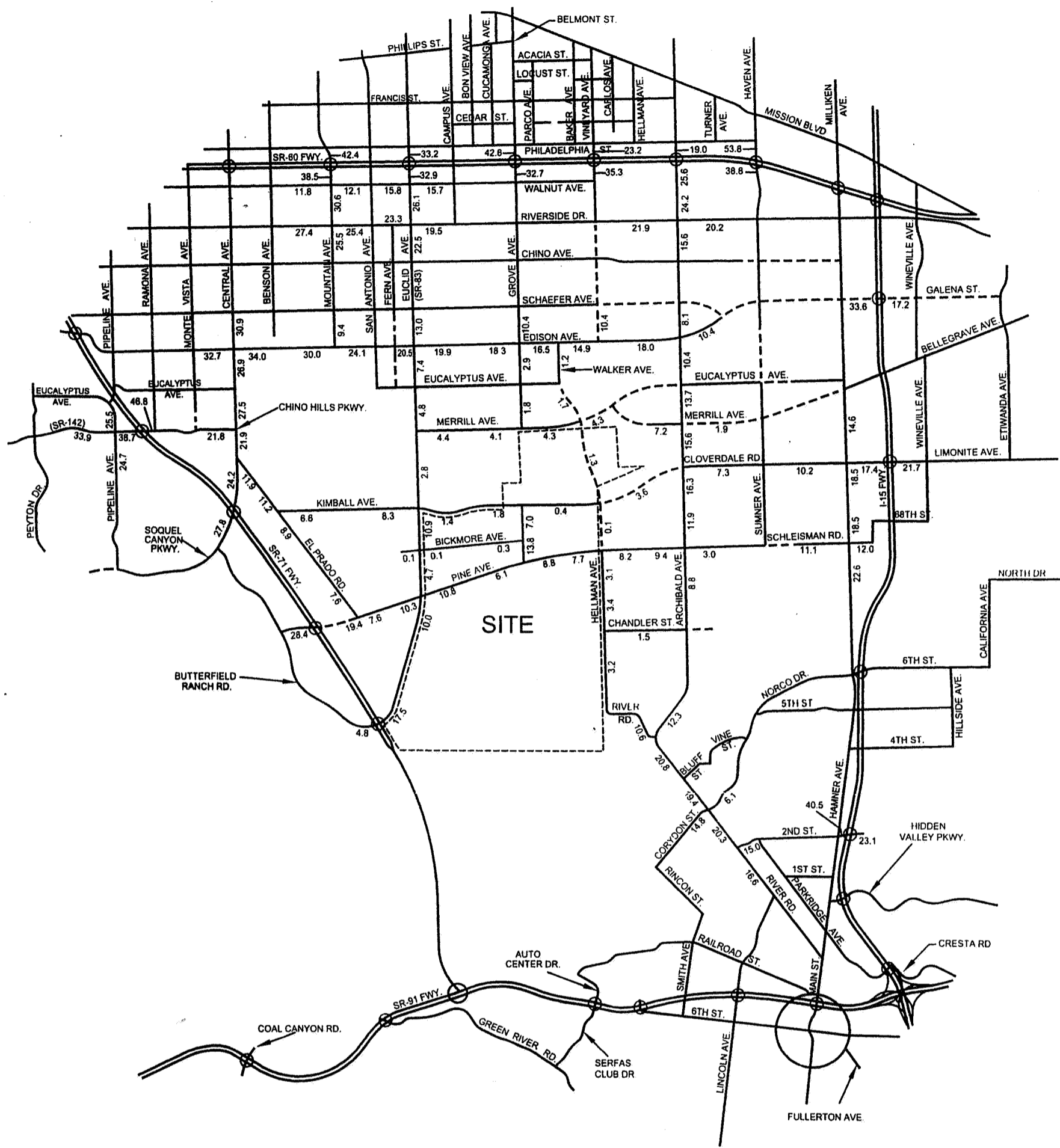
6.2 = VEHICLES PER DAY (1000'S)





2020 WITHOUT PROJECT AVERAGE DAILY TRAFFIC (ADT)

4-5



LEGEND:

6.2 = VEHICLES PER DAY (1000'S)



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:

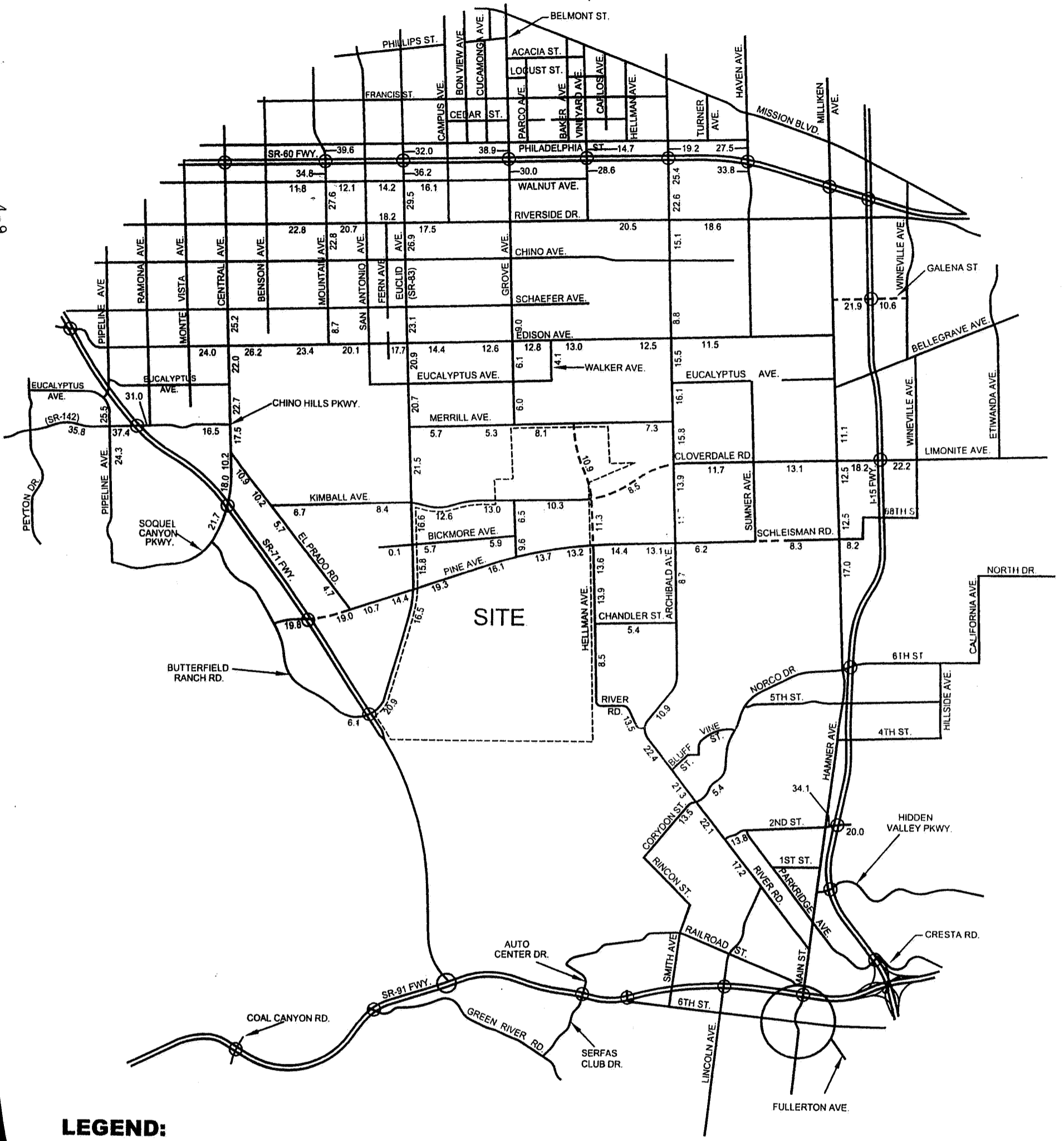
- Merrill Avenue (EW)
- Kimball Avenue (EW)
- Bickmore Avenue (EW)
- Pine Avenue (EW)

Hellman Avenue (NS) at:

- Merrill Avenue (EW)
- Kimball Avenue (EW)
- Chandler Street (EW)

INTERIM 2010 WITH PROJECT AVERAGE DAILY TRAFFIC (ADT)

4-9

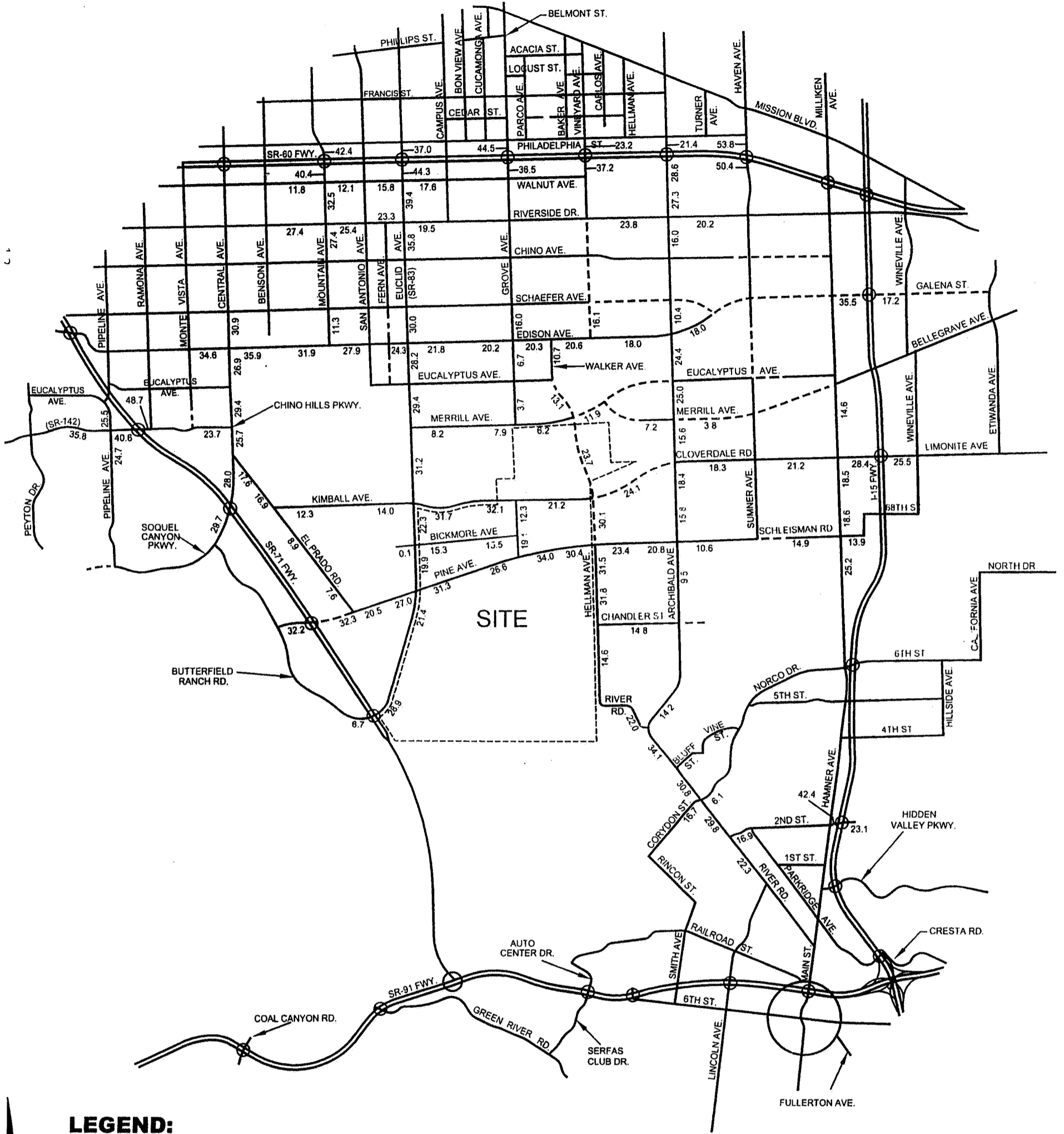


LEGEND:

10.0 = VEHICLES PER DAY (1000'S)



2020 WITH PROJECT AVERAGE DAILY TRAFFIC (ADT)

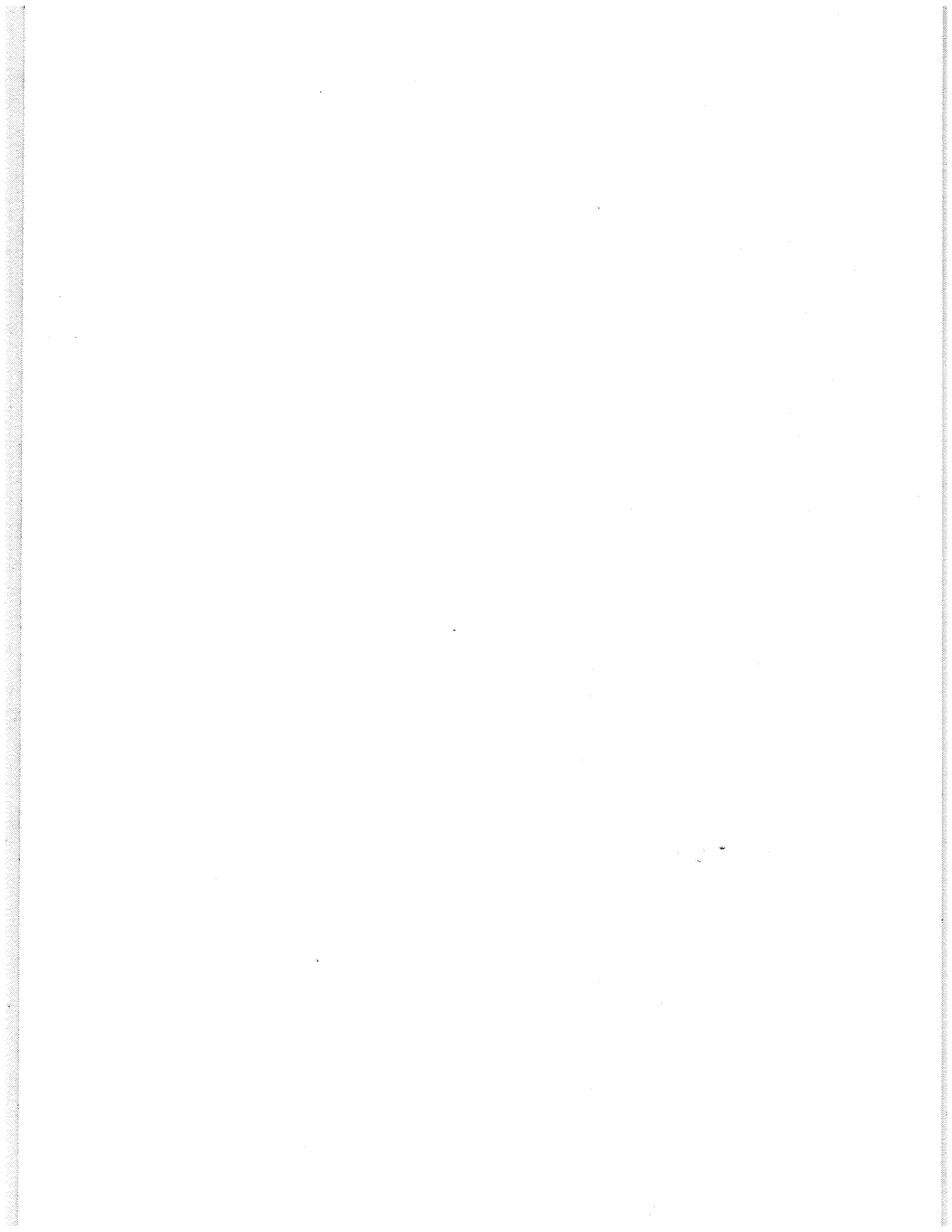


LEGEND:

8.6 = VEHICLES PER DAY (1000'S)

CHINO SUBAREA 2, Chino, California - 00020:102





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:

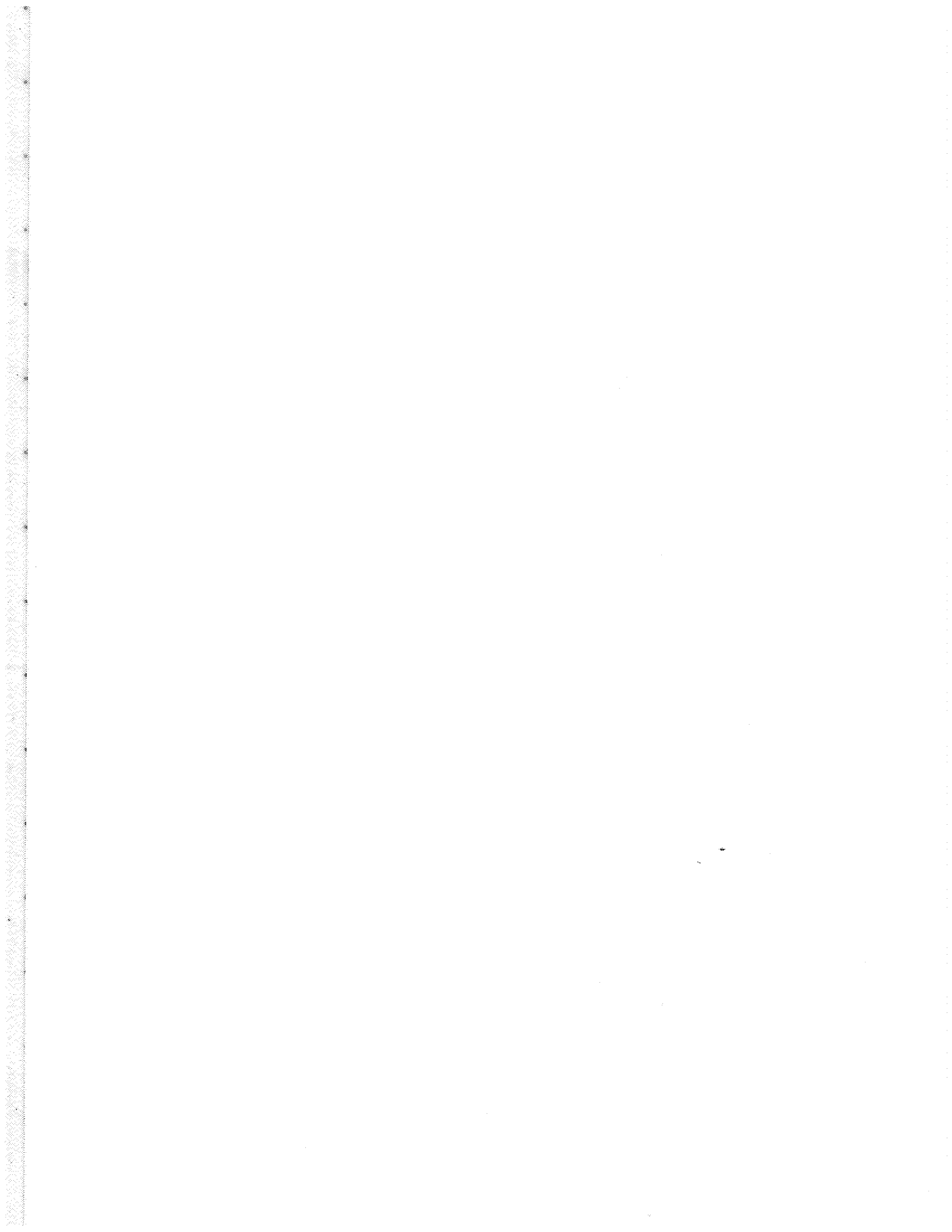
- Merrill Avenue (EW)
- Kimball Avenue (EW)
- Bickmore Avenue (EW)
- Pine Avenue (EW)

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		AM	PM	AM	PM		
		L	T	R	L	T	R	L	T	R	L					T	R
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".

TABLE 5-1 (CONTINUED)

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			AM	PM	AM	PM	
		L	T	R	L	T	R	L	T	R	L	T	R					
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	

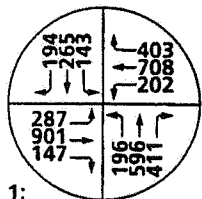
¹ When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.
L = Left; T = Through; R = Right; >> = Free Right Turn

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.

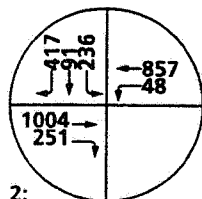
³ TS = Traffic Signal
AWS = All Way Stop
CSS = Cross Street Stop

⁴ -- = Delay High, Intersection Unstable, Level of Service "F".

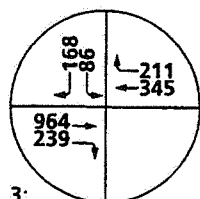
INTERIM (2010) WITHOUT PROJECT AM PEAK HOUR INTERSECTION VOLUMES (PART 1/2)



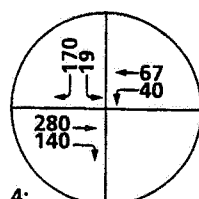
1: PIPELINE AVE. / CHINO HILLS PKWY.



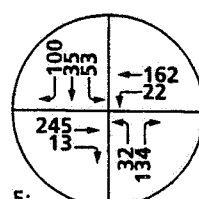
2: SR-71 SB RAMP / CHINO HILLS PKWY.



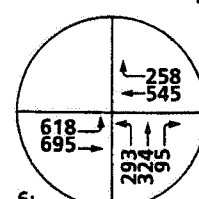
3: SR-71 SB RAMP / SOQUEL CANYON PKWY.



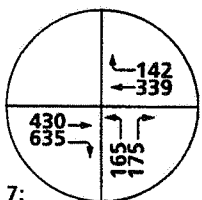
4: SR-71 SB RAMP / PINE AVE.



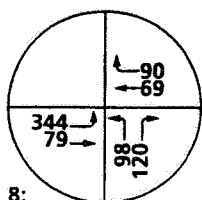
5: SR-71 SB RAMP / EUCLID AVE.



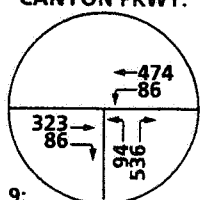
6: SR-71 NB RAMP / CHINO HILLS PKWY.



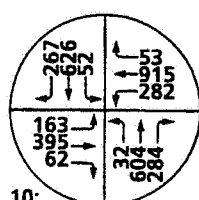
7: SR-71 NB RAMP / SOQUEL CANYON PKWY.



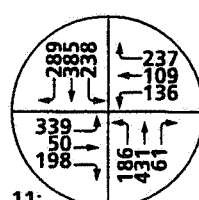
8: SR-71 NB RAMP / PINE AVE.



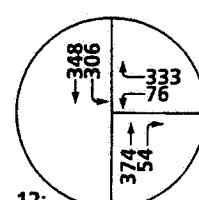
9: SR-71 NB RAMP / EUCLID AVE.



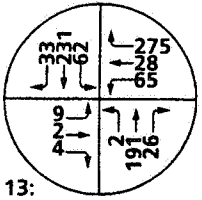
10: CENTRAL AVE. / EDISON AVE.



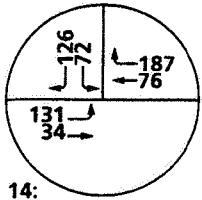
11: CENTRAL AVE. / CHINO HILLS PKWY.



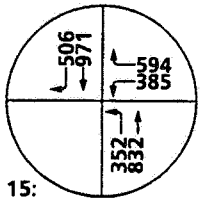
12: CENTRAL AVE. / EL PRADO RD.



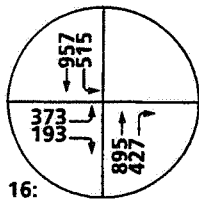
13: EL PRADO RD. / KIMBALL AVE.



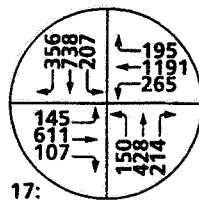
14: EL PRADO RD. / PINE AVE.



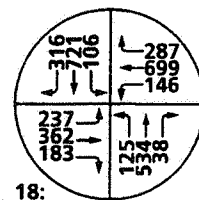
15: MOUNTAIN AVE. / SR-60 WB RAMP



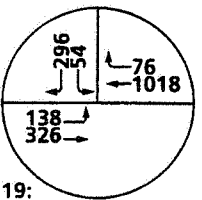
16: MOUNTAIN AVE. / SR-60 EB RAMP



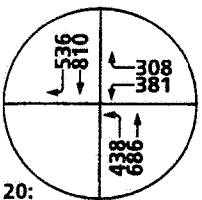
17: MOUNTAIN AVE. / WALNUT AVE.



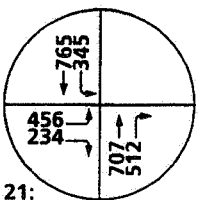
18: MOUNTAIN AVE. / RIVERSIDE DR.



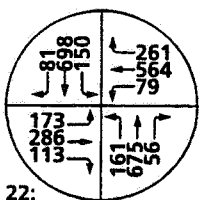
19: MOUNTAIN AVE. / EDISON AVE.



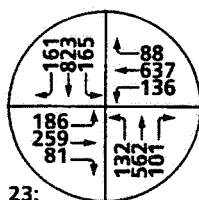
20: EUCLID AVE. / SR-60 WB RAMP



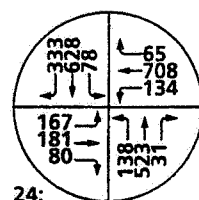
21: EUCLID AVE. / SR-60 EB RAMP



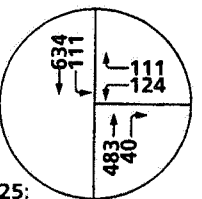
22: EUCLID AVE. / WALNUT AVE.



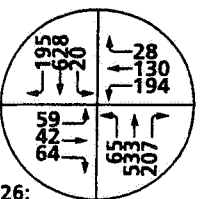
23: EUCLID AVE. / RIVERSIDE DR.



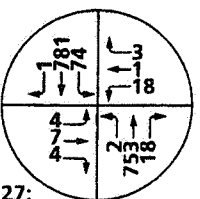
24: EUCLID AVE. / EDISON AVE.



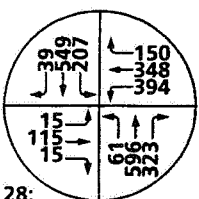
25: EUCLID AVE. / MERRILL AVE.



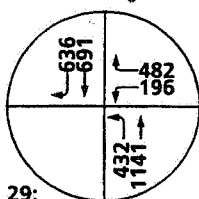
26: EUCLID AVE. / KIMBALL AVE.



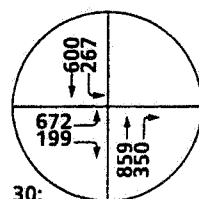
27: EUCLID AVE. / BICKMORE AVE.



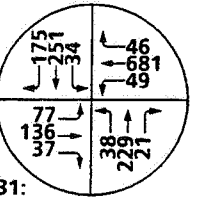
28: EUCLID AVE. / PINE AVE.



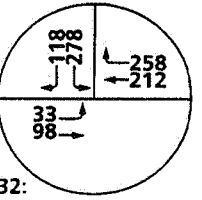
29: GROVE AVE. / SR-60 WB RAMP



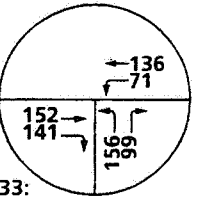
30: GROVE AVE. / SR-60 EB RAMP



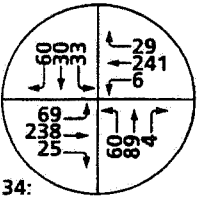
31: GROVE AVE. / EDISON AVE.



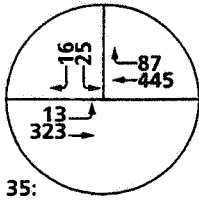
32: GROVE AVE. / MERRILL AVE.



33: GROVE AVE. / KIMBALL AVE.



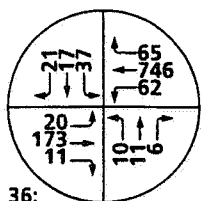
34: GROVE AVE. / BICKMORE AVE.



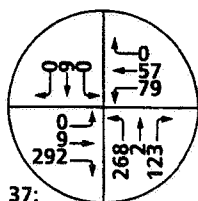
35: GROVE AVE. / PINE AVE.



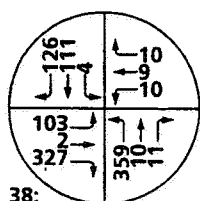
INTERIM (2010) WITHOUT PROJECT AM PEAK HOUR INTERSECTION VOLUMES (PART 2/2)



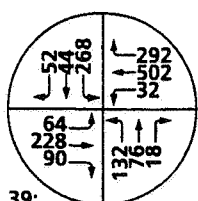
36: WALKER AVE. / EDISON AVE.



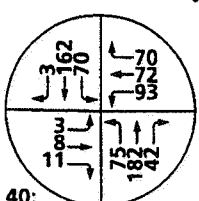
37: HELLMAN AVE. / MERRILL AVE.



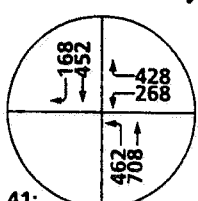
38: HELLMAN AVE. / KIMBALL AVE.



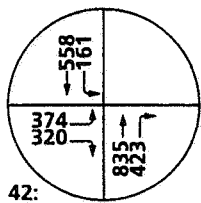
39: HELLMAN AVE. / PINE AVE.



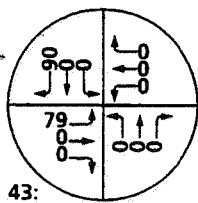
40: HELLMAN AVE. / CHANDLER ST.



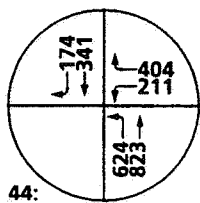
41: VINEYARD AVE. / SR-60 WB RAMP



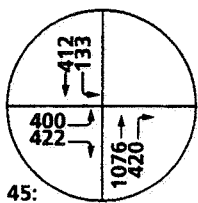
42: VINEYARD AVE. / SR-60 EB RAMP



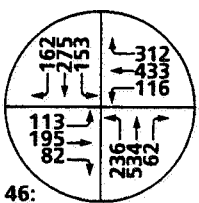
43: VINEYARD AVE. / EDISON AVE.



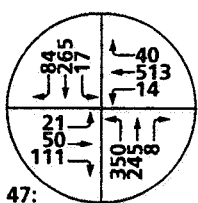
44: ARCHIBALD AVE. / SR-60 WB RAMP



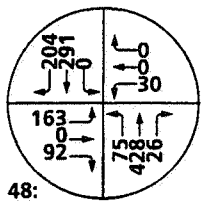
45: ARCHIBALD AVE. / SR-60 EB RAMP



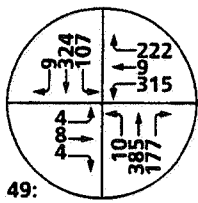
46: ARCHIBALD AVE. / RIVERSIDE DR.



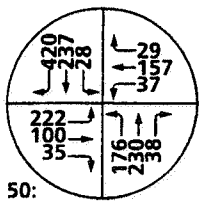
47: ARCHIBALD AVE. / EDISON AVE.



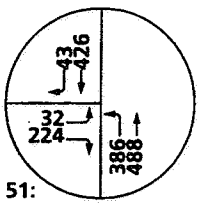
48: ARCHIBALD AVE. / MERRILL AVE.



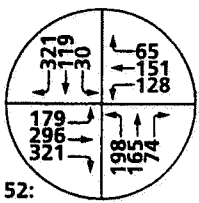
49: ARCHIBALD AVE. / CLOVERDALE RD.



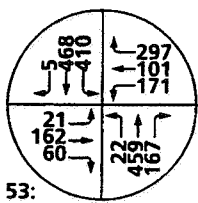
50: ARCHIBALD AVE. / PINE AVE.



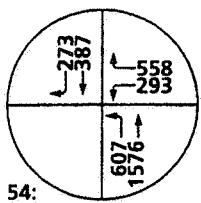
51: ARCHIBALD AVE. / RIVER RD.



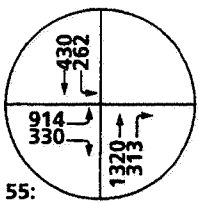
52: RIVER RD. / CORYDON ST.



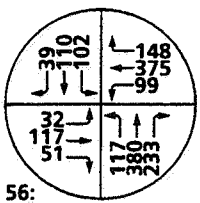
53: RIVER RD. / SECOND ST.



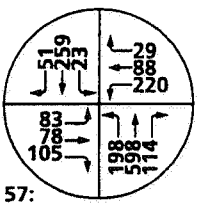
54: HAVEN AVE. / SR-60 WB RAMP



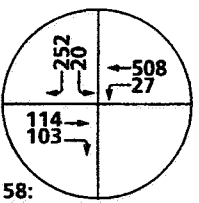
55: HAVEN AVE. / SR-60 EB RAMP



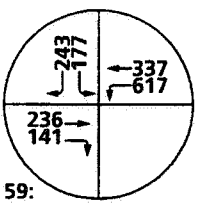
56: HAMNER AVE. / CLOVERDALE RD.



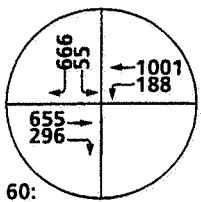
57: HAMNER AVE. / SCHLEISMAN RD.



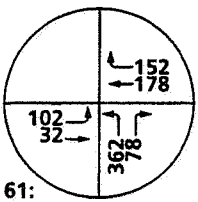
58: I-15 SB RAMP / GALENA ST.



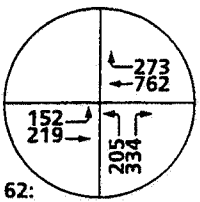
59: I-15 SB RAMP / LIMONITE AVE.



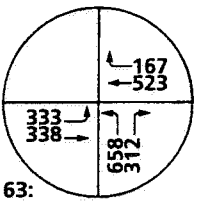
60: I-15 SB RAMP / SECOND ST.



61: I-15 NB RAMP / GALENA ST.



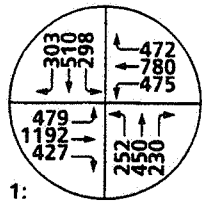
62: I-15 NB RAMP / LIMONITE AVE.



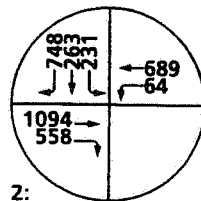
63: I-15 NB RAMP / SECOND ST.



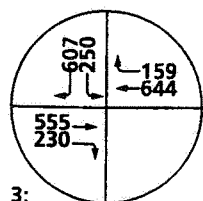
INTERIM (2010) WITHOUT PROJECT PM PEAK HOUR INTERSECTION VOLUMES (PART 1/2)



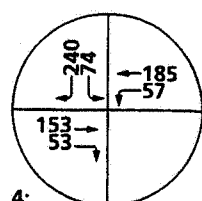
1:
PIPELINE AVE. /
CHINO HILLS PKWY.



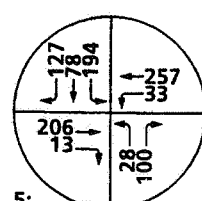
2:
SR-71 SB RAMPs /
CHINO HILLS PKWY.



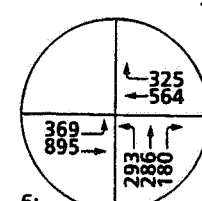
3:
SR-71 SB RAMPs /
SOQUEL
CANYON PKWY.



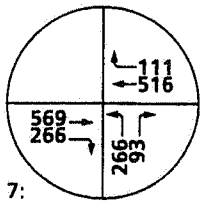
4:
SR-71 SB RAMPs /
PINE AVE.



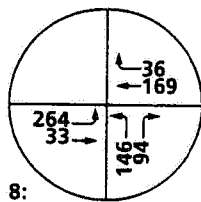
5:
SR-71 SB RAMPs /
EUCLID AVE.



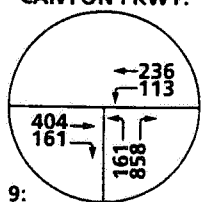
6:
SR-71 NB RAMPs /
CHINO HILLS PKWY.



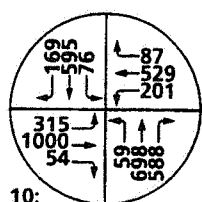
7:
SR-71 NB RAMPs /
SOQUEL
CANYON PKWY.



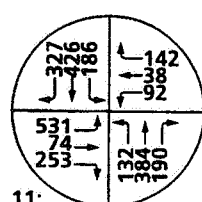
8:
SR-71 NB RAMPs /
PINE AVE.



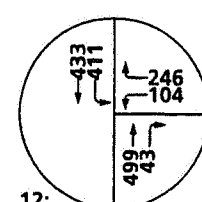
9:
SR-71 NB RAMPs /
EUCLID AVE.



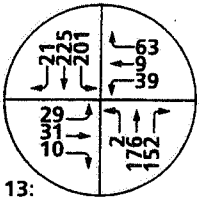
10:
CENTRAL AVE. /
EDISON AVE.



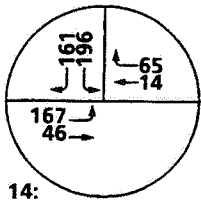
11:
CENTRAL AVE. /
CHINO HILLS PKWY.



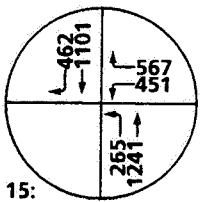
12:
CENTRAL AVE. /
EL PRADO RD.



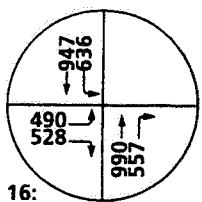
13:
EL PRADO RD. /
KIMBALL AVE.



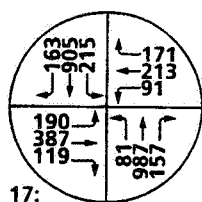
14:
EL PRADO RD. /
PINE AVE.



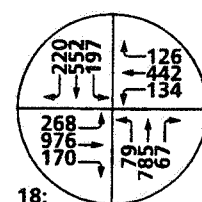
15:
MOUNTAIN AVE. /
SR-60 WB RAMPs



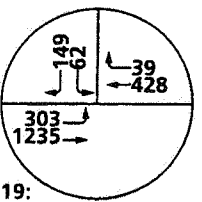
16:
MOUNTAIN AVE. /
SR-60 EB RAMPs



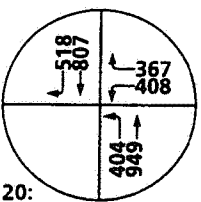
17:
MOUNTAIN AVE. /
WALNUT AVE.



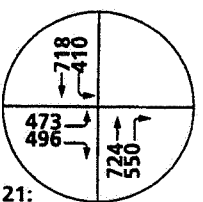
18:
MOUNTAIN AVE. /
RIVERSIDE DR.



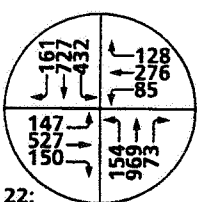
19:
MOUNTAIN AVE. /
EDISON AVE.



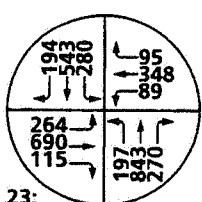
20:
EUCLID AVE. /
SR-60 WB RAMPs



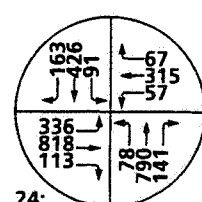
21:
EUCLID AVE. /
SR-60 EB RAMPs



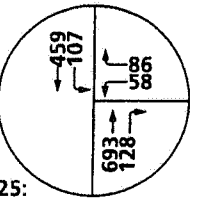
22:
EUCLID AVE. /
WALNUT AVE.



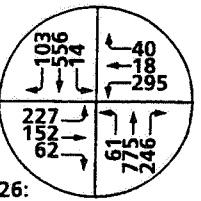
23:
EUCLID AVE. /
RIVERSIDE DR.



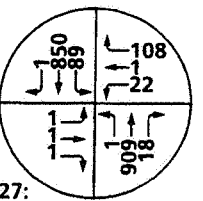
24:
EUCLID AVE. /
EDISON AVE.



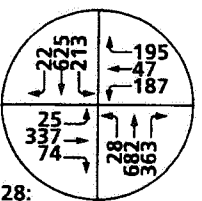
25:
EUCLID AVE. /
MERRILL AVE.



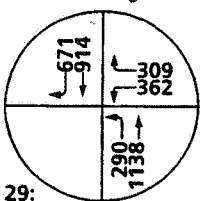
26:
EUCLID AVE. /
KIMBALL AVE.



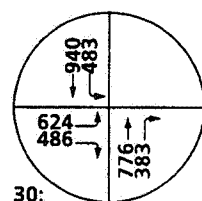
27:
EUCLID AVE. /
BICKMORE AVE.



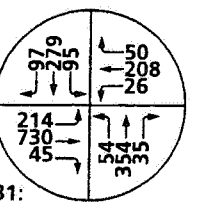
28:
EUCLID AVE. /
PINE AVE.



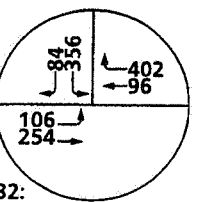
29:
GROVE AVE. /
SR-60 WB RAMPs



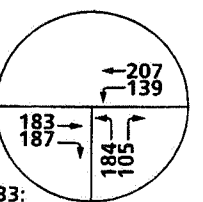
30:
GROVE AVE. /
SR-60 EB RAMPs



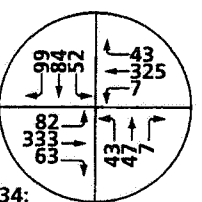
31:
GROVE AVE. /
EDISON AVE.



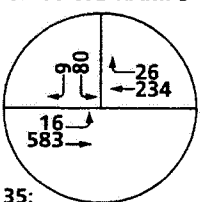
32:
GROVE AVE. /
MERRILL AVE.



33:
GROVE AVE. /
KIMBALL AVE.



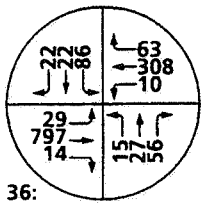
34:
GROVE AVE. /
BICKMORE AVE.



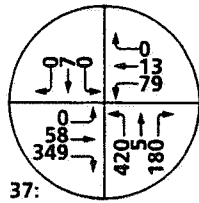
35:
GROVE AVE. /
PINE AVE.



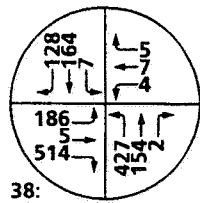
INTERIM (2010) WITHOUT PROJECT PM PEAK HOUR INTERSECTION VOLUMES (PART 2/2)



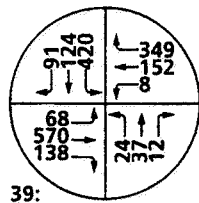
36:
WALKER AVE. /
EDISON AVE.



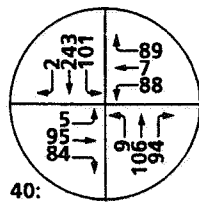
37:
HELLMAN AVE. /
MERRILL AVE.



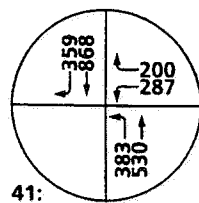
38:
HELLMAN AVE. /
KIMBALL AVE.



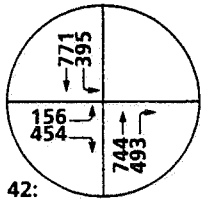
39:
HELLMAN AVE. /
PINE AVE.



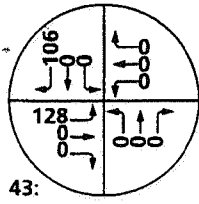
40:
HELLMAN AVE. /
CHANDLER ST.



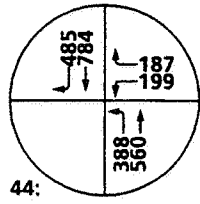
41:
VINEYARD AVE. /
SR-60 WB RAMP



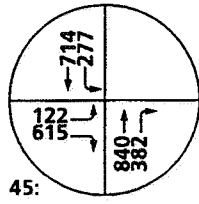
42:
VINEYARD AVE. /
SR-60 EB RAMP



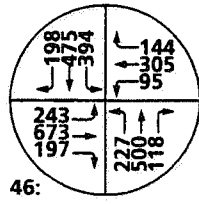
43:
VINEYARD AVE. /
EDISON AVE.



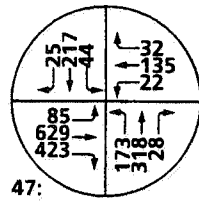
44:
ARCHIBALD AVE. /
SR-60 WB RAMP



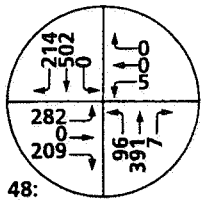
45:
ARCHIBALD AVE. /
SR-60 EB RAMP



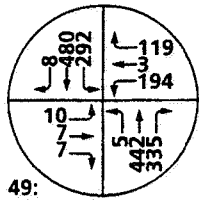
46:
ARCHIBALD AVE. /
RIVERSIDE DR.



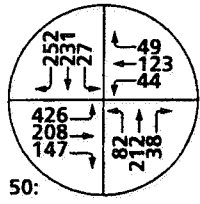
47:
ARCHIBALD AVE. /
EDISON AVE.



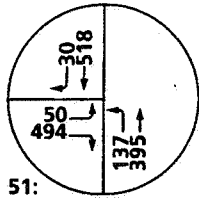
48:
ARCHIBALD AVE. /
MERRILL AVE.



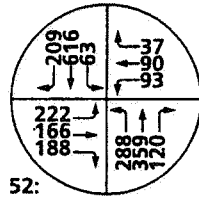
49:
ARCHIBALD AVE. /
CLOVERDALE RD.



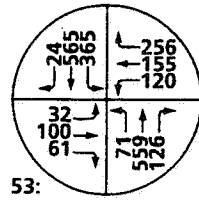
50:
ARCHIBALD AVE. /
PINE AVE.



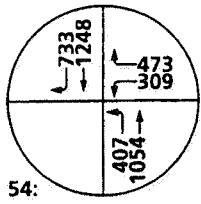
51:
ARCHIBALD AVE. /
RIVER RD.



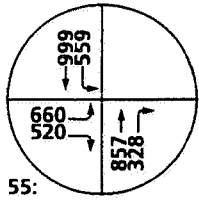
52:
RIVER RD. /
CORYDON ST.



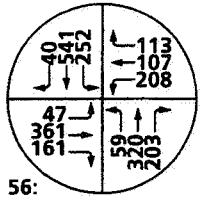
53:
RIVER RD. /
SECOND ST.



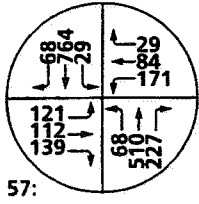
54:
HAVEN AVE. /
SR-60 WB RAMP



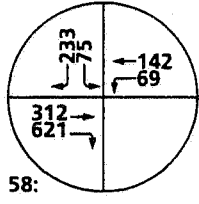
55:
HAVEN AVE. /
SR-60 EB RAMP



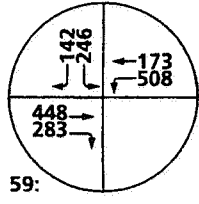
56:
HAMNER AVE. /
CLOVERDALE RD.



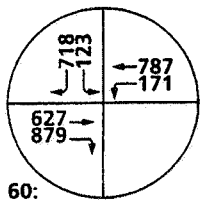
57:
HAMNER AVE. /
SCHLEISMAN RD.



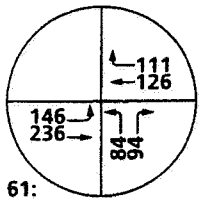
58:
I-15 SB RAMP /
GALENA ST.



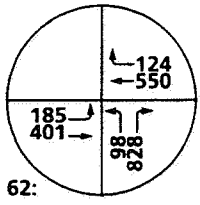
59:
I-15 SB RAMP /
LIMONITE AVE.



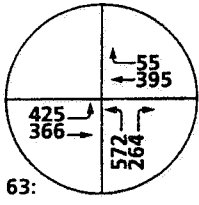
60:
I-15 SB RAMP /
SECOND ST.



61:
I-15 NB RAMP /
GALENA ST.



62:
I-15 NB RAMP /
LIMONITE AVE.



63:
I-15 NB RAMP /
SECOND ST.



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								DELAY ² (SECS.)		LEVEL OF SERVICE					
		NORTH-BOUND			SOUTH-BOUND			EAST-BOUND		WEST-BOUND		AM	PM	AM	PM		
		L	T	R	L	T	R	L	T	R	L					T	R
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".

TABLE 5-2 (CONTINUED)

2010 WITH 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		AM	PM	AM	PM		
		L	T	R	L	T	R	L	T	R	L					T	R
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

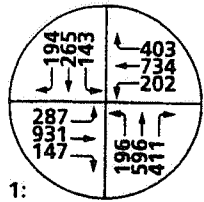
¹ When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.
L = Left; T = Through; R = Right; >> = Free Right Turn

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.

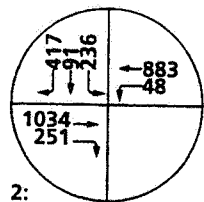
³ TS = Traffic Signal
AWS = All Way Stop
CSS = Cross Street Stop

⁴ -- = Delay High, Intersection Unstable, Level of Service "F".

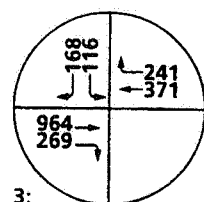
INTERIM 2010 WITH PROJECT AM PEAK HOUR INTERSECTION VOLUMES (PART 1/2)



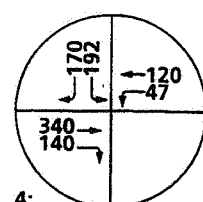
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PIPELINE AVE. /
CHINO HILLS PKWY.



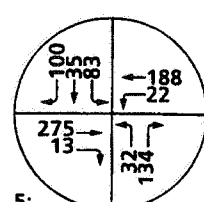
2:
SR-71 SB RAMPS /
CHINO HILLS PKWY.



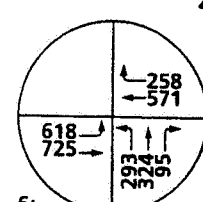
3:
SR-71 SB RAMPS /
SOQUEL
CANYON PKWY.



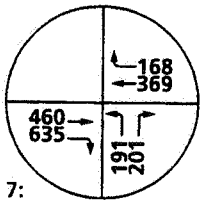
4:
SR-71 SB RAMPS /
PINE AVE.



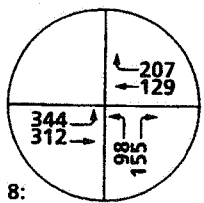
5:
SR-71 SB RAMPS /
EUCLID AVE.



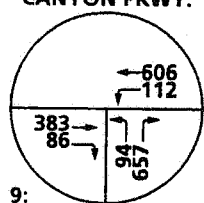
6:
SR-71 NB RAMPS /
CHINO HILLS PKWY.



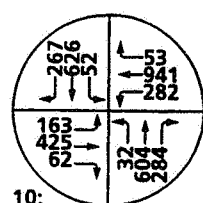
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SR-71 NB RAMPS /
SOQUEL
CANYON PKWY.



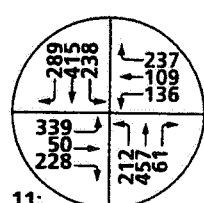
8:
SR-71 NB RAMPS /
PINE AVE.



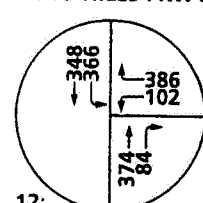
9:
SR-71 NB RAMPS /
EUCLID AVE.



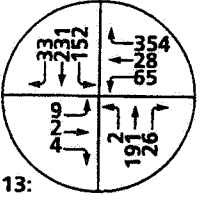
10:
CENTRAL AVE. /
EDISON AVE.



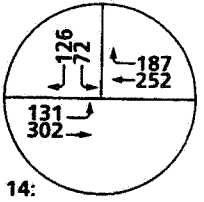
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CENTRAL AVE. /
CHINO HILLS PKWY.



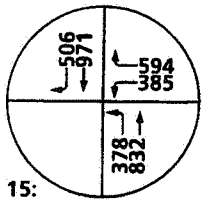
12:
CENTRAL AVE. /
EL PRADO RD.



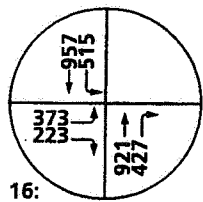
13:
EL PRADO RD. /
KIMBALL AVE.



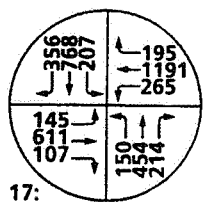
14:
EL PRADO RD. /
PINE AVE.



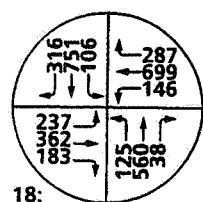
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MOUNTAIN AVE. /
SR-60 WB RAMPS



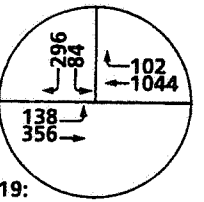
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MOUNTAIN AVE. /
SR-60 EB RAMPS



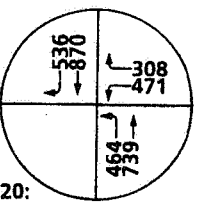
17:
MOUNTAIN AVE. /
WALNUT AVE.



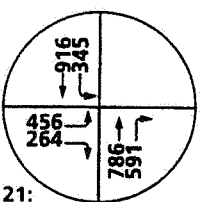
18:
MOUNTAIN AVE. /
RIVERSIDE DR.



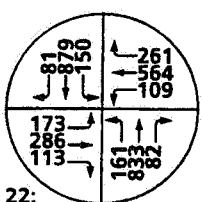
19:
MOUNTAIN AVE. /
EDISON AVE.



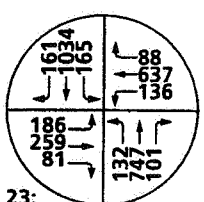
20:
EUCLID AVE. /
SR-60 WB RAMPS



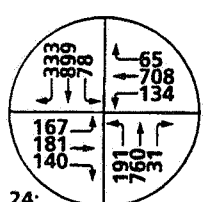
21:
EUCLID AVE. /
SR-60 EB RAMPS



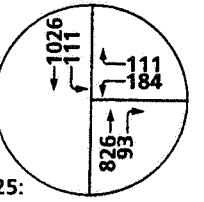
22:
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WALNUT AVE.



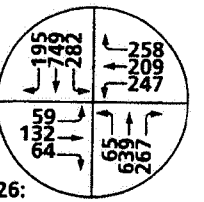
23:
EUCLID AVE. /
RIVERSIDE DR.



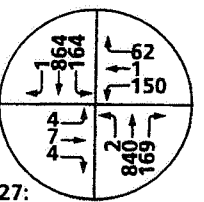
24:
EUCLID AVE. /
EDISON AVE.



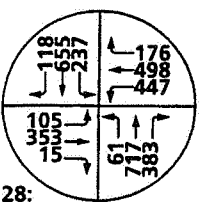
25:
EUCLID AVE. /
MERRILL AVE.



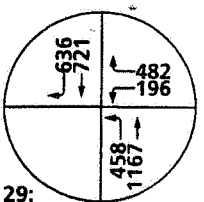
26:
EUCLID AVE. /
KIMBALL AVE.



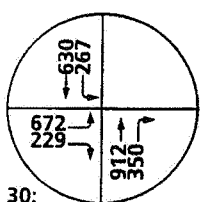
27:
EUCLID AVE. /
BICKMORE AVE.



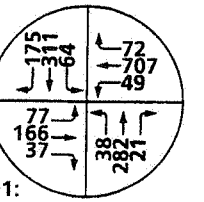
28:
EUCLID AVE. /
PINE AVE.



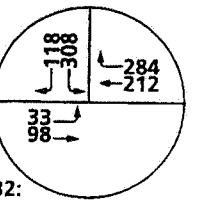
29:
GROVE AVE. /
SR-60 WB RAMPS



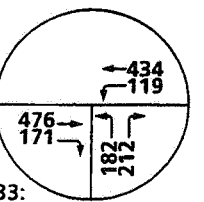
30:
GROVE AVE. /
SR-60 EB RAMPS



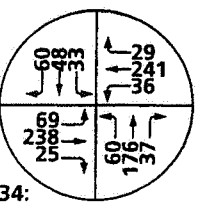
31:
GROVE AVE. /
EDISON AVE.



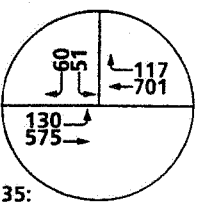
32:
GROVE AVE. /
MERRILL AVE.



33:
GROVE AVE. /
KIMBALL AVE.



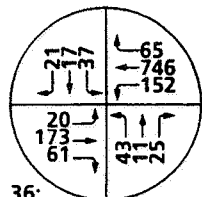
34:
GROVE AVE. /
BICKMORE AVE.



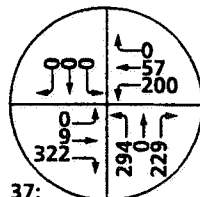
35:
GROVE AVE. /
PINE AVE.



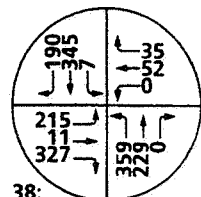
INTERIM 2010 WITH PROJECT AM PEAK HOUR INTERSECTION VOLUMES (PART 2/2)



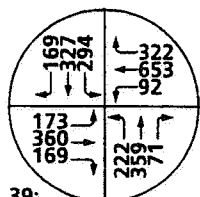
36: WALKER AVE. / EDISON AVE.



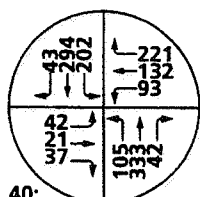
37: HELLMAN AVE. / MERRILL AVE.



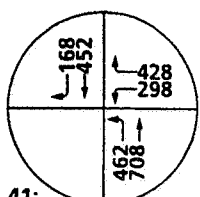
38: HELLMAN AVE. / KIMBALL AVE.



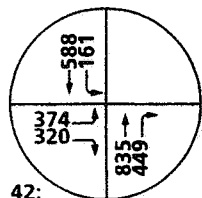
39: HELLMAN AVE. / PINE AVE.



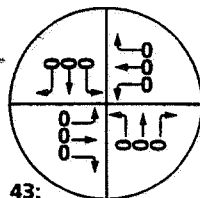
40: HELLMAN AVE. / CHANDLER ST.



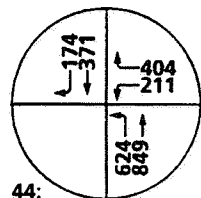
41: VINEYARD AVE. / SR-60 WB RAMP



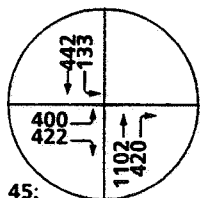
42: VINEYARD AVE. / SR-60 EB RAMP



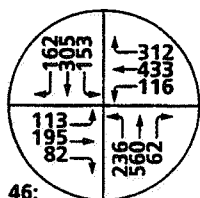
43: VINEYARD AVE. / EDISON AVE.



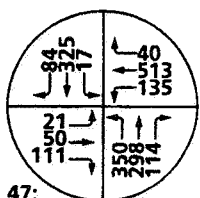
44: ARCHIBALD AVE. / SR-60 WB RAMP



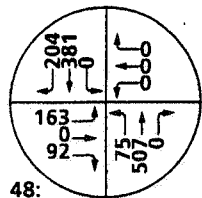
45: ARCHIBALD AVE. / SR-60 EB RAMP



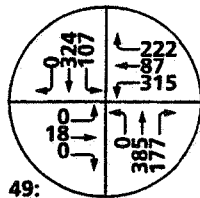
46: ARCHIBALD AVE. / RIVERSIDE DR.



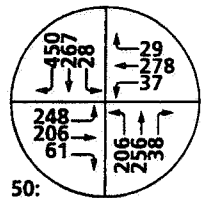
47: ARCHIBALD AVE. / EDISON AVE.



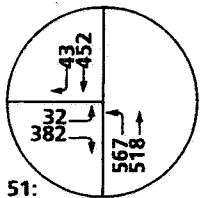
48: ARCHIBALD AVE. / MERRILL AVE.



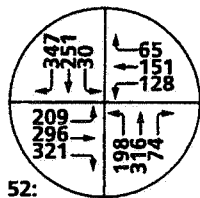
49: ARCHIBALD AVE. / CLOVERDALE RD.



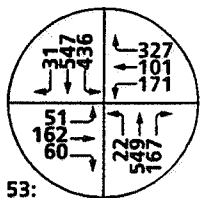
50: ARCHIBALD AVE. / PINE AVE.



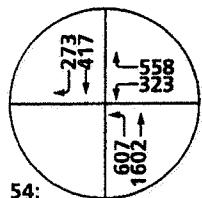
51: ARCHIBALD AVE. / RIVER RD.



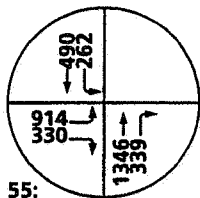
52: RIVER RD. / CORYDON ST.



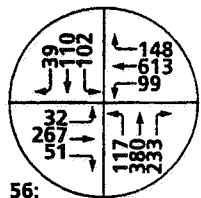
53: RIVER RD. / SECOND ST.



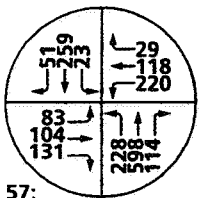
54: HAVEN AVE. / SR-60 WB RAMP



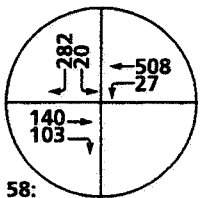
55: HAVEN AVE. / SR-60 EB RAMP



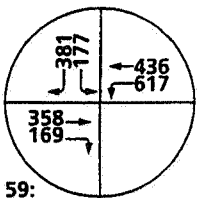
56: HAMNER AVE. / CLOVERDALE RD.



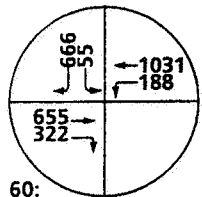
57: HAMNER AVE. / SCHLEISMAN RD.



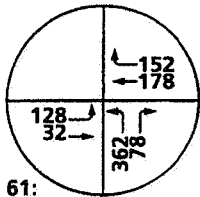
58: I-15 SB RAMP / GALENA ST.



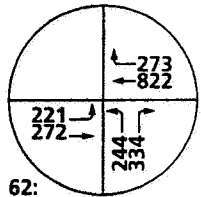
59: I-15 SB RAMP / LIMONITE AVE.



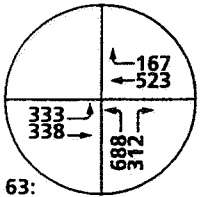
60: I-15 SB RAMP / SECOND ST.



61: I-15 NB RAMP / GALENA ST.



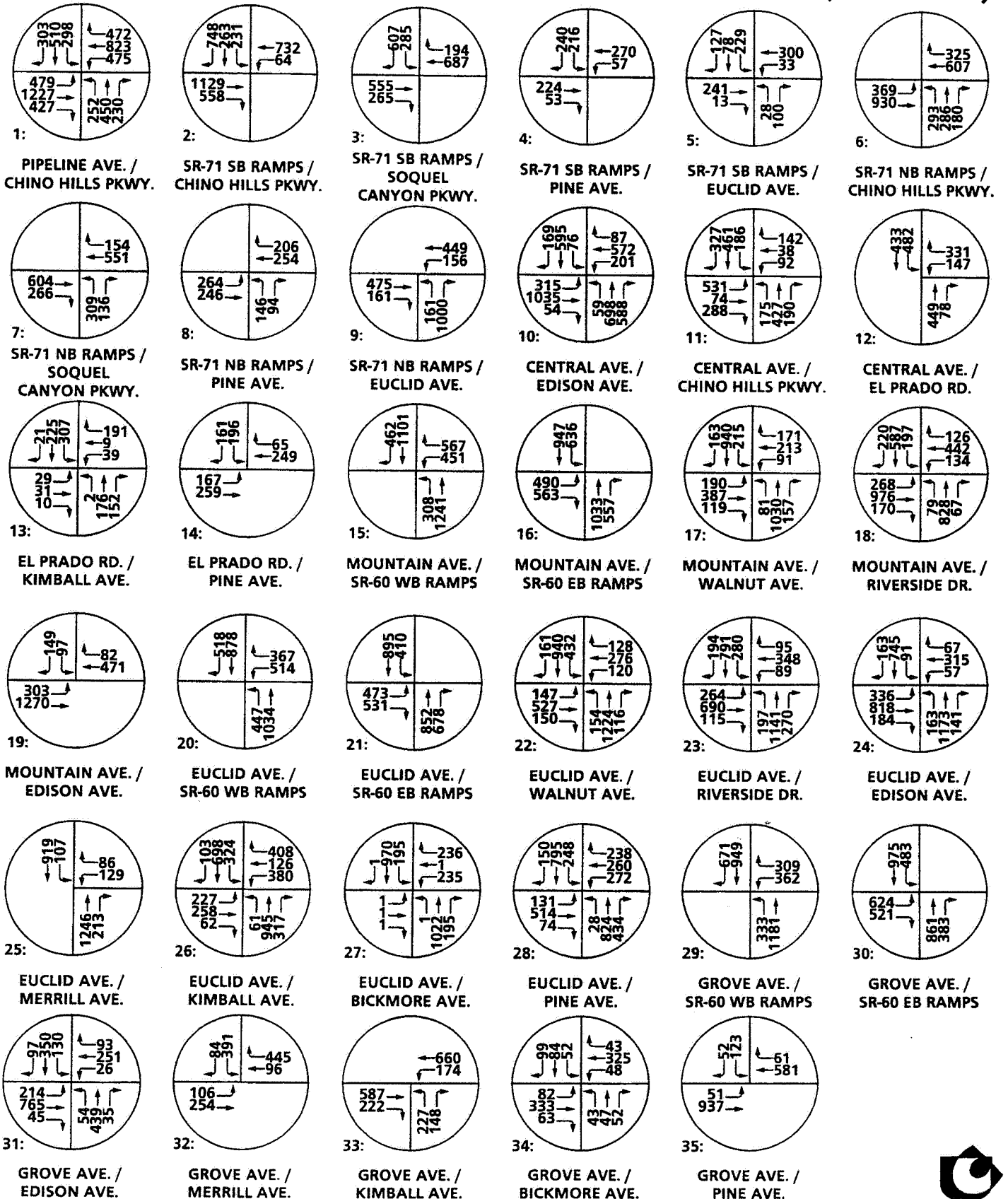
62: I-15 NB RAMP / LIMONITE AVE.



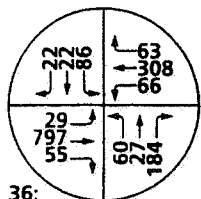
63: I-15 NB RAMP / SECOND ST.



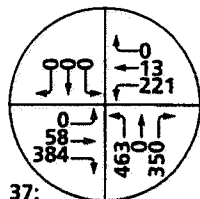
INTERIM (2010) WITH PROJECT PM PEAK HOUR INTERSECTION VOLUMES (PART 1/2)



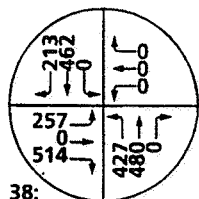
INTERIM (2010) WITH PROJECT PM PEAK HOUR INTERSECTION VOLUMES (PART 2/2)



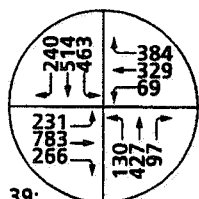
36:
WALKER AVE. /
EDISON AVE.



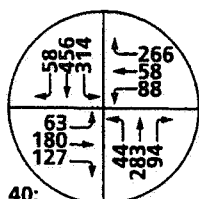
37:
HELLMAN AVE. /
MERRILL AVE.



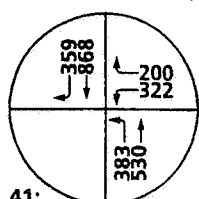
38:
HELLMAN AVE. /
KIMBALL AVE.



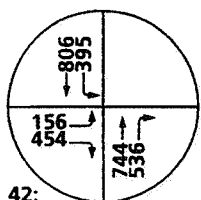
39:
HELLMAN AVE. /
PINE AVE.



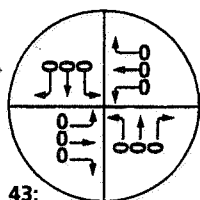
40:
HELLMAN AVE. /
CHANDLER ST.



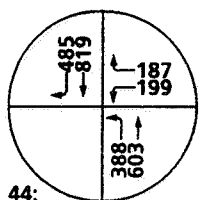
41:
VINEYARD AVE. /
SR-60 WB RAMPs



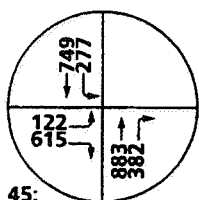
42:
VINEYARD AVE. /
SR-60 EB RAMPs



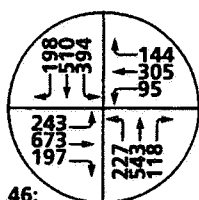
43:
VINEYARD AVE. /
EDISON AVE.



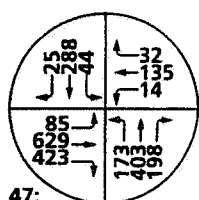
44:
ARCHIBALD AVE. /
SR-60 WB RAMPs



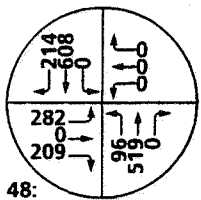
45:
ARCHIBALD AVE. /
SR-60 EB RAMPs



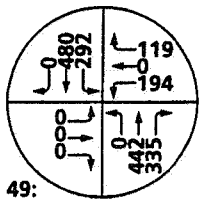
46:
ARCHIBALD AVE. /
RIVERSIDE DR.



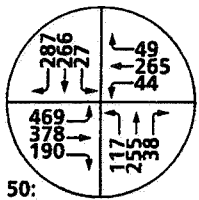
47:
ARCHIBALD AVE. /
EDISON AVE.



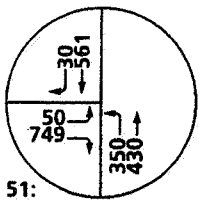
48:
ARCHIBALD AVE. /
MERRILL AVE.



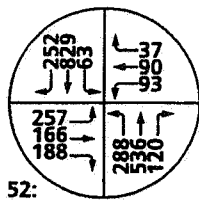
49:
ARCHIBALD AVE. /
CLOVERDALE RD.



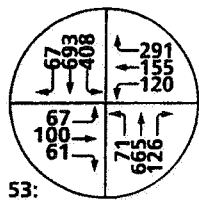
50:
ARCHIBALD AVE. /
PINE AVE.



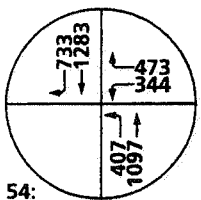
51:
ARCHIBALD AVE. /
RIVER RD.



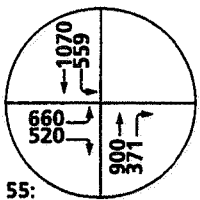
52:
RIVER RD. /
CORYDON ST.



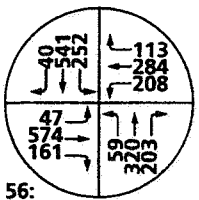
53:
RIVER RD. /
SECOND ST.



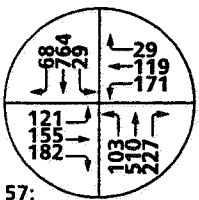
54:
HAVEN AVE. /
SR-60 WB RAMPs



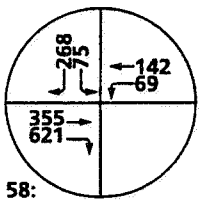
55:
HAVEN AVE. /
SR-60 EB RAMPs



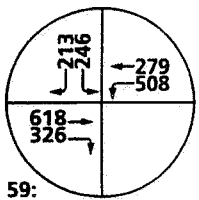
56:
HAMNER AVE. /
CLOVERDALE RD.



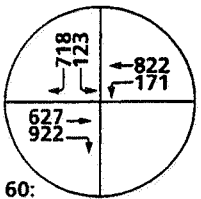
57:
HAMNER AVE. /
SCHLEISMAN RD.



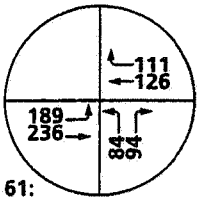
58:
I-15 SB RAMPs /
GALENA ST.



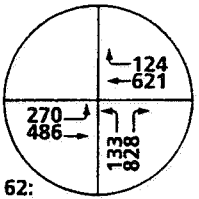
59:
I-15 SB RAMPs /
LIMONITE AVE.



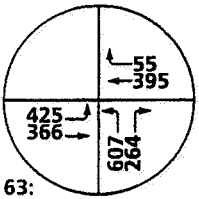
60:
I-15 SB RAMPs /
SECOND ST.



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								DELAY ² (SECS.)		LEVEL OF SERVICE					
		NORTH-BOUND			SOUTH-BOUND			EAST-BOUND		WEST-BOUND		AM	PM	AM	PM		
		L	T	R	L	T	R	L	T	R	L					T	R
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

TABLE 5-3 (CONTINUED)

2010 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		AM	PM	AM	PM		
		L	T	R	L	T	R	L	T	R	L					T	R
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	1	0	1	1	0	0	1	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

- 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								DELAY ² (SECS.)		LEVEL OF SERVICE					
		NORTH-BOUND			SOUTH-BOUND			EAST-BOUND		WEST-BOUND		AM	PM	AM	PM		
		L	T	R	L	T	R	L	T	R	L					T	R
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".

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		AM	PM	AM	PM		
		L	T	R	L	T	R	L	T	R	L					T	R
Grove Ave. (NS) at: • SR-60 Fwy. WB Ramps (EW) • SR-60 Fwy. EB Ramps (EW) • Edison St. (EW) • Merrill Ave. (EW) • Kimball Ave. (EW) • Bickmore Ave. (EW) • Pine Ave. (EW)	TS TS AWS AWS AWS CSS CSS	1	2	0	0	2	1	0	0	0	1	0	1	--	37.1	F	D
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) • Kimball Ave. (EW) • Pine Ave. (EW) • Chandler St. (EW)	TS TS CSS CSS	1	1	0	1	1	0	1	1	0	1	1	0	31.1	40.0	C	D
Vineyard Ave. (NS) at: • SR-60 Fwy. WB Ramps (EW) • SR-60 Fwy. EB Ramps (EW) • Edison Ave. (EW)	TS TS TS	1	1	0	0	2	0	0	0	0	1	0	1	37.4	36.7	D	D
Archibald Ave. (NS) at: • SR-60 Fwy. WB Ramps (EW) • SR-60 Fwy. EB Ramps (EW) • Riverside Dr. (EW) • Edison Ave. (EW) • Merrill Ave. (EW) • Cloverdale Rd. (EW) • Pine Ave. (EW) • River Rd. (EW)	TS TS TS TS CSS TS TS CSS	1	3	0	0	4	0	0	0	0	1	0	1	24.9	14.6	C	B
River Rd. (NS) at: • Corydon St. (EW) • Second St. (EW)	TS TS	1	1	1	1	2	0	1	1	1	1	1	1	50.9	51.1	D	D
Haven Ave. (NS) at: • SR-60 Fwy. WB Ramps (EW) • SR-60 Fwy. EB Ramps (EW)	TS TS	2	3	0	0	3	1	0	0	0	1	0	1>>	17.1	16.1	B	B
Hamner Ave. (NS) at: • Cloverdale Rd. (EW) • Schleisman Rd. (EW)	TS CSS	1	1	1	1	1	1	0	1	1	0	1	1	47.0	--	D	F
I-15 Fwy. SB Ramps (NS) at: • Galena St. (EW) • Limonite Ave. (EW) • Second St. (EW)	TS TS TS	0	0	0	1	0	1	0	2	1	1	2	0	46.8	--	D	F
I-15 Fwy. NB Ramps (NS) at: • Galena St. (EW) • Limonite Ave. (EW) • Second St. (EW)	TS TS TS	1	0	1	0	0	0	1	2	0	0	2	1	28.5	14.7	C	B

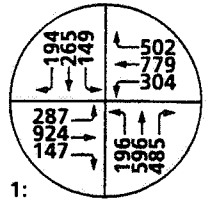
¹ When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.
L = Left; T = Through; R = Right; >> = Free Right Turn

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.

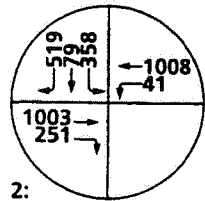
³ TS = Traffic Signal
AWS = All Way Stop
CSS = Cross Street Stop

⁴ -- = Delay High, Intersection Unstable, Level of Service "F".

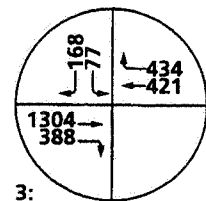
2020 WITHOUT PROJECT AM PEAK HOUR INTERSECTION VOLUMES (PART 1/2)



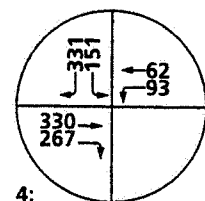
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PIPELINE AVE. /
CHINO HILLS PKWY.



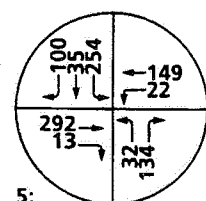
2:
SR-71 SB RAMPS /
CHINO HILLS PKWY.



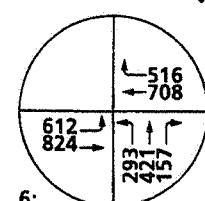
3:
SR-71 SB RAMPS /
SOQUEL
CANYON PKWY.



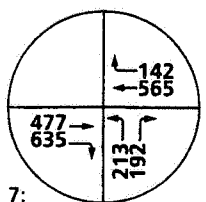
4:
SR-71 SB RAMPS /
PINE AVE.



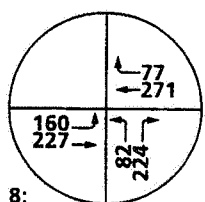
5:
SR-71 SB RAMPS /
EUCLID AVE.



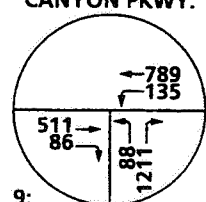
6:
SR-71 NB RAMPS /
CHINO HILLS PKWY.



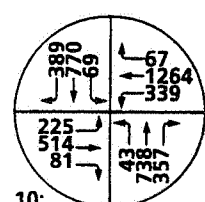
7:
SR-71 NB RAMPS /
SOQUEL
CANYON PKWY.



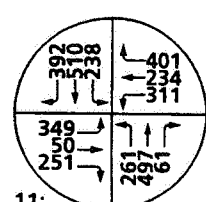
8:
SR-71 NB RAMPS /
PINE AVE.



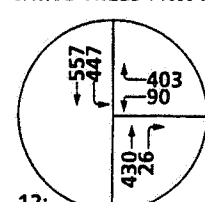
9:
SR-71 NB RAMPS /
EUCLID AVE.



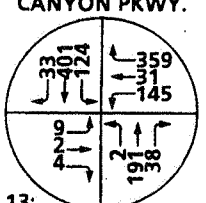
10:
CENTRAL AVE. /
EDISON AVE.



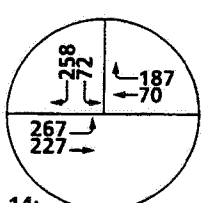
11:
CENTRAL AVE. /
CHINO HILLS PKWY.



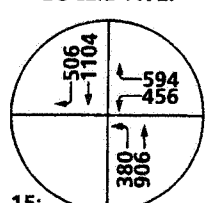
12:
CENTRAL AVE. /
EL PRADO RD.



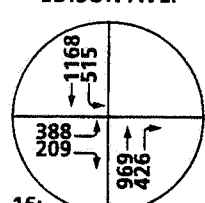
13:
EL PRADO RD. /
KIMBALL AVE.



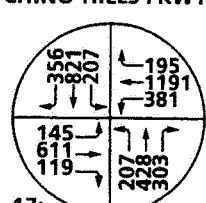
14:
EL PRADO RD. /
PINE AVE.



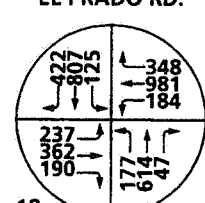
15:
MOUNTAIN AVE. /
SR-60 WB RAMPS



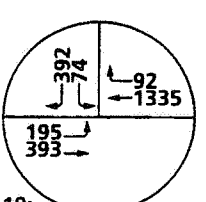
16:
MOUNTAIN AVE. /
SR-60 EB RAMPS



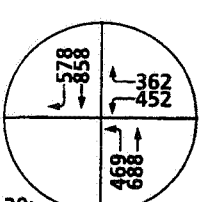
17:
MOUNTAIN AVE. /
WALNUT AVE.



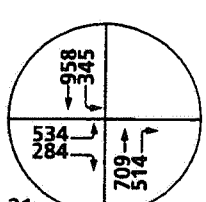
18:
MOUNTAIN AVE. /
RIVERSIDE DR.



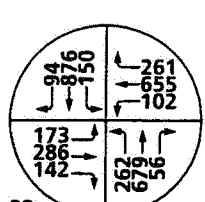
19:
MOUNTAIN AVE. /
EDISON AVE.



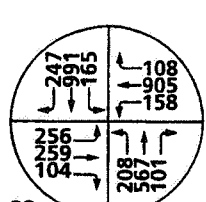
20:
EUCLID AVE. /
SR-60 WB RAMPS



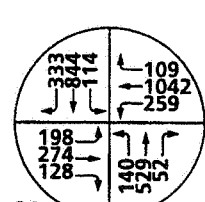
21:
EUCLID AVE. /
SR-60 EB RAMPS



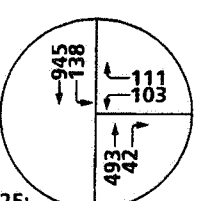
22:
EUCLID AVE. /
WALNUT AVE.



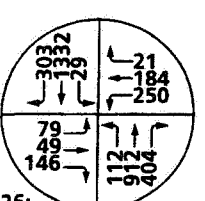
23:
EUCLID AVE. /
RIVERSIDE DR.



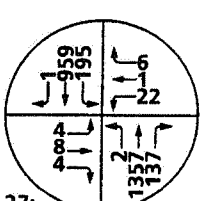
24:
EUCLID AVE. /
EDISON AVE.



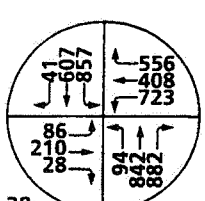
25:
EUCLID AVE. /
MERRILL AVE.



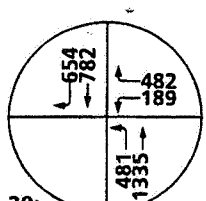
26:
EUCLID AVE. /
KIMBALL AVE.



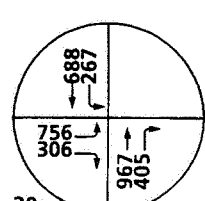
27:
EUCLID AVE. /
BICKMORE AVE.



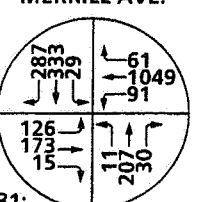
28:
EUCLID AVE. /
PINE AVE.



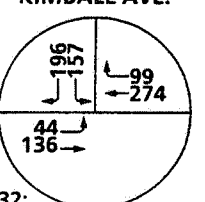
29:
GROVE AVE. /
SR-60 WB RAMPS



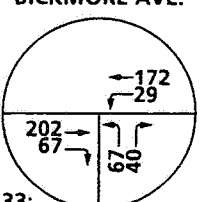
30:
GROVE AVE. /
SR-60 EB RAMPS



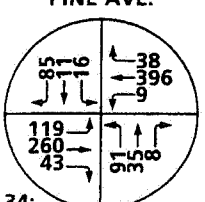
31:
GROVE AVE. /
EDISON AVE.



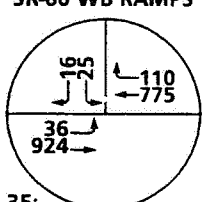
32:
GROVE AVE. /
MERRILL AVE.



33:
GROVE AVE. /
KIMBALL AVE.



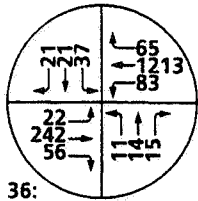
34:
GROVE AVE. /
BICKMORE AVE.



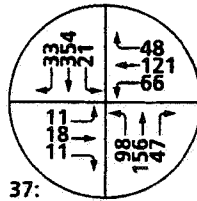
35:
GROVE AVE. /
PINE AVE.



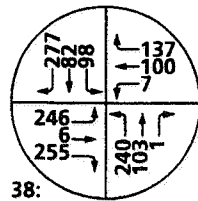
2020 WITHOUT PROJECT AM PEAK HOUR INTERSECTION VOLUMES (PART 2/2)



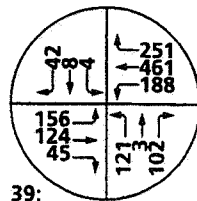
36:
WALKER AVE. /
EDISON AVE.



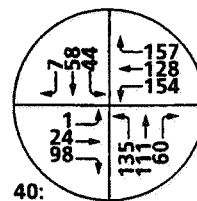
37:
HELLMAN AVE. /
MERRILL AVE.



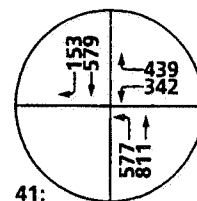
38:
HELLMAN AVE. /
KIMBALL AVE.



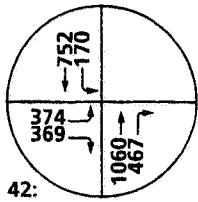
39:
HELLMAN AVE. /
PINE AVE.



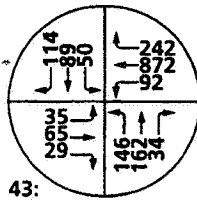
40:
HELLMAN AVE. /
CHANDLER ST.



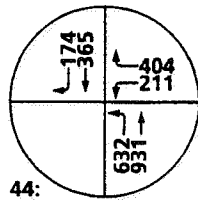
41:
VINEYARD AVE. /
SR-60 WB RAMPs



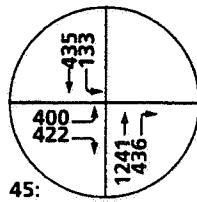
42:
VINEYARD AVE. /
SR-60 EB RAMPs



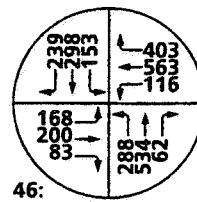
43:
VINEYARD AVE. /
EDISON AVE.



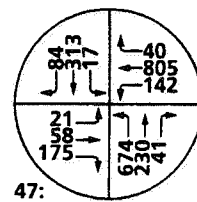
44:
ARCHIBALD AVE. /
SR-60 WB RAMPs



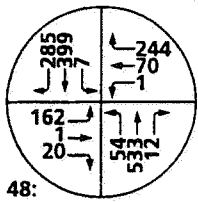
45:
ARCHIBALD AVE. /
SR-60 EB RAMPs



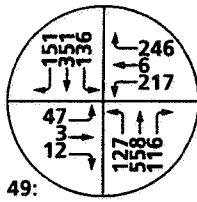
46:
ARCHIBALD AVE. /
RIVERSIDE DR.



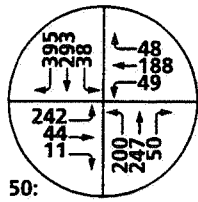
47:
ARCHIBALD AVE. /
EDISON AVE.



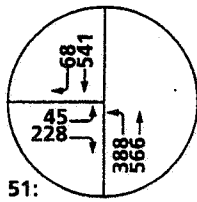
48:
ARCHIBALD AVE. /
MERRILL AVE.



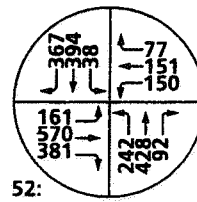
49:
ARCHIBALD AVE. /
CLOVERDALE RD.



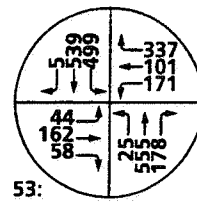
50:
ARCHIBALD AVE. /
PINE AVE.



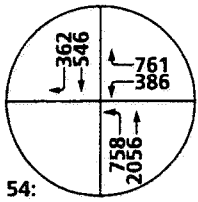
51:
ARCHIBALD AVE. /
RIVER RD.



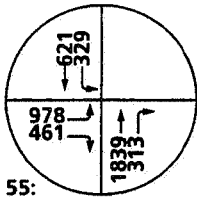
52:
RIVER RD. /
CORYDON ST.



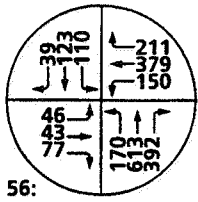
53:
RIVER RD. /
SECOND ST.



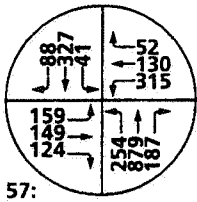
54:
HAVEN AVE. /
SR-60 WB RAMPs



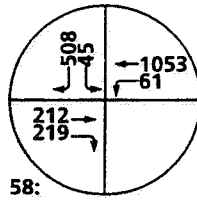
55:
HAVEN AVE. /
SR-60 EB RAMPs



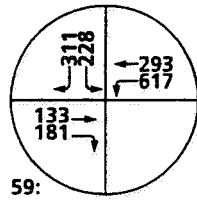
56:
HAMNER AVE. /
CLOVERDALE RD.



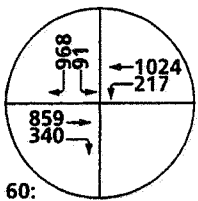
57:
HAMNER AVE. /
SCHLEISMAN RD.



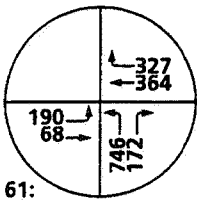
58:
I-15 SB RAMPs /
GALENA ST.



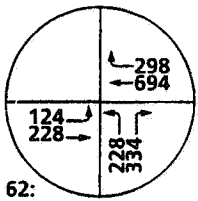
59:
I-15 SB RAMPs /
LIMONITE AVE.



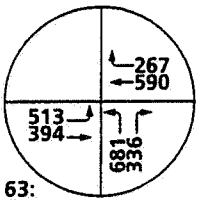
60:
I-15 SB RAMPs /
SECOND ST.



61:
I-15 NB RAMPs /
GALENA ST.



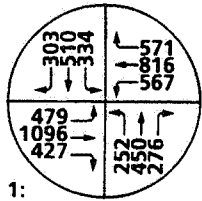
62:
I-15 NB RAMPs /
LIMONITE AVE.



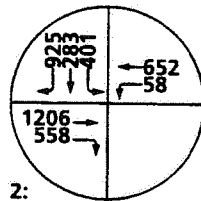
63:
I-15 NB RAMPs /
SECOND ST.



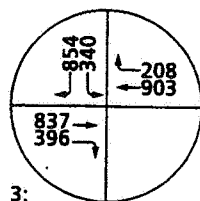
2020 WITHOUT PROJECT PM PEAK HOUR INTERSECTION VOLUMES (PART 1/2)



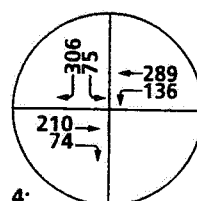
1:
PIPELINE AVE. /
CHINO HILLS PKWY.



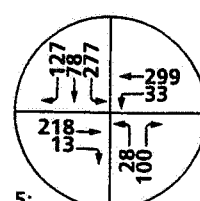
2:
SR-71 SB RAMPS /
CHINO HILLS PKWY.



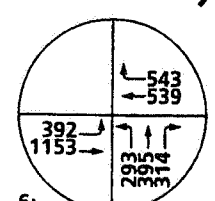
3:
SR-71 SB RAMPS /
SOQUEL
CANYON PKWY.



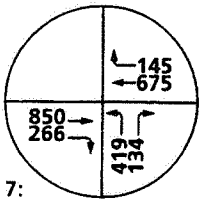
4:
SR-71 SB RAMPS /
PINE AVE.



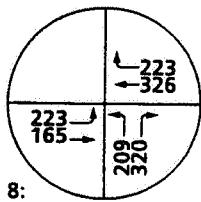
5:
SR-71 SB RAMPS /
EUCLID AVE.



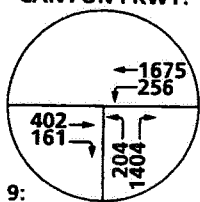
6:
SR-71 NB RAMPS /
CHINO HILLS PKWY.



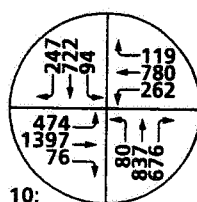
7:
SR-71 NB RAMPS /
SOQUEL
CANYON PKWY.



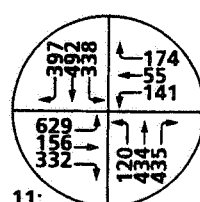
8:
SR-71 NB RAMPS /
PINE AVE.



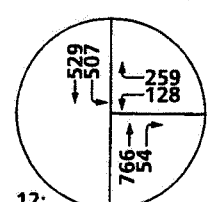
9:
SR-71 NB RAMPS /
EUCLID AVE.



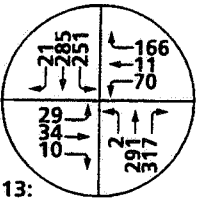
10:
CENTRAL AVE. /
EDISON AVE.



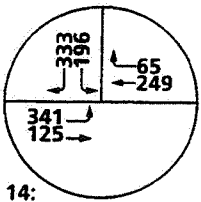
11:
CENTRAL AVE. /
CHINO HILLS PKWY.



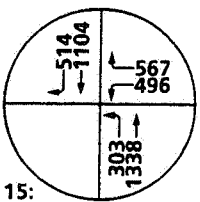
12:
CENTRAL AVE. /
EL PRADO RD.



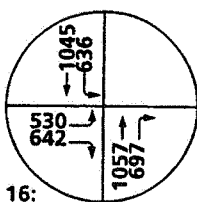
13:
EL PRADO RD. /
KIMBALL AVE.



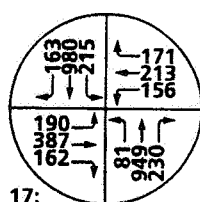
14:
EL PRADO RD. /
PINE AVE.



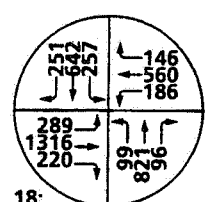
15:
MOUNTAIN AVE. /
SR-60 WB RAMPS



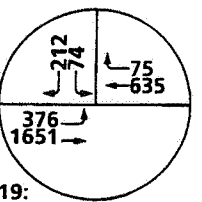
16:
MOUNTAIN AVE. /
SR-60 EB RAMPS



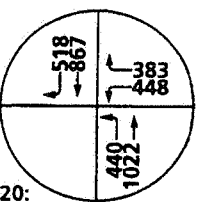
17:
MOUNTAIN AVE. /
WALNUT AVE.



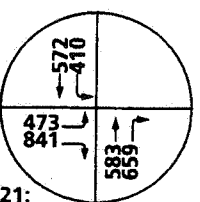
18:
MOUNTAIN AVE. /
RIVERSIDE DR.



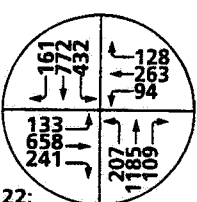
19:
MOUNTAIN AVE. /
EDISON AVE.



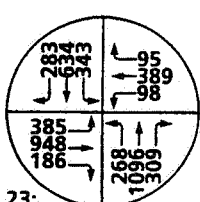
20:
EUCLID AVE. /
SR-60 WB RAMPS



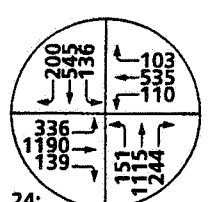
21:
EUCLID AVE. /
SR-60 EB RAMPS



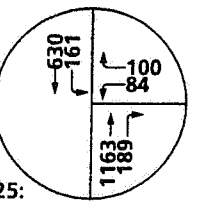
22:
EUCLID AVE. /
WALNUT AVE.



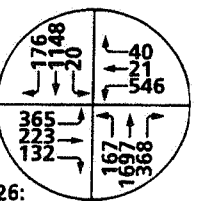
23:
EUCLID AVE. /
RIVERSIDE DR.



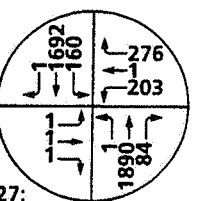
24:
EUCLID AVE. /
EDISON AVE.



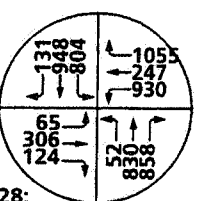
25:
EUCLID AVE. /
MERRILL AVE.



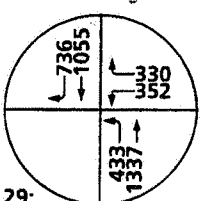
26:
EUCLID AVE. /
KIMBALL AVE.



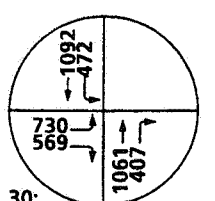
27:
EUCLID AVE. /
BICKMORE AVE.



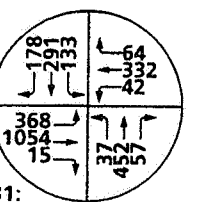
28:
EUCLID AVE. /
PINE AVE.



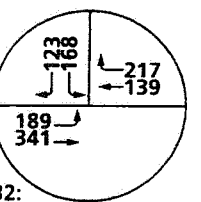
29:
GROVE AVE. /
SR-60 WB RAMPS



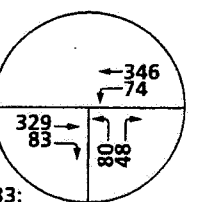
30:
GROVE AVE. /
SR-60 EB RAMPS



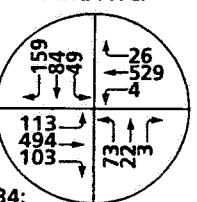
31:
GROVE AVE. /
EDISON AVE.



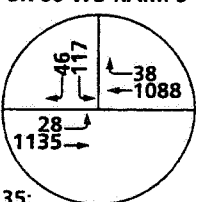
32:
GROVE AVE. /
MERRILL AVE.



33:
GROVE AVE. /
KIMBALL AVE.

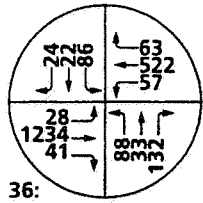


34:
GROVE AVE. /
BICKMORE AVE.

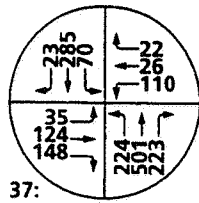


35:
GROVE AVE. /
PINE AVE.

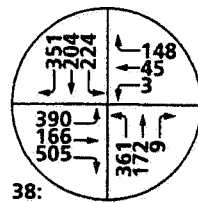
2020 WITHOUT PROJECT PM PEAK HOUR INTERSECTION VOLUMES (PART 2/2)



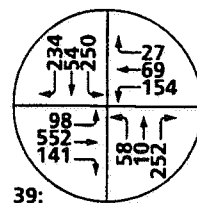
36: WALKER AVE. / EDISON AVE.



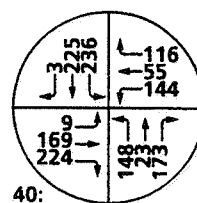
37: HELLMAN AVE. / MERRILL AVE.



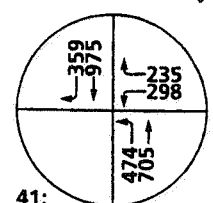
38: HELLMAN AVE. / KIMBALL AVE.



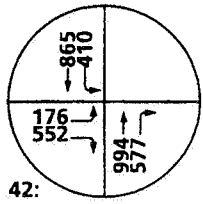
39: HELLMAN AVE. / PINE AVE.



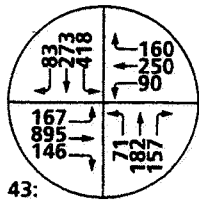
40: HELLMAN AVE. / CHANDLER ST.



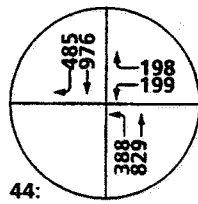
41: VINEYARD AVE. / SR-60 WB RAMP



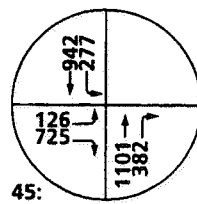
42: VINEYARD AVE. / SR-60 EB RAMP



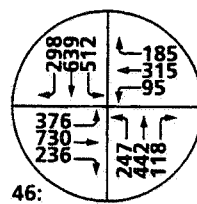
43: VINEYARD AVE. / EDISON AVE.



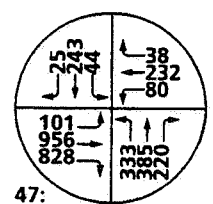
44: ARCHIBALD AVE. / SR-60 WB RAMP



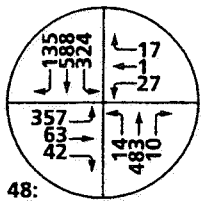
45: ARCHIBALD AVE. / SR-60 EB RAMP



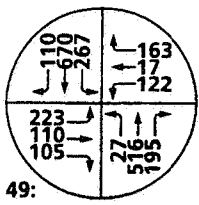
46: ARCHIBALD AVE. / RIVERSIDE DR.



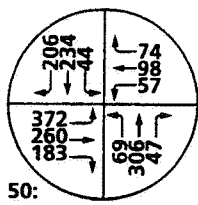
47: ARCHIBALD AVE. / EDISON AVE.



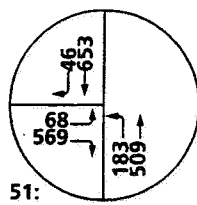
48: ARCHIBALD AVE. / MERRILL AVE.



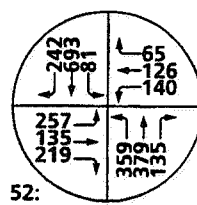
49: ARCHIBALD AVE. / CLOVERDALE RD.



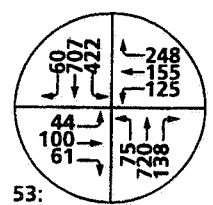
50: ARCHIBALD AVE. / PINE AVE.



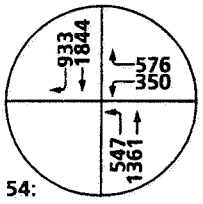
51: ARCHIBALD AVE. / RIVER RD.



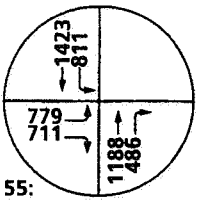
52: RIVER RD. / CORYDON ST.



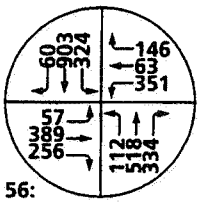
53: RIVER RD. / SECOND ST.



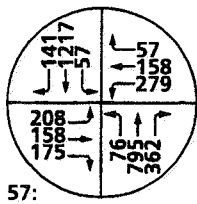
54: HAVEN AVE. / SR-60 WB RAMP



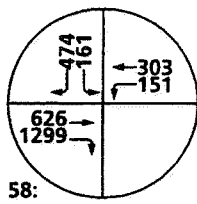
55: HAVEN AVE. / SR-60 EB RAMP



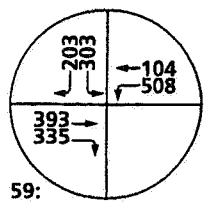
56: HAMNER AVE. / CLOVERDALE RD.



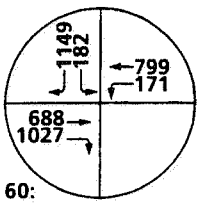
57: HAMNER AVE. / SCHLEISMAN RD.



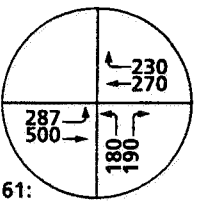
58: I-15 SB RAMP / GALENA ST.



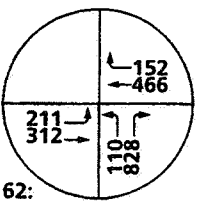
59: I-15 SB RAMP / LIMONITE AVE.



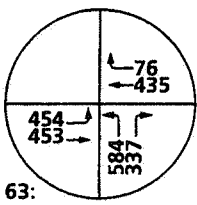
60: I-15 SB RAMP / SECOND ST.



61: I-15 NB RAMP / GALENA ST.



62: I-15 NB RAMP / LIMONITE AVE.



63: I-15 NB RAMP / SECOND ST.



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												DELAY ² (SECS.)		LEVEL OF SERVICE	
		NORTH-BOUND			SOUTH-BOUND			EAST-BOUND			WEST-BOUND			AM	PM	AM	PM
		L	T	R	L	T	R	L	T	R	L	T	R				
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".

TABLE 5-5 (CONTINUED)

2020 WITH 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			AM	PM	AM	PM	
		L	T	R	L	T	R	L	T	R	L	T	R					
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	

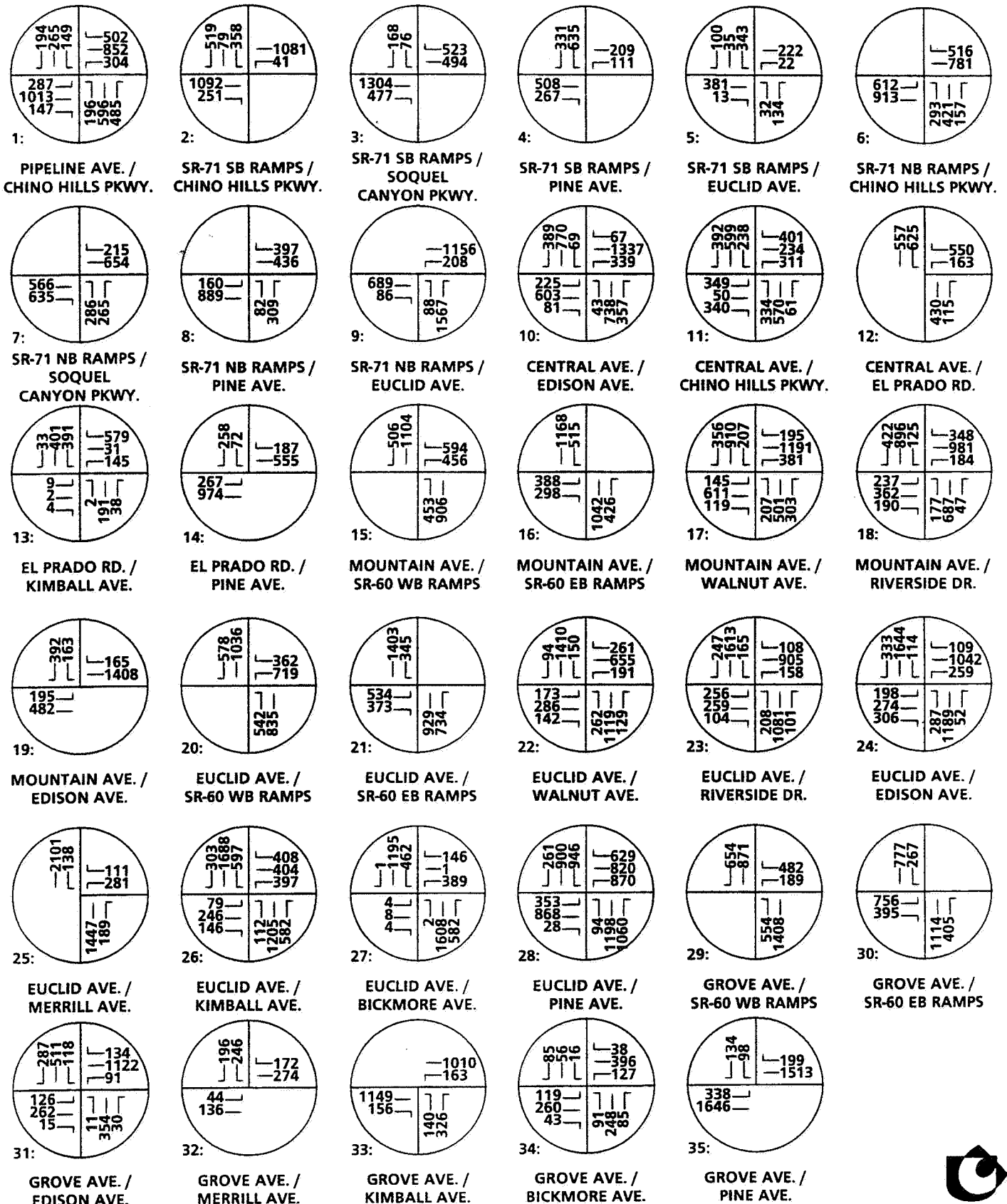
¹ When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.
L = Left; T = Through; R = Right; >> = Free Right Turn

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.

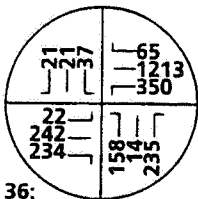
³ TS = Traffic Signal
AWS = All Way Stop
CSS = Cross Street Stop

⁴ -- = Delay High, Intersection Unstable, Level of Service "F".

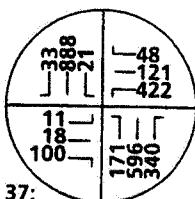
2020 WITH PROJECT AM PEAK HOUR INTERSECTION VOLUMES (PART 1/2)



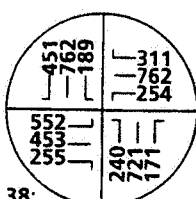
2020 WITH PROJECT AM PEAK HOUR INTERSECTION VOLUMES (PART 2/2)



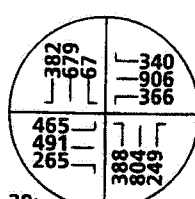
36:
WALKER AVE. /
EDISON AVE.



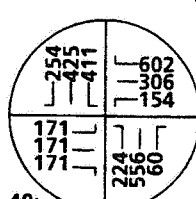
37:
HELLMAN AVE. /
MERRILL AVE.



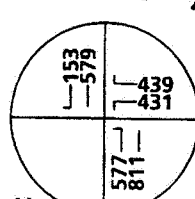
38:
HELLMAN AVE. /
KIMBALL AVE.



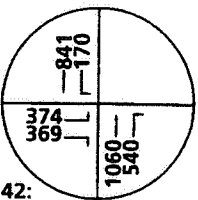
39:
HELLMAN AVE. /
PINE AVE.



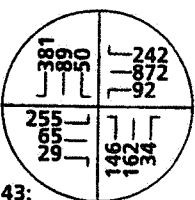
40:
HELLMAN AVE. /
CHANDLER ST.



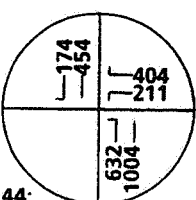
41:
VINEYARD AVE. /
SR-60 WB RAMP



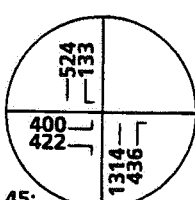
42:
VINEYARD AVE. /
SR-60 EB RAMP



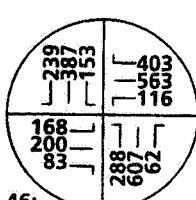
43:
VINEYARD AVE. /
EDISON AVE.



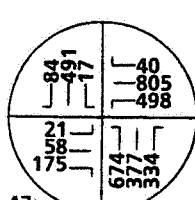
44:
ARCHIBALD AVE. /
SR-60 WB RAMP



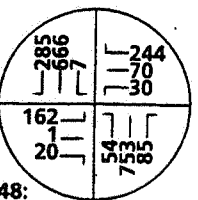
45:
ARCHIBALD AVE. /
SR-60 EB RAMP



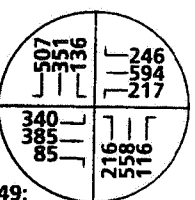
46:
ARCHIBALD AVE. /
RIVERSIDE DR.



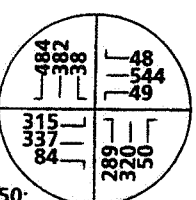
47:
ARCHIBALD AVE. /
EDISON AVE.



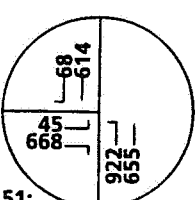
48:
ARCHIBALD AVE. /
MERRILL AVE.



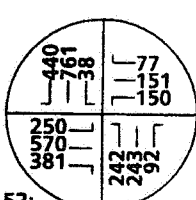
49:
ARCHIBALD AVE. /
CLOVERDALE RD.



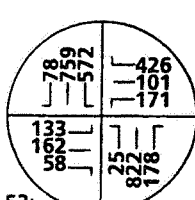
50:
ARCHIBALD AVE. /
PINE AVE.



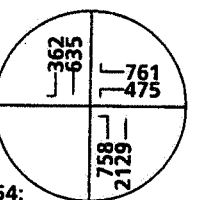
51:
ARCHIBALD AVE. /
RIVER RD.



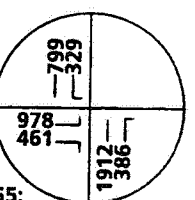
52:
RIVER RD. /
CORYDON ST.



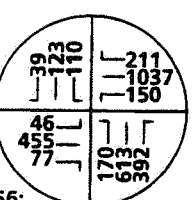
53:
RIVER RD. /
SECOND ST.



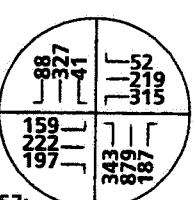
54:
HAVEN AVE. /
SR-60 WB RAMP



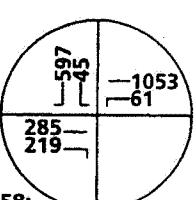
55:
HAVEN AVE. /
SR-60 EB RAMP



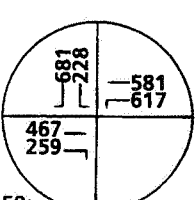
56:
HAMNER AVE. /
CLOVERDALE RD.



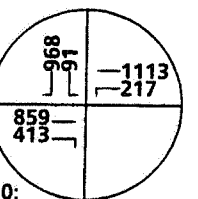
57:
HAMNER AVE. /
SCHLEISMAN RD.



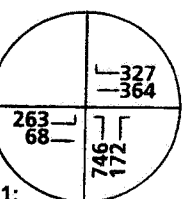
58:
I-15 SB RAMP /
GALENA ST.



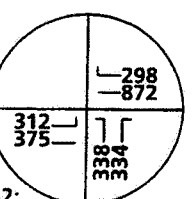
59:
I-15 SB RAMP /
LIMONITE AVE.



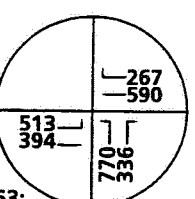
60:
I-15 SB RAMP /
SECOND ST.



61:
I-15 NB RAMP /
GALENA ST.



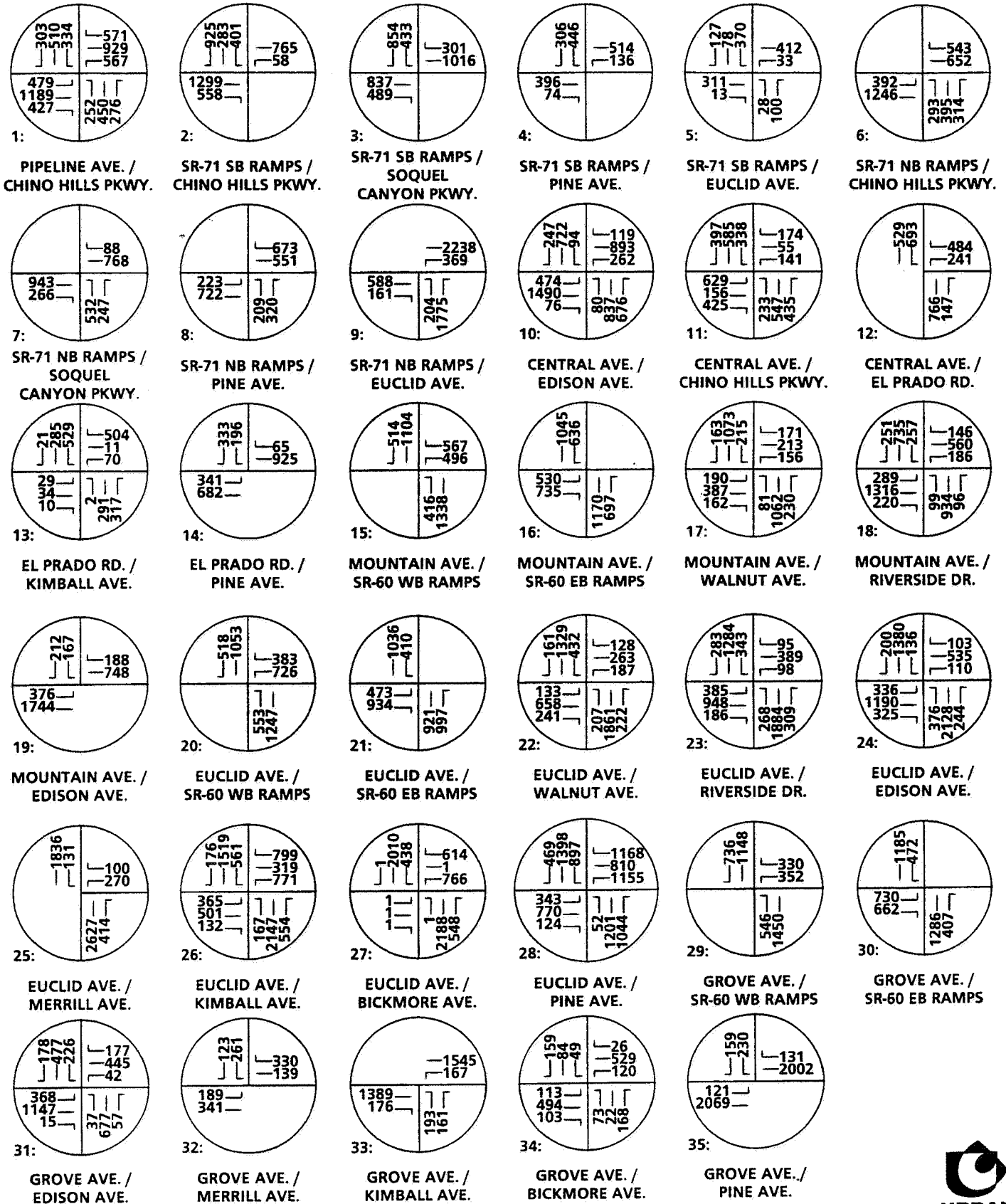
62:
I-15 NB RAMP /
LIMONITE AVE.



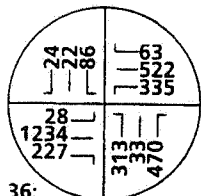
63:
I-15 NB RAMP /
SECOND ST.



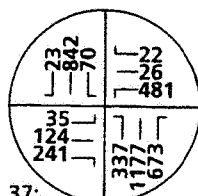
2020 WITH PROJECT PM PEAK HOUR INTERSECTION VOLUMES (PART 1/2)



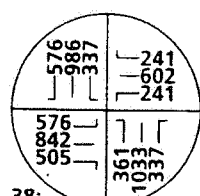
2020 WITH PROJECT PM PEAK HOUR INTERSECTION VOLUMES (PART 2/2)



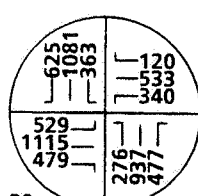
36:
WALKER AVE. /
EDISON AVE.



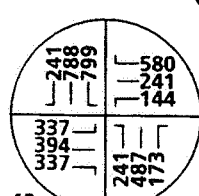
37:
HELLMAN AVE. /
MERRILL AVE.



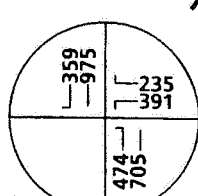
38:
HELLMAN AVE. /
KIMBALL AVE.



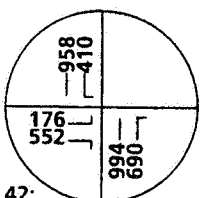
39:
HELLMAN AVE. /
PINE AVE.



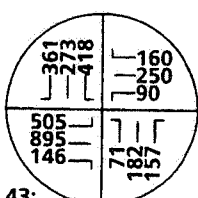
40:
HELLMAN AVE. /
CHANDLER ST.



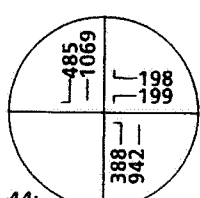
41:
VINEYARD AVE. /
SR-60 WB RAMP



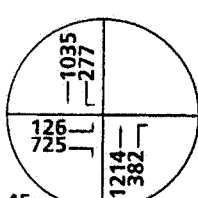
42:
VINEYARD AVE. /
SR-60 EB RAMP



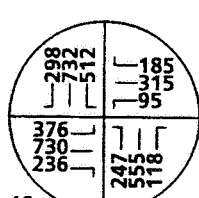
43:
VINEYARD AVE. /
EDISON AVE.



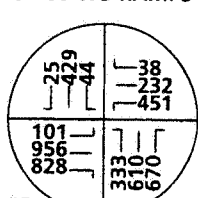
44:
ARCHIBALD AVE. /
SR-60 WB RAMP



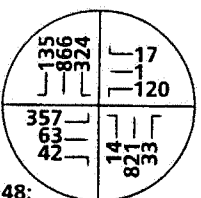
45:
ARCHIBALD AVE. /
SR-60 EB RAMP



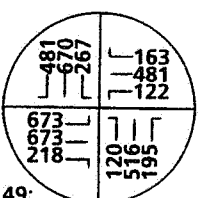
46:
ARCHIBALD AVE. /
RIVERSIDE DR.



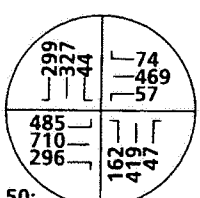
47:
ARCHIBALD AVE. /
EDISON AVE.



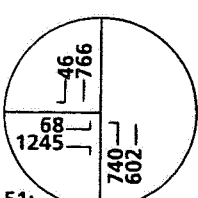
48:
ARCHIBALD AVE. /
MERRILL AVE.



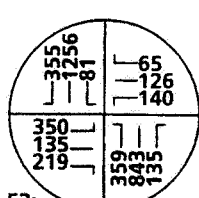
49:
ARCHIBALD AVE. /
CLOVERDALE RD.



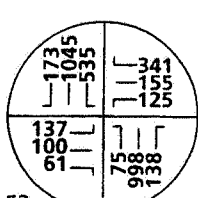
50:
ARCHIBALD AVE. /
PINE AVE.



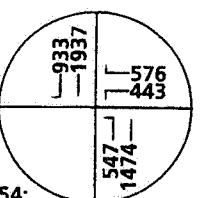
51:
ARCHIBALD AVE. /
RIVER RD.



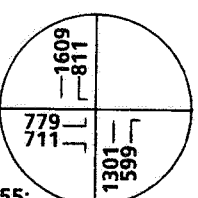
52:
RIVER RD. /
CORYDON ST.



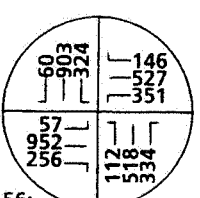
53:
RIVER RD. /
SECOND ST.



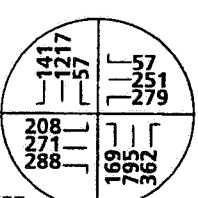
54:
HAVEN AVE. /
SR-60 WB RAMP



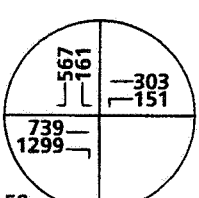
55:
HAVEN AVE. /
SR-60 EB RAMP



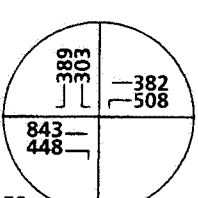
56:
HAMNER AVE. /
CLOVERDALE RD.



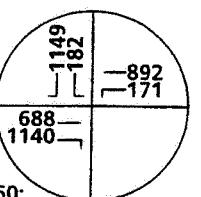
57:
HAMNER AVE. /
SCHLEISMAN RD.



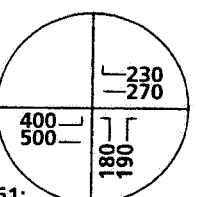
58:
I-15 SB RAMP /
GALENA ST.



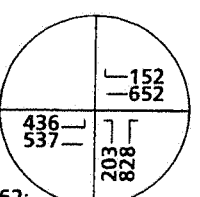
59:
I-15 SB RAMP /
LIMONITE AVE.



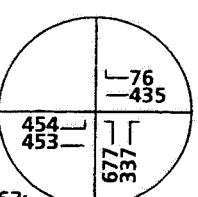
60:
I-15 SB RAMP /
SECOND ST.



61:
I-15 NB RAMP /
GALENA ST.



62:
I-15 NB RAMP /
LIMONITE AVE.



63:
I-15 NB RAMP /
SECOND ST.



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												DELAY ² (SECS.)		LEVEL OF SERVICE	
		NORTH-BOUND			SOUTH-BOUND			EAST-BOUND			WEST-BOUND			AM	PM	AM	PM
		L	T	R	L	T	R	L	T	R	L	T	R				
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

TABLE 5-6 (CONTINUED)

2020 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			AM	PM	AM	PM	
		L	T	R	L	T	R	L	T	R	L	T	R					
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

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								DELAY ² (SECS.)		LEVEL OF SERVICE					
		NORTH-BOUND			SOUTH-BOUND			EAST-BOUND		WEST-BOUND		AM	PM	AM	PM		
		L	T	R	L	T	R	L	T	R	L					T	R
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".

TABLE 5-7 (CONTINUED)

BUILDOUT WITH 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		AM	PM	AM	PM		
		L	T	R	L	T	R	L	T	R	L					T	R
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
Hammer 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

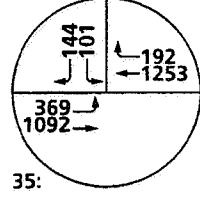
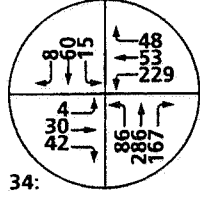
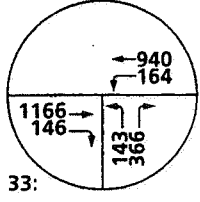
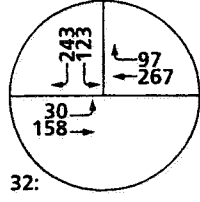
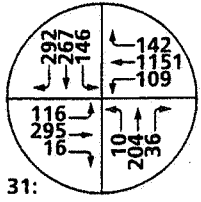
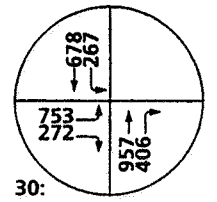
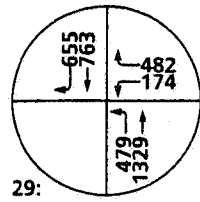
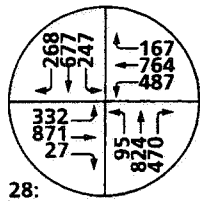
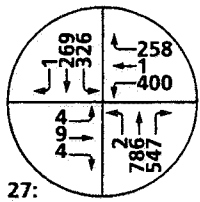
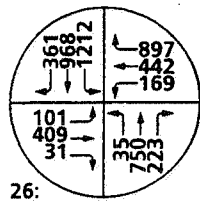
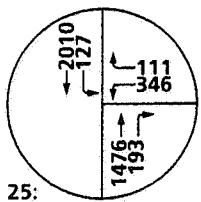
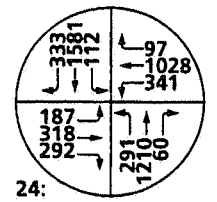
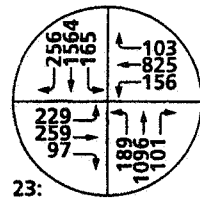
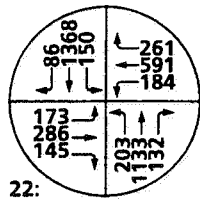
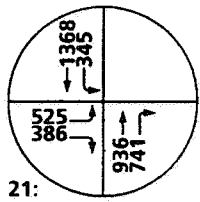
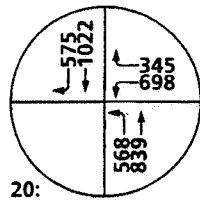
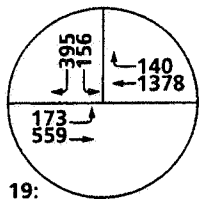
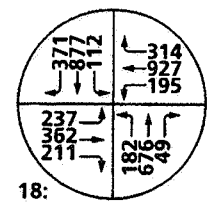
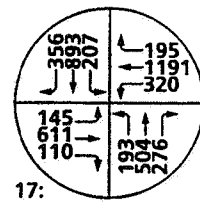
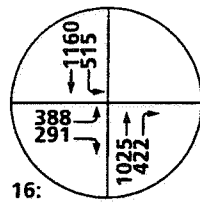
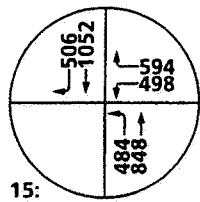
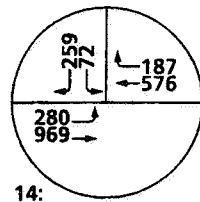
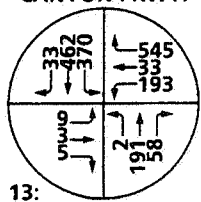
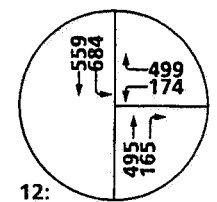
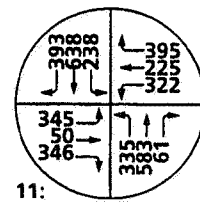
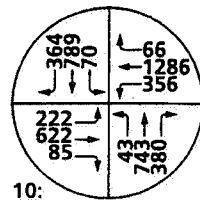
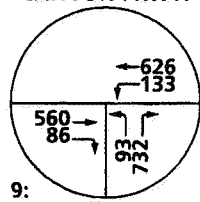
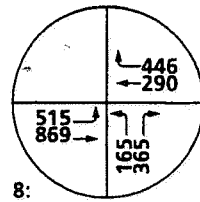
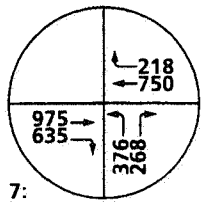
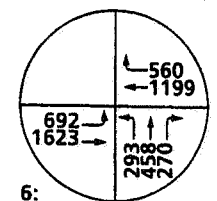
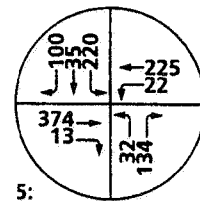
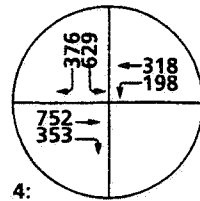
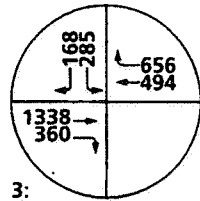
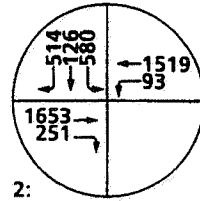
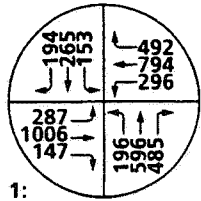
¹ When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.
L = Left; T = Through; R = Right; >> = Free Right Turn

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.

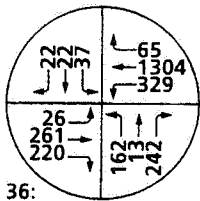
³ TS = Traffic Signal
AWS = All Way Stop
CSS = Cross Street Stop

⁴ -- = Delay High, Intersection Unstable, Level of Service "F".

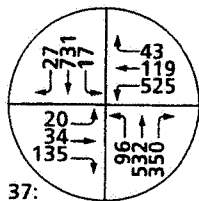
BUILDOUT WITH PROJECT AM PEAK HOUR INTERSECTION VOLUMES (PART 1/2)



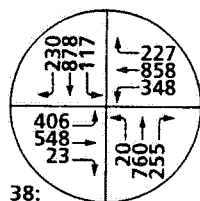
BUILDOUT WITH PROJECT AM PEAK HOUR INTERSECTION VOLUMES (PART 2/2)



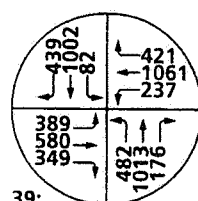
36: WALKER AVE. / EDISON AVE.



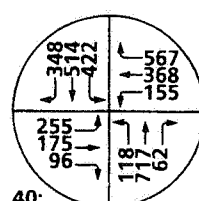
37: HELLMAN AVE. / MERRILL AVE.



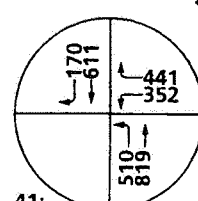
38: HELLMAN AVE. / KIMBALL AVE.



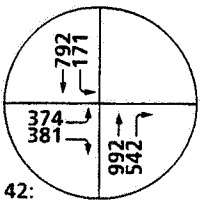
39: HELLMAN AVE. / PINE AVE.



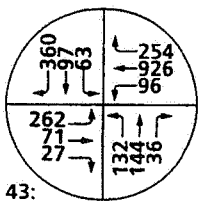
40: HELLMAN AVE. / CHANDLER ST.



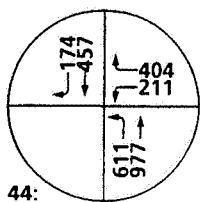
41: VINEYARD AVE. / SR-60 WB RAMP



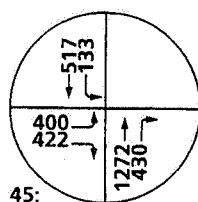
42: VINEYARD AVE. / SR-60 EB RAMP



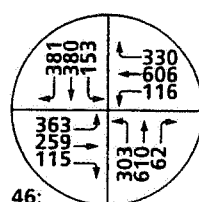
43: VINEYARD AVE. / EDISON AVE.



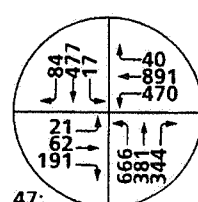
44: ARCHIBALD AVE. / SR-60 WB RAMP



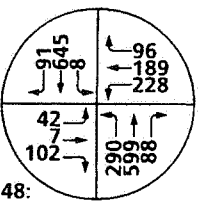
45: ARCHIBALD AVE. / SR-60 EB RAMP



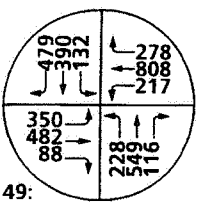
46: ARCHIBALD AVE. / RIVERSIDE DR.



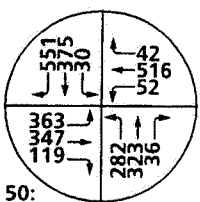
47: ARCHIBALD AVE. / EDISON AVE.



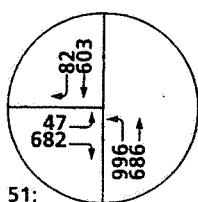
48: ARCHIBALD AVE. / MERRILL AVE.



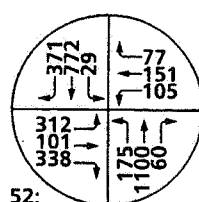
49: ARCHIBALD AVE. / CLOVERDALE RD.



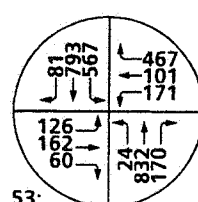
50: ARCHIBALD AVE. / PINE AVE.



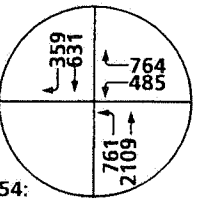
51: ARCHIBALD AVE. / RIVER RD.



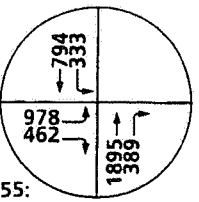
52: RIVER RD. / CORYDON ST.



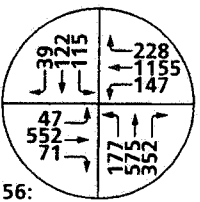
53: RIVER RD. / SECOND ST.



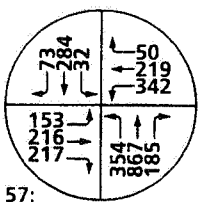
54: HAVEN AVE. / SR-60 WB RAMP



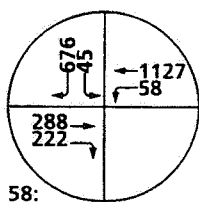
55: HAVEN AVE. / SR-60 EB RAMP



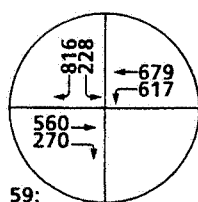
56: HAMNER AVE. / CLOVERDALE RD.



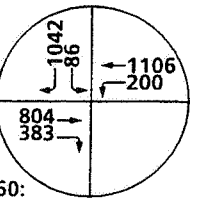
57: HAMNER AVE. / SCHLEISMAN RD.



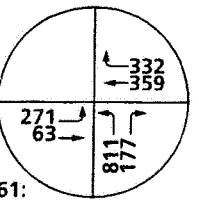
58: I-15 SB RAMP / GALENA ST.



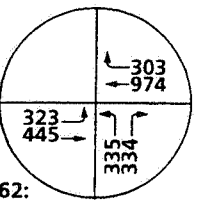
59: I-15 SB RAMP / LIMONITE AVE.



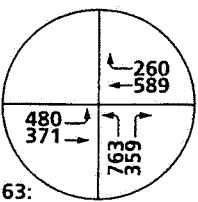
60: I-15 SB RAMP / SECOND ST.



61: I-15 NB RAMP / GALENA ST.



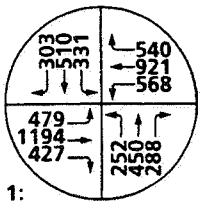
62: I-15 NB RAMP / LIMONITE AVE.



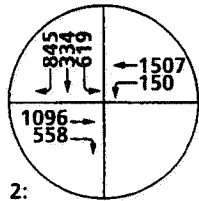
63: I-15 NB RAMP / SECOND ST.



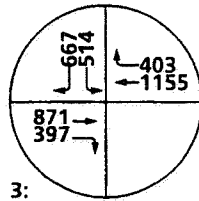
BUILDOUT WITH PROJECT PM PEAK HOUR INTERSECTION VOLUMES (PART 1/2)



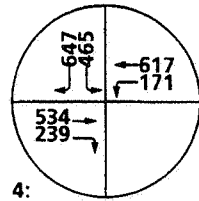
1: PIPELINE AVE. / CHINO HILLS PKWY.



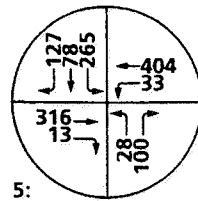
2: SR-71 SB RAMP / CHINO HILLS PKWY.



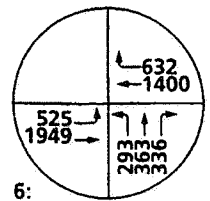
3: SR-71 SB RAMP / SOQUEL CANYON PKWY.



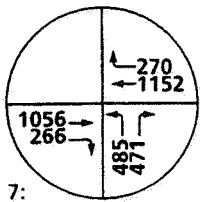
4: SR-71 SB RAMP / PINE AVE.



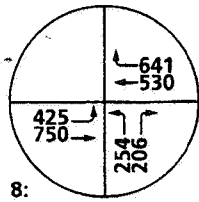
5: SR-71 SB RAMP / EUCLID AVE.



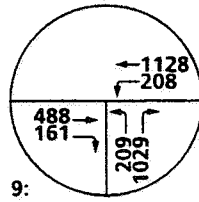
6: SR-71 NB RAMP / CHINO HILLS PKWY.



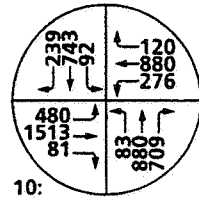
7: SR-71 NB RAMP / SOQUEL CANYON PKWY.



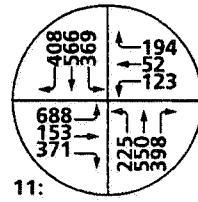
8: SR-71 NB RAMP / PINE AVE.



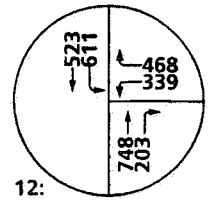
9: SR-71 NB RAMP / EUCLID AVE.



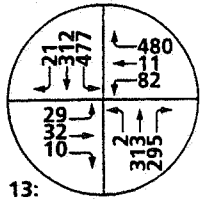
10: CENTRAL AVE. / EDISON AVE.



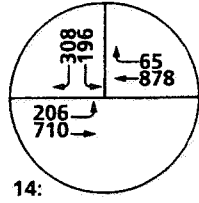
11: CENTRAL AVE. / CHINO HILLS PKWY.



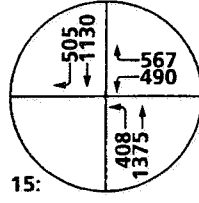
12: CENTRAL AVE. / EL PRADO RD.



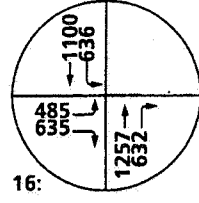
13: EL PRADO RD. / KIMBALL AVE.



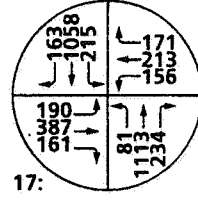
14: EL PRADO RD. / PINE AVE.



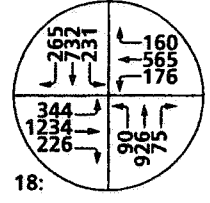
15: MOUNTAIN AVE. / SR-60 WB RAMP



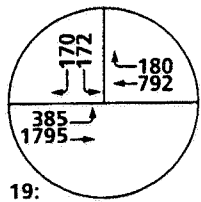
16: MOUNTAIN AVE. / SR-60 EB RAMP



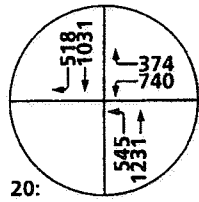
17: MOUNTAIN AVE. / WALNUT AVE.



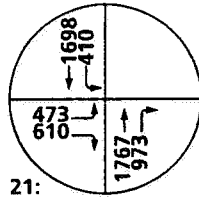
18: MOUNTAIN AVE. / RIVERSIDE DR.



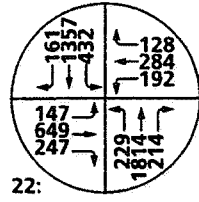
19: MOUNTAIN AVE. / EDISON AVE.



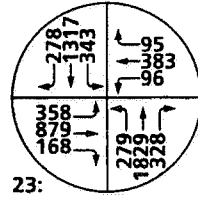
20: EUCLID AVE. / SR-60 WB RAMP



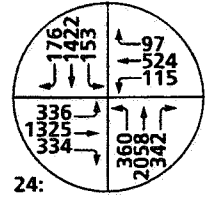
21: EUCLID AVE. / SR-60 EB RAMP



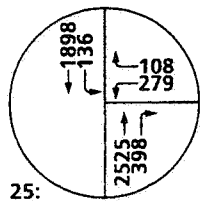
22: EUCLID AVE. / WALNUT AVE.



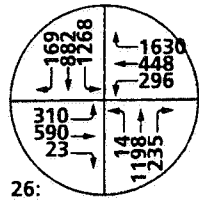
23: EUCLID AVE. / RIVERSIDE DR.



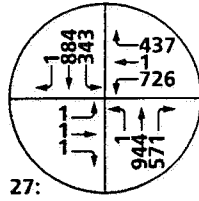
24: EUCLID AVE. / EDISON AVE.



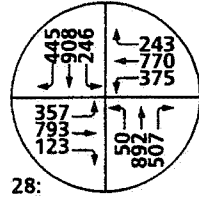
25: EUCLID AVE. / MERRILL AVE.



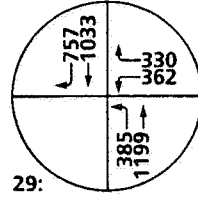
26: EUCLID AVE. / KIMBALL AVE.



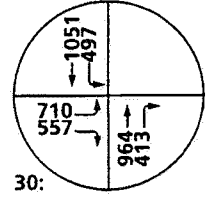
27: EUCLID AVE. / BICKMORE AVE.



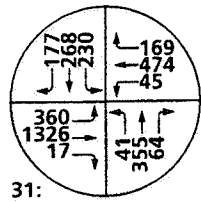
28: EUCLID AVE. / PINE AVE.



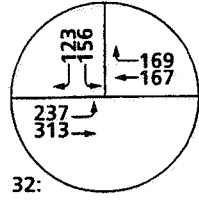
29: GROVE AVE. / SR-60 WB RAMP



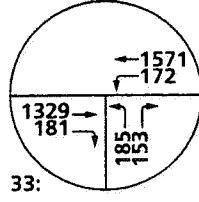
30: GROVE AVE. / SR-60 EB RAMP



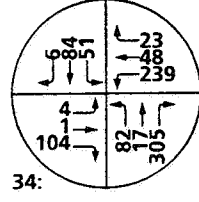
31: GROVE AVE. / EDISON AVE.



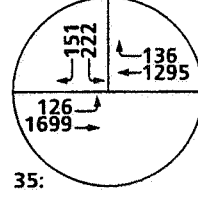
32: GROVE AVE. / MERRILL AVE.



33: GROVE AVE. / KIMBALL AVE.



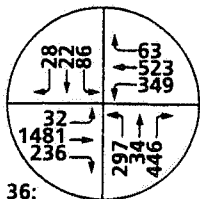
34: GROVE AVE. / BICKMORE AVE.



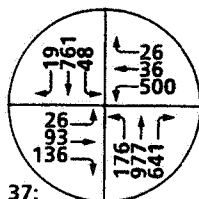
35: GROVE AVE. / PINE AVE.



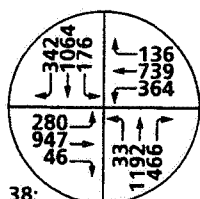
BUILDOUT WITH PROJECT PM PEAK HOUR INTERSECTION VOLUMES (PART 2/2)



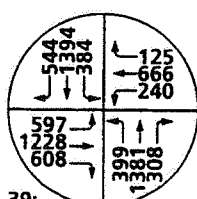
36:
WALKER AVE. /
EDISON AVE.



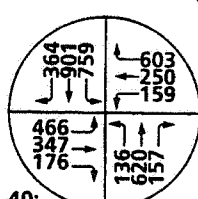
37:
HELLMAN AVE. /
MERRILL AVE.



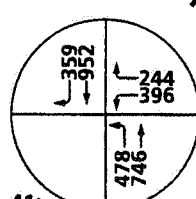
38:
HELLMAN AVE. /
KIMBALL AVE.



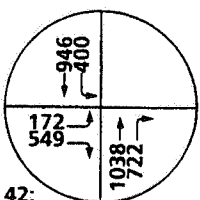
39:
HELLMAN AVE. /
PINE AVE.



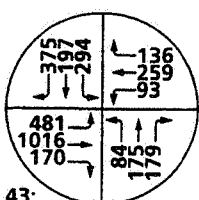
40:
HELLMAN AVE. /
CHANDLER ST.



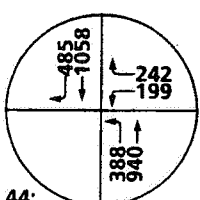
41:
VINEYARD AVE. /
SR-60 WB RAMPs



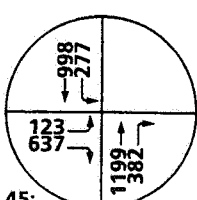
42:
VINEYARD AVE. /
SR-60 EB RAMPs



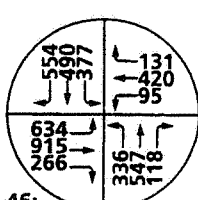
43:
VINEYARD AVE. /
EDISON AVE.



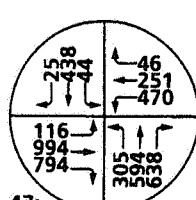
44:
ARCHIBALD AVE. /
SR-60 WB RAMPs



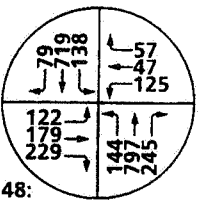
45:
ARCHIBALD AVE. /
SR-60 EB RAMPs



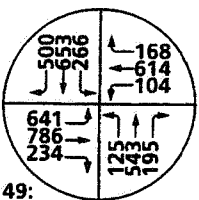
46:
ARCHIBALD AVE. /
RIVERSIDE DR.



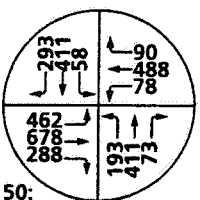
47:
ARCHIBALD AVE. /
EDISON AVE.



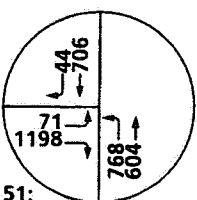
48:
ARCHIBALD AVE. /
MERRILL AVE.



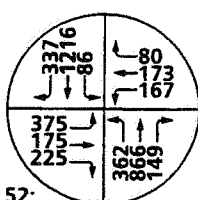
49:
ARCHIBALD AVE. /
CLOVERDALE RD.



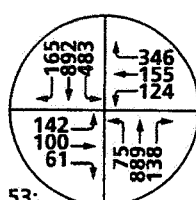
50:
ARCHIBALD AVE. /
PINE AVE.



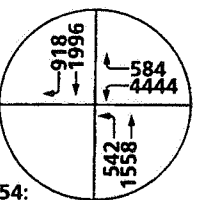
51:
ARCHIBALD AVE. /
RIVER RD.



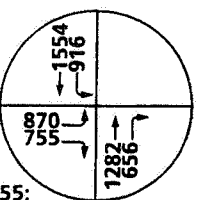
52:
RIVER RD. /
CORYDON ST.



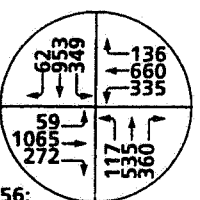
53:
RIVER RD. /
SECOND ST.



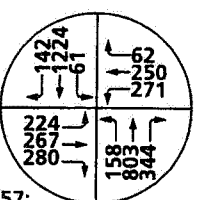
54:
HAVEN AVE. /
SR-60 WB RAMPs



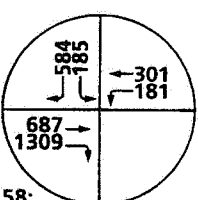
55:
HAVEN AVE. /
SR-60 EB RAMPs



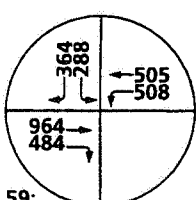
56:
HAMNER AVE. /
CLOVERDALE RD.



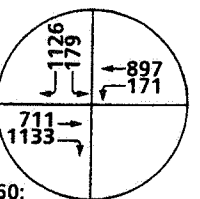
57:
HAMNER AVE. /
SCHLEISMAN RD.



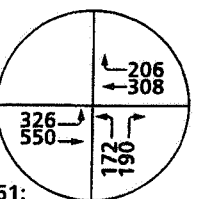
58:
I-15 SB RAMPs /
GALENA ST.



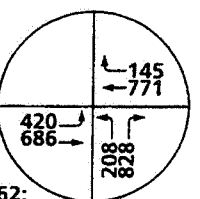
59:
I-15 SB RAMPs /
LIMONITE AVE.



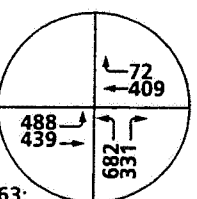
60:
I-15 SB RAMPs /
SECOND ST.



61:
I-15 NB RAMPs /
GALENA ST.



62:
I-15 NB RAMPs /
LIMONITE AVE.



63:
I-15 NB RAMPs /
SECOND ST.



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		AM	PM	AM	PM		
		L	T	R	L	T	R	L	T	R	L					T	R
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

TABLE 5-8 (CONTINUED)

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		AM	PM	AM	PM		
		L	T	R	L	T	R	L	T	R	L	T	R				
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

- 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		CAPACITY	PROJECT TRIPS	YEAR 2020 W/O PROJECT			YEAR 2020 W/PROJECT		
			GEN. USE	HOV			TRIPS	VOL/ CAP	LOS	TRIPS	VOL/ CAP	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		CAPACITY	PROJECT TRIPS	YEAR 2020 W/O PROJECT			YEAR 2020 W/PROJECT		
			GEN. USE	HOV			TRIPS	VOL/ CAP	LOS	TRIPS	VOL/ CAP	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		CAPACITY	PROJECT TRIPS	YEAR 2020 W/O PROJECT			YEAR 2020 W/PROJECT		
			GEN. USE	HOV			TRIPS	VOL/ CAP	LOS	TRIPS	VOL/ CAP	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		CAPACITY	PROJECT TRIPS	YEAR 2020 W/O PROJECT			YEAR 2020 W/PROJECT		
			GEN. USE	HOV			TRIPS	VOL/ CAP	LOS	TRIPS	VOL/ CAP	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)		IMPROVED			
		GENERAL	HOV	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)		IMPROVED			
		GENERAL	HOV	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.

TABLE 5-12

CMP FREEWAY MAINLINE PM OPERATIONS ANALYSIS WITH IMPROVEMENTS (YEAR 2020)

FREEWAY	SEGMENT LIMITS	IMPROVEMENT (LANES ADDED)		IMPROVED			
		GENERAL	HOV	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)		IMPROVED			
		GENERAL	HOV	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.

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)	<ul style="list-style-type: none"> • Second EB Left Turn Lane • Second WB Left Turn Lane • EB Right-Turn Overlap Phasing • Third WB Through Lane • WB Right-Turn Overlap Phasing 	<ul style="list-style-type: none"> \$ 50,000 \$ 50,000 \$ 25,000 \$ 259,000 \$ 25,000
SR-71 Freeway NB Ramps (NS) at: • Pine Avenue (EW)	<ul style="list-style-type: none"> • Traffic Signal • Second EB Through Lane 	<ul style="list-style-type: none"> \$ 120,000 \$ 259,000
Central Avenue (NS) at: • Edison Avenue (EW) • El Prado Road (EW)	<ul style="list-style-type: none"> • NB Right-Turn Overlap Phasing • Second EB Left Turn Lane • Second WB Left Turn Lane • Traffic Signal • Second NB Through Lane • Second SB Left Turn Lane 	<ul style="list-style-type: none"> \$ 25,000 \$ 50,000 \$ 50,000 \$ 120,000 \$ 259,000 \$ 50,000
El Prado Road (NS) at: • Kimball Road (EW) • Pine Avenue (EW)	<ul style="list-style-type: none"> • Traffic Signal • NB Right Turn Lane • Traffic Signal • EB Left Turn Lane • SB Left Turn Lane • Second EB Through Lane • WB Right Turn Lane 	<ul style="list-style-type: none"> \$ 120,000 \$ 50,000 \$ 120,000 \$ 50,000 \$ 50,000 \$ 259,000 \$ 50,000
Mountain Avenue (NS) at: • SR-60 Freeway EB Ramps (EW) • Walnut Avenue (EW) • Riverside Drive (EW)	<ul style="list-style-type: none"> • Second SB Left Turn Lane • EB All-Way Lane • Restripe EB All-Way Lane to a Second EB Left Turn Lane • Second EB Right Turn Lane • Second WB Through Lane • Second EB Through Lane • NB Right Turn Lane • Second SB Left Turn Lane 	<ul style="list-style-type: none"> \$ 50,000 \$ 259,000 \$ 10,000 \$ 350,000 \$ 259,000 \$ 259,000 \$ 50,000 \$ 50,000
Euclid Avenue (NS) at: • SR-60 Freeway WB Ramps (EW) • SR-60 Freeway EB Ramps (EW)	<ul style="list-style-type: none"> • WB All-Way Lane • Second NB Right Turn Lane • Restripe EB All-Way Lane to a Shared Through & Right Turn Lane • EB free-Right Turn Lane 	<ul style="list-style-type: none"> \$ 259,000 \$ 50,000 \$ 10,000 \$ 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	
• Bickmore Avenue (EW)	• Second WB Through Lane	\$ 259,000	
	• WB Right-Turn Overlap Phasing	\$ 25,000	
	• 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
	<ul style="list-style-type: none"> • First & Second EB Left Turn Lanes (2) 	\$ 100,000
	<ul style="list-style-type: none"> • Second & Third EB Through Lanes (2) 	\$ 518,000
	<ul style="list-style-type: none"> • First, Second & Third WB Left Turn Lanes (3) 	\$ 150,000
	<ul style="list-style-type: none"> • Second & Third WB Through Lanes (2) 	\$ 518,000
	<ul style="list-style-type: none"> • WB free-Right Turn Lane 	\$ 350,000
Grove Avenue (NS) at:		
• SR-60 Freeway WB Ramps (EW)	<ul style="list-style-type: none"> • Westbound All-Way Lane 	\$ 259,000
• SR-60 Freeway EB Ramps (EW)	<ul style="list-style-type: none"> • Second EB Left Turn Lane 	\$ 350,000
	<ul style="list-style-type: none"> • Second EB Right Turn Lane 	\$ 350,000
• Edison Street (EW)	<ul style="list-style-type: none"> • Traffic Signal 	\$ 120,000
	<ul style="list-style-type: none"> • NB Left Turn Lane 	\$ 50,000
	<ul style="list-style-type: none"> • SB Left Turn Lane 	\$ 50,000
	<ul style="list-style-type: none"> • EB Left Turn Lane 	\$ 50,000
	<ul style="list-style-type: none"> • Second EB Through Lane 	\$ 259,000
	<ul style="list-style-type: none"> • WB Left Turn Lane 	\$ 50,000
	<ul style="list-style-type: none"> • Second WB Through Lane 	\$ 259,000
	<ul style="list-style-type: none"> • Second NB Through Lane 	\$ 259,000
	<ul style="list-style-type: none"> • Second SB Through Lane 	\$ 259,000
• Merrill Avenue (EW)	<ul style="list-style-type: none"> • EB Left Turn Lane 	\$ 50,000
• Kimball Avenue (EW)	<ul style="list-style-type: none"> • Traffic Signal 	\$ 120,000
	<ul style="list-style-type: none"> • NB Left Turn Lane 	\$ 50,000
	<ul style="list-style-type: none"> • WB Left Turn Lane 	\$ 50,000
	<ul style="list-style-type: none"> • Second EB Through Lane 	\$ 259,000
	<ul style="list-style-type: none"> • Second WB Through Lane 	\$ 259,000
• Bickmore Avenue (EW)	<ul style="list-style-type: none"> • Traffic Signal 	\$ 120,000
	<ul style="list-style-type: none"> • NB Left Turn Lane 	\$ 50,000
	<ul style="list-style-type: none"> • SB Left Turn Lane 	\$ 50,000
	<ul style="list-style-type: none"> • EB Left Turn Lane 	\$ 50,000
	<ul style="list-style-type: none"> • WB Left Turn Lane 	\$ 50,000
• Pine Avenue (EW)	<ul style="list-style-type: none"> • Traffic Signal 	\$ 120,000
	<ul style="list-style-type: none"> • Second EB Through Lane 	\$ 259,000
	<ul style="list-style-type: none"> • SB Left Turn Lane 	\$ 50,000
	<ul style="list-style-type: none"> • Second WB Through Lane 	\$ 259,000
Walker Avenue (NS) at:		
• Edison Street (EW)	<ul style="list-style-type: none"> • Traffic Signal 	\$ 120,000
	<ul style="list-style-type: none"> • NB Left Turn Lane 	\$ 50,000
	<ul style="list-style-type: none"> • SB Left Turn Lane 	\$ 50,000
	<ul style="list-style-type: none"> • EB Left Turn Lane 	\$ 50,000
	<ul style="list-style-type: none"> • Second EB Through Lane 	\$ 259,000
	<ul style="list-style-type: none"> • WB Left Turn Lane 	\$ 50,000
	<ul style="list-style-type: none"> • 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)	<ul style="list-style-type: none"> • Second NB Through Lane • NB Right Turn Lane • Second SB Through Lane • Second WB Left Turn Lane 	<ul style="list-style-type: none"> \$ 259,000 \$ 50,000 \$ 259,000 \$ 50,000
<ul style="list-style-type: none"> • Kimball Avenue (EW) • Pine Avenue (EW) • Chandler Street (EW) 	<ul style="list-style-type: none"> • Second SB Through Lane • Second NB Left Turn Lane • Second NB Through Lane • NB Right Turn Lane • Second SB Left Turn Lane • SB Right Turn Lane • Second EB Left Turn Lane • Second EB Through Lane • EB Right Turn Lane • Second WB Left Turn Lane • Second WB Through Lane • Traffic Signal • NB Left Turn Lane • Second NB Through Lane • SB Left Turn Lane • Second SB Through Lane • EB Left Turn Lane • Second EB Through Lane • WB Left Turn Lane • Second WB Through Lane • Second NB Left Turn Lane • NB Right Turn Lane • Second SB Left Turn Lane • SB Right Turn Lane • Second EB Left Turn Lane • EB Right Turn Lane • Second WB Left Turn Lane • WB Right Turn Lane • Traffic Signal • NB Left Turn Lane • SB Left Turn Lane • EB Left Turn Lane • WB Left Turn Lane • Second NB Through Lane • Second SB Left Turn Lane • Second SB Through Lane • Second EB Through Lane • Second WB Through Lane 	<ul style="list-style-type: none"> \$ 259,000 \$ 50,000 \$ 259,000 \$ 50,000 \$ 50,000 \$ 50,000 \$ 50,000 \$ 259,000 \$ 50,000 \$ 50,000 \$ 259,000 \$ 120,000 \$ 50,000 \$ 259,000 \$ 50,000 \$ 259,000 \$ 50,000 \$ 259,000 \$ 50,000 \$ 259,000 \$ 50,000 \$ 50,000 \$ 50,000 \$ 50,000 \$ 50,000 \$ 50,000 \$ 50,000 \$ 50,000 \$ 259,000 \$ 50,000 \$ 259,000 \$ 259,000 \$ 259,000
Vineyard Avenue (NS) at: • SR-60 Freeway EB Ramps (EW)	<ul style="list-style-type: none"> • EB All-Way Lane 	<ul style="list-style-type: none"> \$ 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) • Edison Avenue (EW) • Merrill Avenue (EW) • Cloverdale Road (EW) • Pine Avenue (EW) • River Road (EW)	<ul style="list-style-type: none"> • Second EB Left Turn Lane • Second NB Left Turn Lane • NB Right-Turn Overlap Phasing • EB Right Turn Lane • EB Right-Turn Overlap Phasing • Second WB Left Turn Lane • Traffic Signal • SB Left Turn Lane • EB Left Turn Lane • Second NB Through Lane • Second SB Through Lane • WB Left Turn Lane • NB Left Turn Lane • Second NB Through Lane • Second SB Through Lane • First & Second EB Left Turn Lanes (2) • Second EB Through Lane • Second WB Through Lane • Second SB Through Lane • Second EB Through Lane • Second NB Through Lane • Second WB Through Lane • Traffic Signal • EB free-Right Turn Lane • Second SB Through Lane 	<ul style="list-style-type: none"> \$ 50,000 \$ 50,000 \$ 25,000 \$ 50,000 \$ 25,000 \$ 50,000 \$ 120,000 \$ 50,000 \$ 50,000 \$ 259,000 \$ 259,000 \$ 50,000 \$ 50,000 \$ 259,000 \$ 259,000 \$ 100,000 \$ 259,000 \$ 259,000 \$ 259,000 \$ 259,000 \$ 259,000 \$ 259,000 \$ 120,000 \$ 350,000 \$ 259,000
River Road (NS) at: • Corydon Street (EW)	<ul style="list-style-type: none"> • SB Right Turn Lane • Second EB Left Turn Lane • Second EB Through Lane 	<ul style="list-style-type: none"> \$ 50,000 \$ 50,000 \$ 259,000
Haven Avenue (NS) at: • SR-60 Freeway EB Ramps (EW)	<ul style="list-style-type: none"> • NB free-Right Turn Lane 	<ul style="list-style-type: none"> \$ 350,000
Hamner Avenue (NS) at: • Cloverdale Road (EW) • Schleisman Road (EW)	<ul style="list-style-type: none"> • Second EB Through Lane • WB Left Turn Lane • Second NB Through Lane • Second SB Through Lane • EB Left Turn Lane • Second WB Through Lane • Traffic Signal • EB Left Turn Lane • WB Left Turn Lane • Second NB Through Lane • Second SB Through Lane 	<ul style="list-style-type: none"> \$ 259,000 \$ 50,000 \$ 259,000 \$ 259,000 \$ 50,000 \$ 259,000 \$ 120,000 \$ 50,000 \$ 50,000 \$ 259,000 \$ 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 Street (EW)	• Second EB Right Turn Lane • First & Second EB Right Turn Lanes (2) • Second SB Right Turn Lane	\$ 50,000 \$ 100,000 \$ 350,000
I-15 Freeway NB Ramps (NS) at: • Second Street (EW)	• WB Right Turn Lane • NB All-Way Lane	\$ 50,000 \$ 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

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)	<ul style="list-style-type: none"> • Second EB Left Turn Lane • Second WB Left Turn Lane • EB Right-Turn Overlap Phasing • Third WB Through Lane • WB Right-Turn Overlap Phasing 	<ul style="list-style-type: none"> \$ 50,000 \$ 50,000 \$ 25,000 \$ 259,000 \$ 25,000
SR-71 Freeway SB Ramps (NS) at: • Chino Hills Parkway (EW) • Pine Avenue (EW)	<ul style="list-style-type: none"> • Third WB Through Lane • Second EB Through Lane 	<ul style="list-style-type: none"> \$ 259,000 \$ 259,000
SR-71 Freeway NB Ramps (NS) at: • Pine Avenue (EW)	<ul style="list-style-type: none"> • Traffic Signal • Second EB Through Lane 	<ul style="list-style-type: none"> \$ 120,000 \$ 259,000
Central Avenue (NS) at: • Edison Avenue (EW) • El Prado Road (EW)	<ul style="list-style-type: none"> • NB Right-Turn Overlap Phasing • Second EB Left Turn Lane • Second WB Left Turn Lane • EB Right Turn Lane • Traffic Signal • Second NB Through Lane • Second SB Left Turn Lane 	<ul style="list-style-type: none"> \$ 25,000 \$ 50,000 \$ 50,000 \$ 50,000 \$ 120,000 \$ 259,000 \$ 50,000
El Prado Road (NS) at: • Kimball Road (EW) • Pine Avenue (EW)	<ul style="list-style-type: none"> • Traffic Signal • NB Right Turn Lane • Traffic Signal • EB Left Turn Lane • SB Left Turn Lane • Second EB Through Lane • WB Right Turn Lane 	<ul style="list-style-type: none"> \$ 120,000 \$ 50,000 \$ 120,000 \$ 50,000 \$ 50,000 \$ 259,000 \$ 50,000
Mountain Avenue (NS) at: • SR-60 Freeway WB Ramps (EW) • SR-60 Freeway EB Ramps (EW) • Walnut Avenue (EW) • Riverside Drive (EW)	<ul style="list-style-type: none"> • WB All-Way Lane • Second SB Left Turn Lane • EB All-Way Lane • Restripe EB All-Way Lane to a Second EB Left Turn Lane • Second EB Right Turn Lane • Second WB Through Lane • Second EB Through Lane • NB Right Turn Lane • Second SB Left Turn Lane 	<ul style="list-style-type: none"> \$ 259,000 \$ 50,000 \$ 259,000 \$ 10,000 \$ 350,000 \$ 259,000 \$ 259,000 \$ 50,000 \$ 50,000
Euclid Avenue (NS) at: • SR-60 Freeway WB Ramps (EW)	<ul style="list-style-type: none"> • WB All-Way Lane 	<ul style="list-style-type: none"> \$ 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
• Kimball Avenue (EW) • Riverside Drive (EW)	• EB free-Right Turn Lane	\$ 350,000
	• Second EB Left Turn Lane	\$ 350,000
	• WB free-Right Turn Lane	\$ 350,000
	• 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
• Third SB Through Lane		\$ 259,000
• Second EB Left Turn Lane		\$ 50,000
• Second & Third EB Through Lanes (2)		\$ 518,000
• Merrill Avenue (EW)	• Second WB Through Lane	\$ 259,000
	• 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)
• 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) • SR-60 Freeway EB Ramps (EW) • Edison Street (EW)		• Westbound All-Way Lane
	• Second EB Left Turn Lane	\$ 350,000
	• Second EB Right Turn Lane	\$ 350,000
	• 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
<ul style="list-style-type: none"> • Merrill Avenue (EW) • Kimball Avenue (EW) • Bickmore Avenue (EW) • Pine Avenue (EW) 	• EB Left Turn Lane	\$ 50,000
	• 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
	• 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
	• 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
	• 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
• Kimball Avenue (EW)	• 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)	<ul style="list-style-type: none"> • Second EB Through Lane • WB Left Turn Lane • Second NB Through Lane • Second SB Through Lane • EB Left Turn Lane • Second WB Through Lane • NB Right-Turn Overlap Phasing • Second SB Left Turn Lane • Second WB Left Turn Lane 	<ul style="list-style-type: none"> \$ 259,000 \$ 50,000 \$ 259,000 \$ 259,000 \$ 50,000 \$ 259,000 \$ 25,000 \$ 50,000 \$ 50,000
• Schleisman Road (EW)	<ul style="list-style-type: none"> • Traffic Signal • EB Left Turn Lane • WB Left Turn Lane • Second NB Through Lane • Second SB Through Lane • NB Right Turn Lane • SB Right Turn Lane • Second WB Left Turn Lane 	<ul style="list-style-type: none"> \$ 120,000 \$ 50,000 \$ 50,000 \$ 259,000 \$ 259,000 \$ 50,000 \$ 50,000 \$ 50,000
I-15 Freeway SB Ramps (NS) at: • Galena Street (EW) • Limonite Avenue (EW) • Second Street (EW)	<ul style="list-style-type: none"> • Second EB Right Turn Lane • Second SB Right Turn Lane • First & Second EB Right Turn Lanes (2) • Second SB Right Turn Lane 	<ul style="list-style-type: none"> \$ 50,000 \$ 350,000 \$ 100,000 \$ 350,000
I-15 Freeway NB Ramps (NS) at: • Second Street (EW)	<ul style="list-style-type: none"> • WB Right Turn Lane • NB All-Way Lane 	<ul style="list-style-type: none"> \$ 50,000 \$ 259,000
Hellman Avenue • Eucalyptus Ave. to Merrill Ave.	<ul style="list-style-type: none"> • Construct 2 Lanes (0.6 Miles) 	<ul style="list-style-type: none"> \$ 1,200,000
Kimball Avenue • Hellman Ave. to Archibald Ave.	<ul style="list-style-type: none"> • Construct 2 Lanes (1.1 Miles) 	<ul style="list-style-type: none"> \$ 2,200,000
Pine Avenue • SR-71 Fwy. to El Prado Rd.	<ul style="list-style-type: none"> • Construct 2 Lanes (0.6 Miles) 	<ul style="list-style-type: none"> \$ 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)		COST PER MILE	TOTAL COST
			GENERAL	HOV		
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)		COST PER MILE	TOTAL COST
			GENERAL	HOV		
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.

TABLE 6-4

SUMMARY OF CMP FREEWAY MAINLINE PM IMPROVEMENTS AND COSTS

FREEWAY	SEGMENT LIMITS	SEGMENT LENGTH (MILES)	IMPROVEMENT (LANES ADDED)		COST PER MILE	TOTAL COST
			GENERAL	HOV		
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)		COST PER MILE	TOTAL COST
			GENERAL	HOV		
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.

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.

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
SR-71 Fwy. SB	I-15 Fwy. to Van Buren Blvd.	5,553	10,236	653	4,683	13.94%	\$5,280,000	\$736,284
	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
SR-71 Fwy. NB	Euclid Ave. (SR-83) to SR-91 Fwy.	1,054	4,016	405	2,962	13.67%	\$0	\$0
	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
SR-91 Fwy. WB	Grand Ave. to Chino Ave.	1,857	7,156	565	5,299	10.66%	\$0	\$0
	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.

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

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 synchronization 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/SCRRRA/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-complete 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	Comdor Study	Evaluate Riverside-Orange County comdor 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 infrastructure; increase employment; provide affordable 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