URBAN
CROSSROADS

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TENTATIVE TRACT MAP NO. 34556
TRAFFIC IMPACT ANALYSIS
COUNTY OF RIVERSIDE, CALIFORNIA

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1.0 INTRODUCTION AND SUMMARY

A. Purpose of Report and Study Objectives

The purpose of this traffic impact analysis (TIA) is to evaluate the traffic impacts of the proposed residential development known as Tentative Tract No. 34556. The current zoning and the proposed zoning for the project is SP (Vista Santa Rosa Specific Plan). The proposed project consists of approximately 301 single family residential dwelling units.

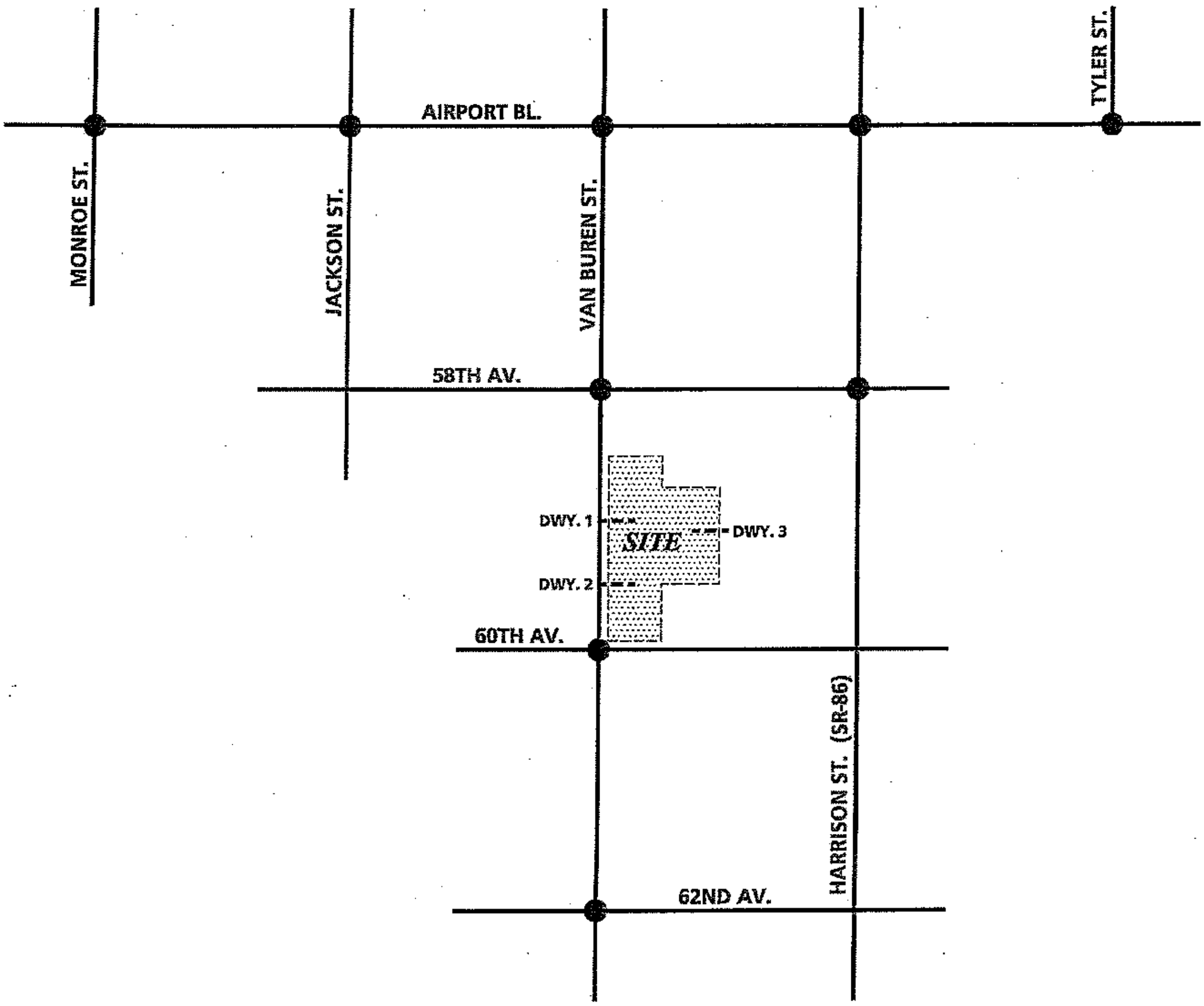
Study objectives include (1) documentation of existing traffic conditions in the vicinity of the site; (2) evaluation of existing plus ambient growth plus project traffic conditions; (3) evaluation of existing plus ambient growth plus project plus other cumulative development traffic conditions; (4) evaluation of general plan buildout with project conditions; (5) determination of on-site and off-site improvements and system management actions needed to achieve County of Riverside level of service requirements.

B. Site Location and Study Area

The project site is located south generally located north of 60th Avenue and east of Van Buren Street in the County of Riverside. Exhibit 1-A illustrates the site location and the traffic analysis study area.

EXHIBIT 1-A

LOCATION MAP



LEGEND:

● = INTERSECTION ANALYSIS LOCATION

In general, the study area shall include any intersection of Collector or higher classification street with another Collector roadway or higher classification street, at which the proposed project will add 50 or more peak hour trips, not exceeding a 5-mile radius from the project site. Pursuant to the attached scoping agreement (see Appendix "A") and discussions with County of Riverside staff, the study area include the following intersections:

Monroe Street (NS) at:

- Airport Boulevard (EW)

Jackson Street (NS) at:

- Airport Boulevard (EW)

Van Buren Street (NS) at:

- Airport Boulevard (EW)
- Avenue 58 (EW)
- Avenue 60 (EW)
- Avenue 62 (EW)

Harrison Street (SR 86) (NS) at:

- Airport Boulevard (EW)
- Avenue 58 (EW)

Tyler Street (NS) at:

- Airport Boulevard (EW)

C. <u>Project Development Identification</u>

Riverside County Case Number: Tract 34556

D. Project Development Description

1. Project Size and Description

Tentative Tract No. 34556 proposes to develop 301 single-family detached residential homes on undeveloped land in the unincorporated region of Riverside County.

This land use plan is subject to refinement and revision, based on planning, engineering, and environmental considerations. For the purpose of this analysis, the following land use assumptions are evaluated:

- 301 single-family detached dwelling units

The proposed project will have two full access points to Van Buren Street and an emergency access to the east.

2. Existing Land Use and Zoning

The project site is currently zoned for SP (Vista Santa Rosa Specific Plan), and adjacent parcels are currently zoned for the following:

- North – A-1-20
- South – A-1-20
- East – A-1-20
- West – A-1-20

The site is currently vacant and does not generate traffic. Adjacent uses include the following:

- North – Vacant
- South – Vacant
- East – Vacant
- West – Vacant

3. Proposed Land Use and Zoning

Proposed Zoning:	SP, A-1-20 (Agriculture)
Proposed Land Use:	SP, R-1 (Medium Residential)

4. Site Plan

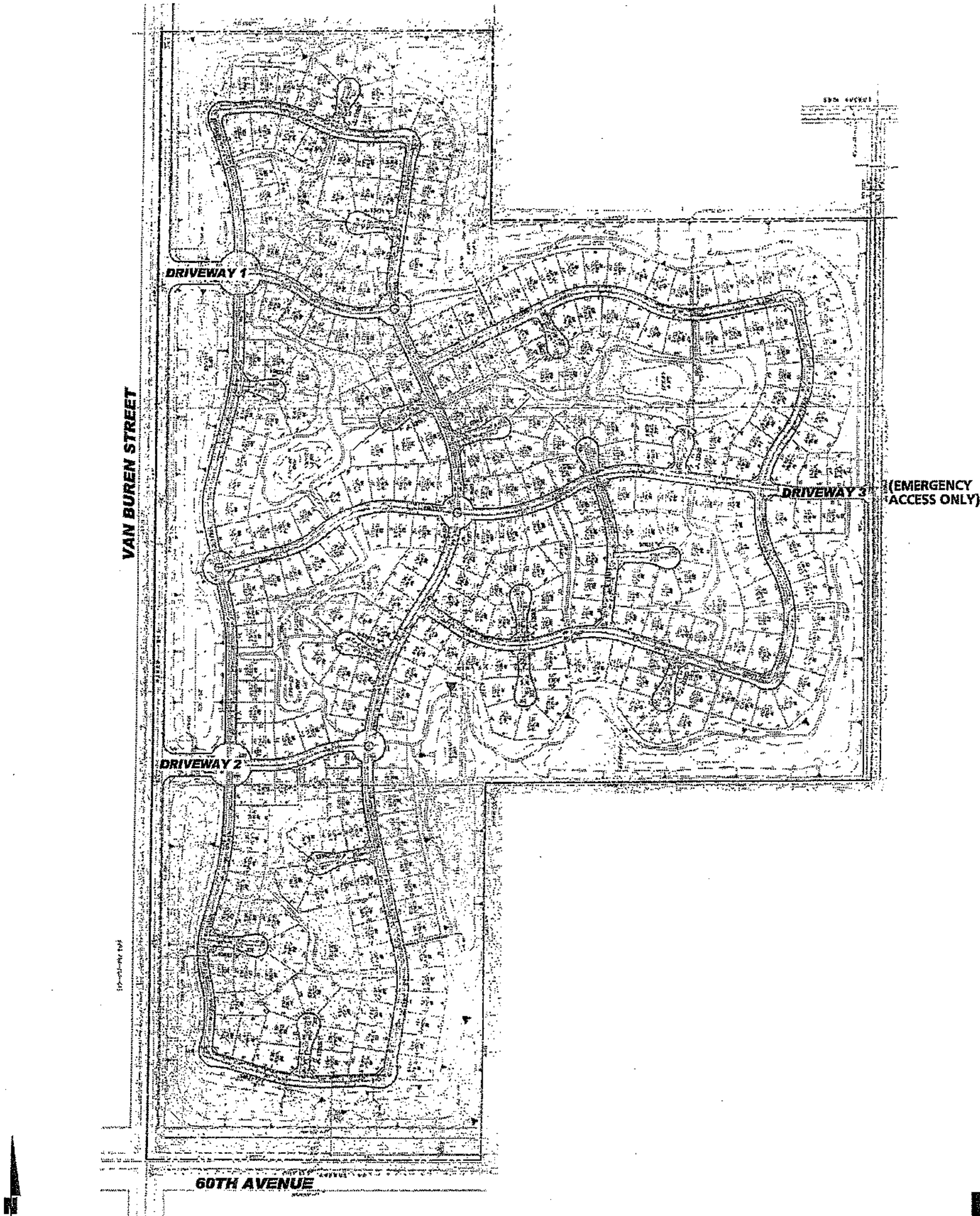
Exhibit 1-B illustrates the conceptual land use plan. This conceptual land use plan is subject to refinement and revision, based on planning, engineering, and environmental considerations.

5. Proposed Project Opening Year

The proposed project is anticipated to be completed in 2010. Future traffic analysis has been based upon four years of background (ambient) growth (2010), at 2% per year, along with traffic generated by other future developments in the surrounding area. The total ambient growth rate is 8.2% for 2010.

EXHIBIT 1-B

SITE PLAN



2.0 AREA CONDITIONS

A. Study Area

The study area includes the following existing intersections:

Monroe Street (NS) at:

- Airport Boulevard (EW)

Jackson Street (NS) at:

- Airport Boulevard (EW)

Van Buren Street (NS) at:

- Airport Boulevard (EW)
- Avenue 58 (EW)
- Avenue 60 (EW)
- Avenue 62 (EW)

Harrison Street (SR 86) (NS) at:

- Airport Boulevard (EW)
- Avenue 58 (EW)

Tyler Street (NS) at:

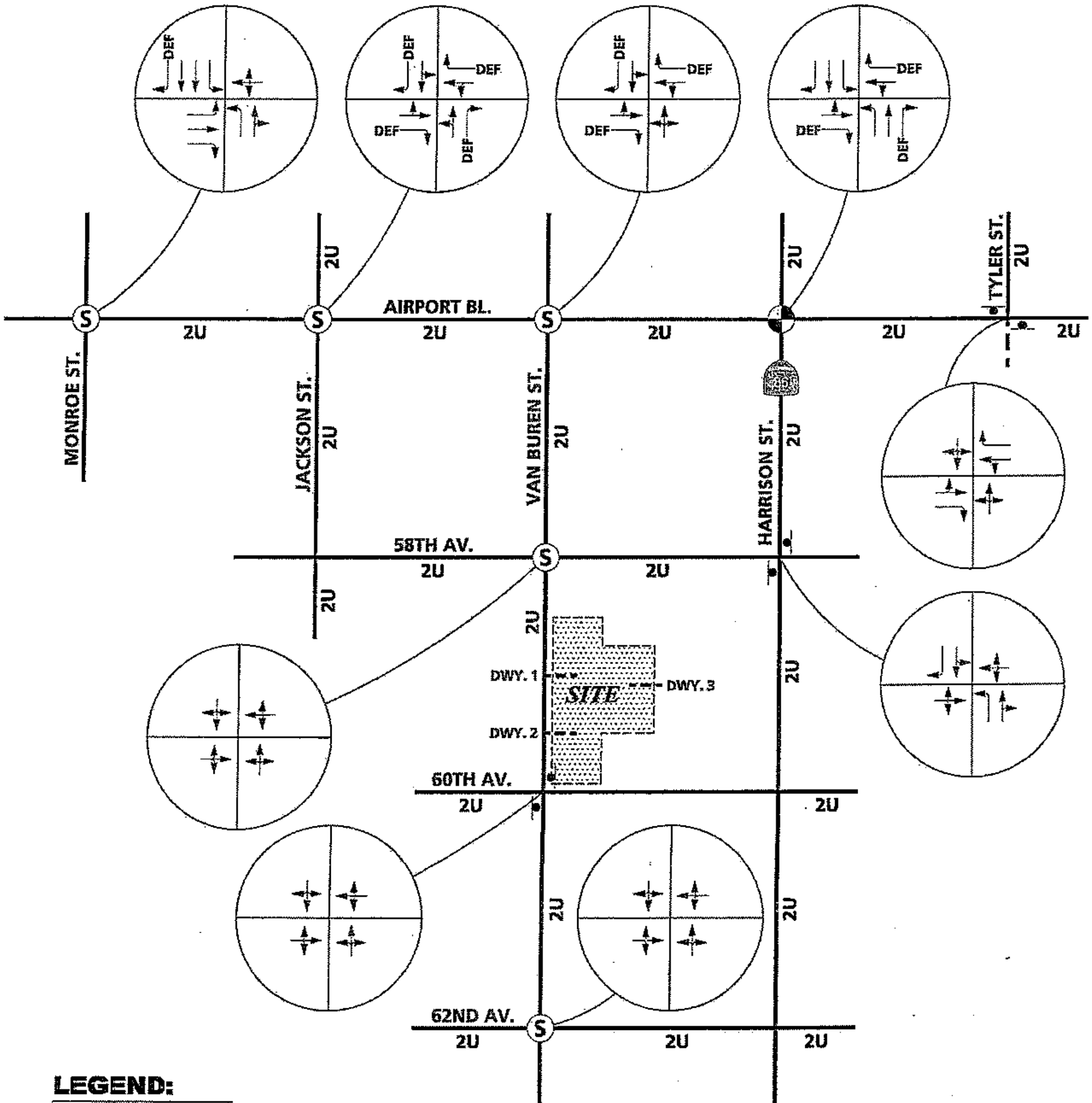
- Airport Boulevard (EW)

B. Existing Traffic Controls and Intersection Geometrics

Exhibit 2-A identifies the existing roadway conditions for study area roadways. The number of traffic lanes for existing roadways and the existing intersection controls are identified.

EXHIBIT 2-A

EXISTING NUMBER OF THROUGH LANES AND INTERSECTION CONTROLS



LEGEND:

- = TRAFFIC SIGNAL
- (S) = ALL WAY STOP
- = STOP SIGN
- 4 = NUMBER OF LANES
- D = DIVIDED
- U = UNDIVIDED
- DEF = DEFACTO RIGHT TURN LANE

N

C. Existing Traffic Volumes

Existing intersection AM and PM peak hour turning movements are shown on Exhibits 2-B and 2-C, respectively. Traffic count worksheets are included in Appendix B. It should be noted that some of the study area intersections have been increased where appropriate to reflect conservation of flow between the intersections.

D. Existing Level of Service

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" describes completely free-flow conditions. The operation of vehicles is virtually unaffected by the presence of other vehicles, and operations are constrained only by the geometric features of the highway and by driver preferences. Maneuverability within the traffic stream is good. Minor disruptions to flow are easily absorbed without a change in travel speed.

- LOS "B" also indicates free flow, although the presence of other vehicles becomes noticeable. Average travel speeds are the same as in LOS

EXHIBIT 2-B

EXISTING AM PEAK HOUR INTERSECTION VOLUMES

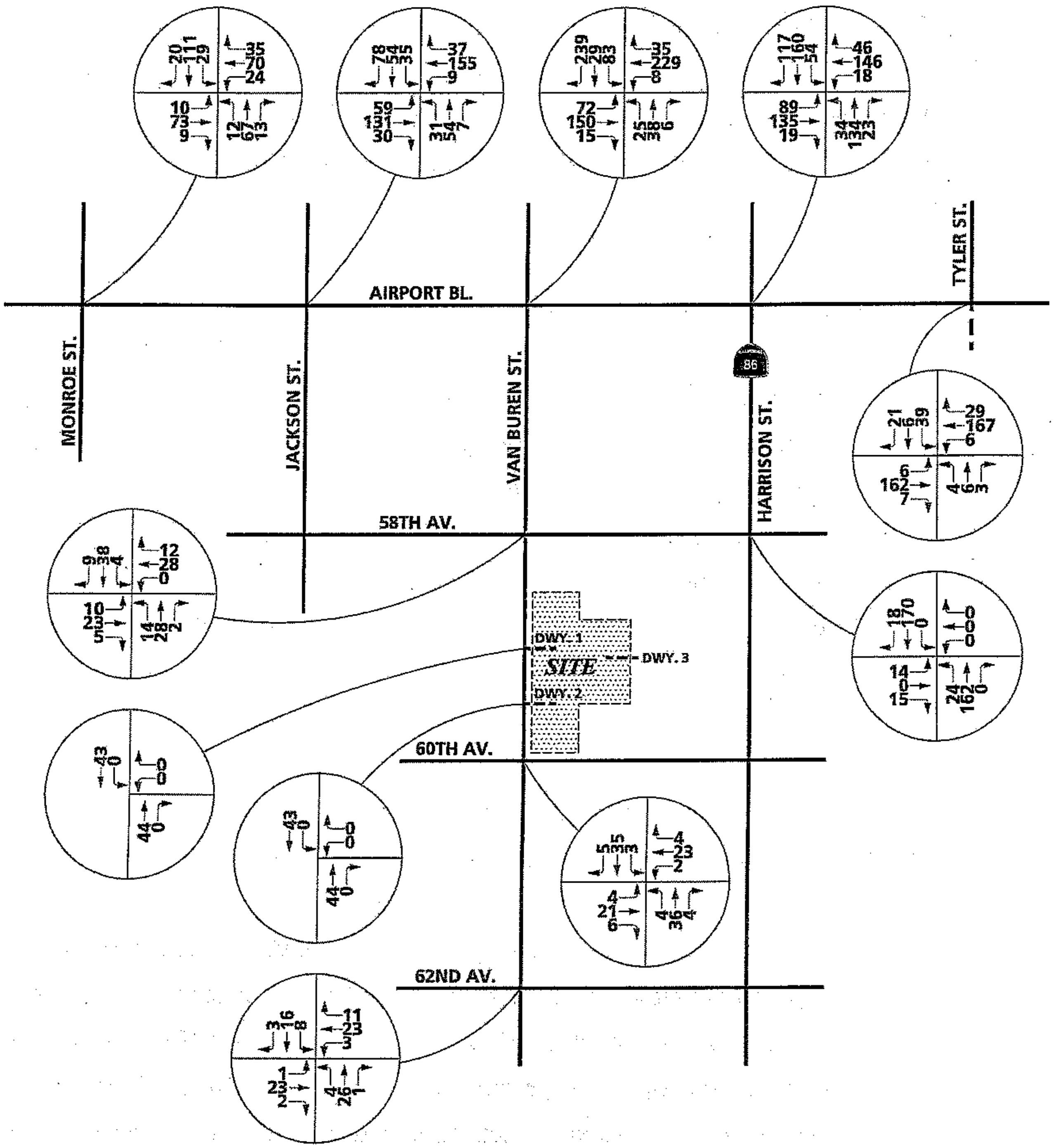
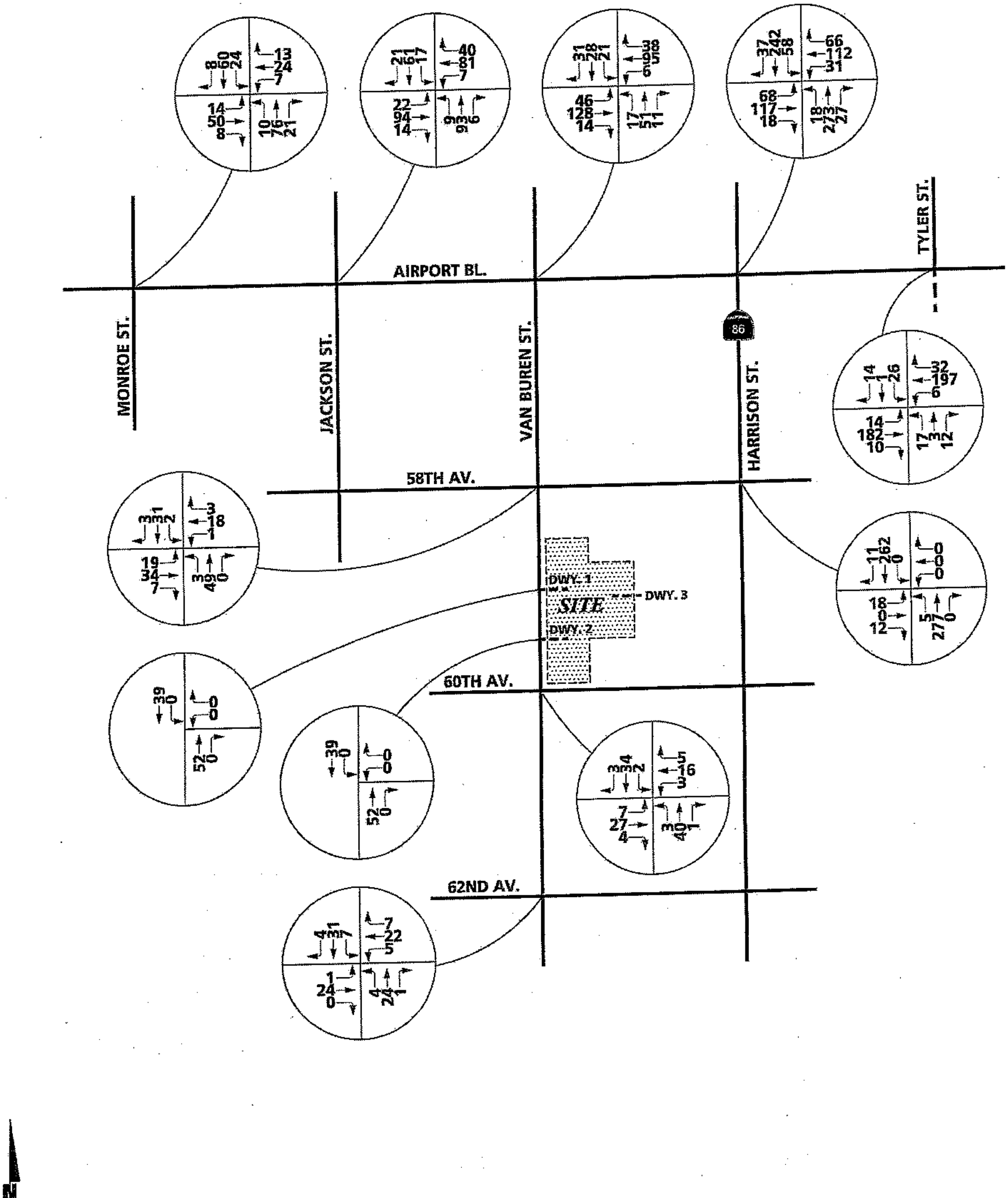


EXHIBIT 2-C

EXISTING PM PEAK HOUR INTERSECTION VOLUMES



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- "A", but drivers have slightly less freedom to maneuver. Minor disruptions are still easily absorbed, although local deterioration in LOS will be more obvious.

- LOS "C": The influence of traffic density on operations becomes marked. The ability to maneuver within the traffic stream is clearly affected by other vehicles. Minor disruptions can cause serious local deterioration in service, and queues will form behind any significant traffic disruption.

- LOS "D": The ability to maneuver is severely restricted due to traffic congestion. Travel speed is reduced by the increasing volume. Only minor disruptions can be absorbed without extensive queues forming and the service deteriorating.

- LOS "E" represents operations at or near capacity, an unstable level. Vehicles are operating with the minimum spacing for maintaining uniform flow. Disruptions cannot be dissipated readily, often causing queues to form and service to deteriorate to LOS "F".

- LOS "F" represents forced or breakdown flow. It occurs either when vehicles arrive at a rate greater than the rate at which they are discharged or when the forecast demand exceeds the computed capacity of a planned facility. Although operations at these points – and on sections immediately downstream – appear to be at capacity, queues form behind these breakdowns. Operations within queues are highly unstable, with vehicles experiencing brief periods of movement followed by stoppages.

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. The level of service has been calculated using data collected describing the intersection configuration and traffic volumes at the study area locations. 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(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 also 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 four seconds per phase in accordance with HCM recommended default values. Initial saturation flow rates of 1,900 vehicles per hour of green (vphg) have been assumed for all capacity analysis. In addition, a peak hour factor and a minimum green time has been applied to the service level calculations based on the County's traffic study guidelines. The minimum green times are based on the following formula:

$$\text{Minimum Green} = [(\text{curb-to-curb width}) / 4] + 5$$

The County has established, as a County-wide target, a Level of Service "C" on all County-maintained roads and conventional State Highways. As an exception, Level of Service "D" may be allowed in Community Development areas, only at intersections of any combination of Secondary Highways, Major Highways, Arterials, Urban Arterials, Expressways, conventional State Highways, or at freeway ramp intersections. LOS "E" may be allowed in designated community centers to the extent that it would support transit-oriented development and pedestrian communities, such as the proposed project. Based on this policy, level of service "D" is acceptable at the following intersections:

Monroe Street (NS) at:

- Airport Boulevard (EW)

Jackson Street (NS) at:

- Airport Boulevard (EW)

Van Buren Street (NS) at:

- Airport Boulevard (EW)
- Avenue 58 (EW)
- Avenue 60 (EW)
- Avenue 62 (EW)

Harrison Street (SR 86) (NS) at:

- Airport Boulevard (EW)
- Avenue 58 (EW)

Tyler Street (NS) at:

- Airport Boulevard (EW)

Existing peak hour traffic operations have been evaluated for study area intersections. The results of this analysis are summarized in Table 2-1, along with the existing intersection geometrics and traffic control devices at each analysis location. Existing intersection levels of service analysis worksheets are included in Appendix C.

For existing traffic conditions, the study area intersections are currently operating at acceptable levels of service during the peak hours, with existing geometry conditions.

TABLE 2-1

INTERSECTION ANALYSIS FOR EXISTING CONDITIONS

INTERSECTION	TRAFFIC CONTROL[3]	INTERSECTION APPROACH LANES[1]												DELAY[2] (SECS.)		LEVEL OF SERVICE	
		NORTH-BOUND			SOUTH-BOUND			EAST-BOUND			WEST-BOUND						
		L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
Monroe Street (NS) at:																	
• Airport Boulevard (EW)	AWS	1	1	0	1	2	1	1	1	1	0	1	0	8.9	8.6	A	A
Jackson Street (NS) at:																	
• Airport Boulevard (EW)	AWS	0	1	1	0	1	1	0	1	1	0	1	1	10.4	8.8	B	A
Van Buren Street (NS) at:																	
• Airport Boulevard (EW)	AWS	0	1!	0	0	1	1	0	1	1	0	1	1	15.2	9.3	C	A
• Avenue 58 (EW)	AWS	0	1!	0	0	1!	0	0	1!	0	0	1!	0	7.3	7.8	A	A
• Avenue 60 (EW)	CSS	0	1!	0	0	1!	0	0	1!	0	0	1!	0	9.6	9.6	A	A
• Avenue 62 (EW)	AWS	0	1!	0	0	1!	0	0	1!	0	0	1!	0	7.2	7.3	A	A
Harrison Street (NS) at:																	
• Airport Boulevard (EW)	TS	1	1	1	1	1	1	0	1	1	0	1	1	16.5	17.2	B	B
• Avenue 58 (EW)	CSS	1	1	0	1	1	0	0	1!	0	0	1!	0	10.5	12.5	B	B
Tyler Street (NS) at:																	
• Airport Boulevard (EW)	CSS	0	1!	0	0	1!	0	0	1	1	0	1	1	12.0	12.1	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; ! = Left-Thru-Right

2 Delay and level of service calculated using the following analysis software: Traffix, Version 7.8 R2 . Per the 2000 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for worst individual movement (or movements sharing a single lane) are shown.

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

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E. General Plan Circulation Element

Exhibit 2-D shows the Riverside County General Plan Circulation Element and Exhibit 2-E illustrates the Riverside County arterial street cross-sections. Exhibit 2-F illustrates the Draft Roadway Phasing Plan for the South Valley Parkway study area.

F. Transit Service

The study area is currently served by the Sun Bus transit services with Route 91 servicing Harrison Street (SR-86).

RIVERSIDE COUNTY GENERAL PLAN CIRCULATION ELEMENT

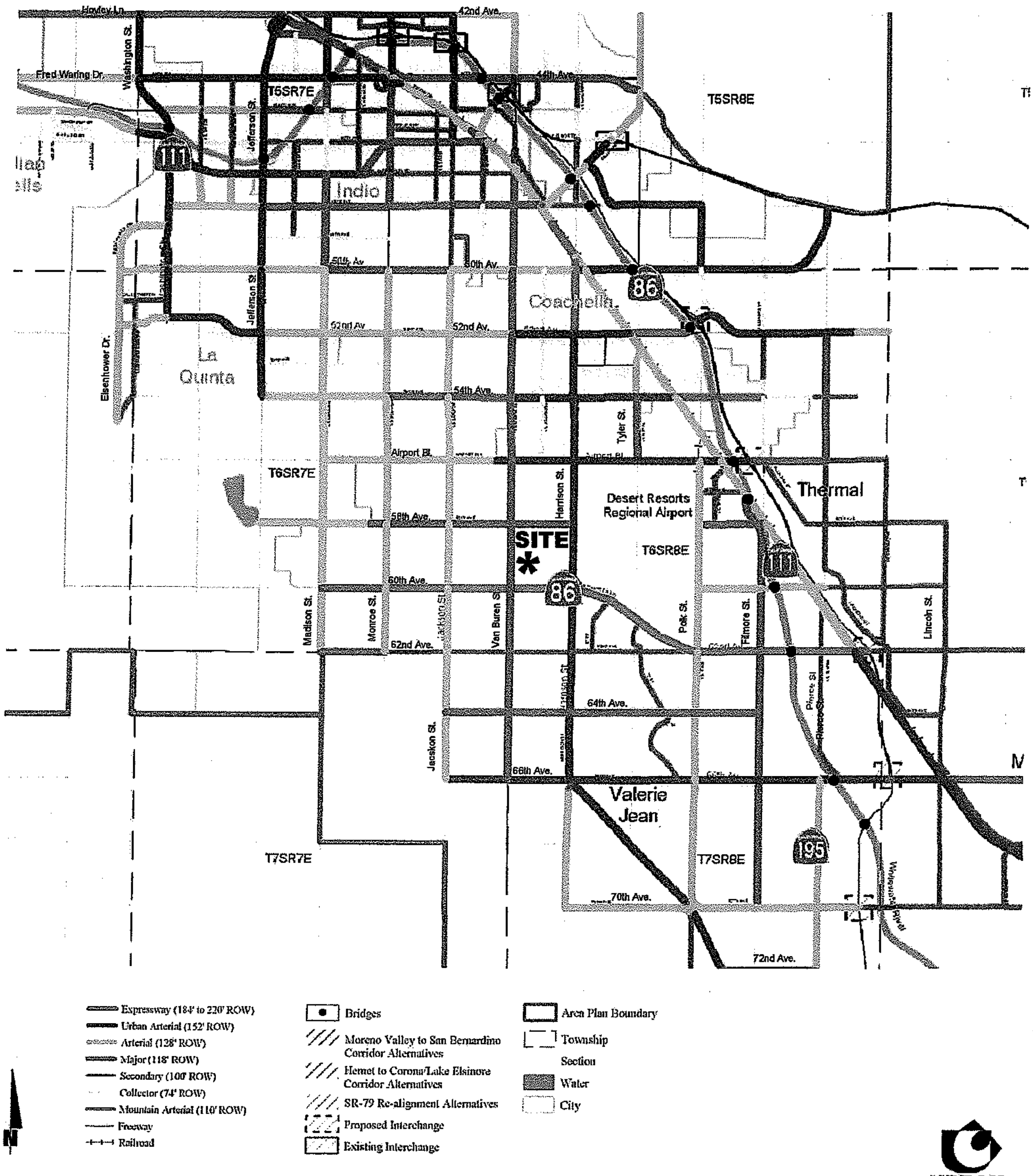
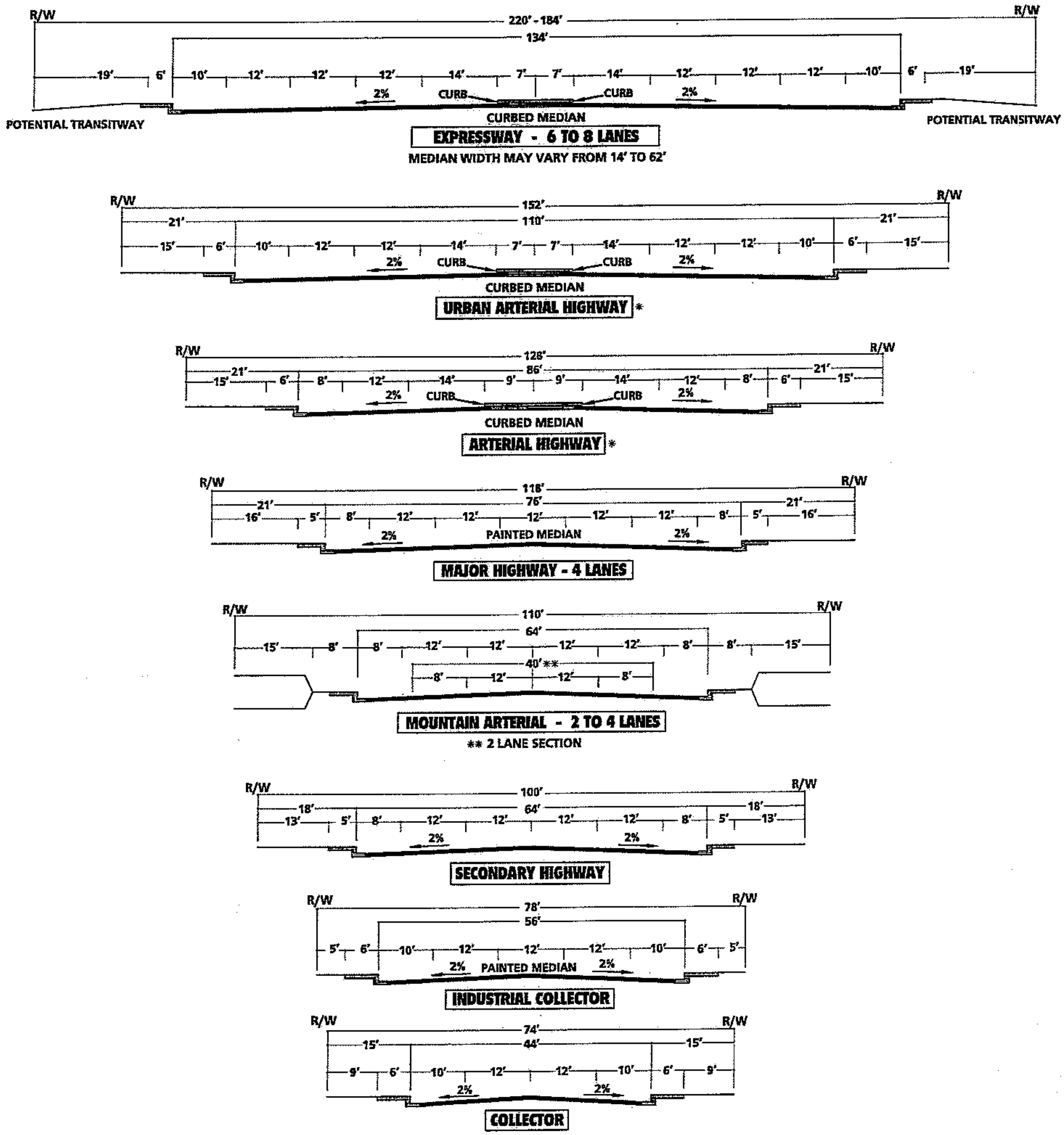


EXHIBIT 2-E

RIVERSIDE COUNTY GENERAL PLAN ROADWAY CROSS-SECTIONS

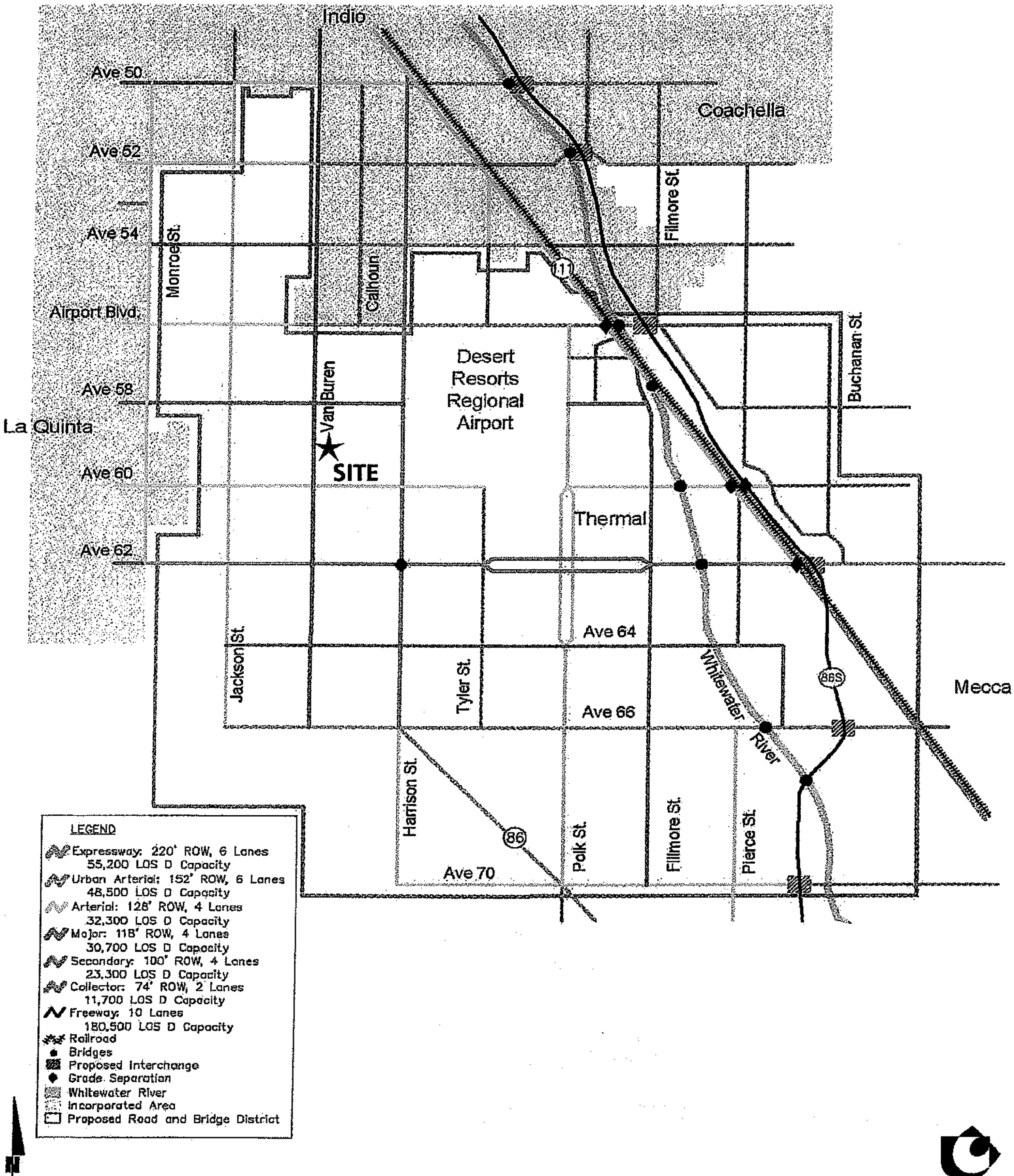


SOURCE: RIVERSIDE COUNTY

* IMPROVEMENTS MAY BE RECONFIGURED TO ACCOMMODATE EXCLUSIVE TRANSIT LANES OR ALTERNATIVE LANE ARRANGEMENTS ADDITIONAL RIGHT OF WAY MAY BE REQUIRED AT INTERSECTIONS TO ACCOMMODATE ULTIMATE IMPROVEMENTS FOR STATE HIGHWAYS SHALL CONFORM TO CALTRANS DESIGN STANDARDS.

EXHIBIT 2-F

SOUTH VALLEY ROADWAY PHASING PLAN



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3.0 PROJECTED FUTURE TRAFFIC

A. Project Traffic

1. Ambient Growth Rate

To account for ambient growth on roadways, future traffic volumes have been calculated based on a 2.0 percent annual growth rate of existing traffic volumes for a total of 8.2% for 2010 conditions. It should be noted that the ambient growth rate has been reviewed and approved by the County of Riverside Transportation Department. Ambient growth has been added to the peak hour traffic volumes on surrounding roadways.

The remaining growth is anticipated to be accounted for by development of other future projects in the study area that have been approved and are being processed concurrently.

2. Project Trip Generation

Trip generation represents the amount of traffic which is attracted and produced by a development. The trip generation for the project is based upon the specific land uses which have been planned for this development. For the purpose of this analysis, the following land use assumption is evaluated:

- 301 single-family detached dwelling units.

Trip generation rates for the proposed development are shown in Table 3-1. The trip generation rates are based upon data collected by the Institute of Transportation Engineers (ITE).

TABLE 3-1

PROJECT TRIP GENERATION RATES[1]

LAND USE	ITE CODE	UNITS[2]	PEAK HOUR TRIP RATES						DAILY
			AM			PM			
			IN	OUT	TOTAL	IN	OUT	TOTAL	
Single Family Residential	210	DU	0.19	0.56	0.75	0.64	0.37	1.01	9.57

1 Source: ITE (Institute of Transportation Engineers) Trip Generation Manual, 7th Edition, 2003.
2 DU = Dwelling Units

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Daily and peak hour trip generations for the proposed project are shown in Table 3-2. The proposed development is projected to generate a net total of approximately 2,881 trip-ends per day with 226 vehicles per hour during the AM peak hour and 304 vehicles per hour during the PM peak hour.

3. <u>Project Trip Distribution</u>

Trip distribution 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 employment, commercial and recreational opportunities and the proximity to the regional freeway system.

The directional orientation of traffic was determined by evaluating existing and proposed land uses and highways within the community and existing traffic volumes.

Trip distribution for this study has been based upon near-term conditions, based upon those highway facilities which are either in place or will be constructed in conjunction with other future developments over the next few years (for near-term analysis scenario).

The proposed project will have two full access points off Van Buren Street. The trip distribution pattern for the project is graphically depicted on Exhibit 3-A.

4. <u>Modal Split</u>

The traffic reducing potential of public transit has not been considered in this report. Essentially the traffic projections are "conservative" in that public transit might be able to reduce the traffic volumes.

TABLE 3-2

PROJECT TRIP GENERATION SUMMARY

LAND USE	QUANTITY	UNITS[1]	PEAK HOUR AM IN	AM OUT	AM TOTAL	PM IN	PM OUT	PM TOTAL	DAILY
Single Family	301	DU	57	169	226	193	111	304	2,881
TOTAL			57	169	226	193	111	304	2,881

[1] DU = Dwelling Units

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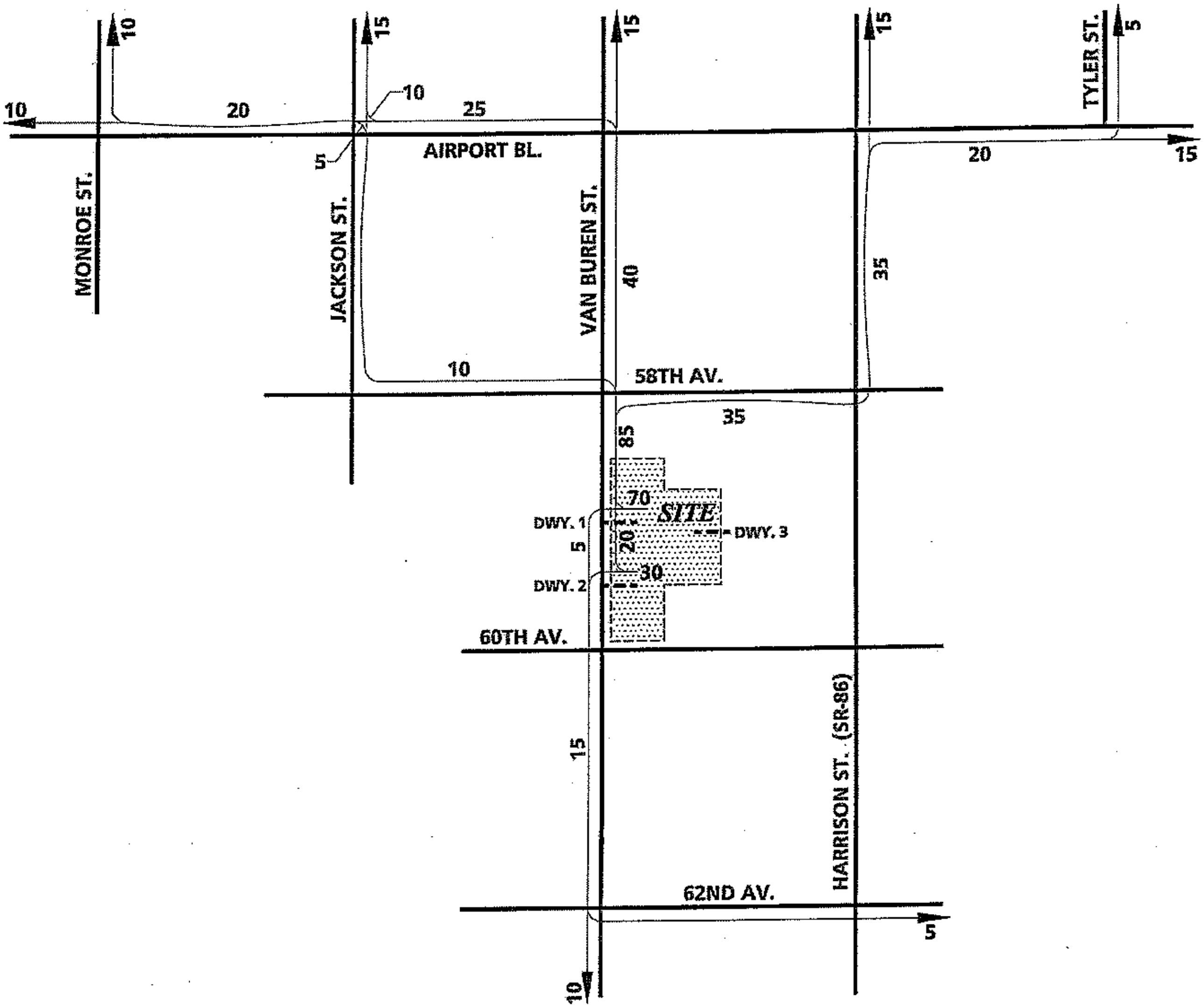
PROJECT TRIP DISTRIBUTION



LEGEND:

10 = PERCENT TO/FROM PROJECT

5. Project Trip Assignment

The assignment of traffic from the site to the adjoining roadway system has been based upon the site's trip generation, trip distribution, proposed arterial highway and local street systems, which would be in place by the time of initial occupancy of the site. Based on the identified project traffic generation and distribution, project AM and PM peak hour intersection traffic volumes are shown on Exhibits 3-B and 3-C, respectively.

B. Other Future Development Traffic

1. Method of Projection

To assess existing plus ambient plus project traffic conditions, project traffic is combined with existing traffic and area-wide growth. The County also requires an additional scenario that includes other future developments which are approved or being processed concurrently in the study area. Developments which are being processed concurrently in the study area have been provided by County staff, City of La Quinta and the City of Coachella's Development Status Report (January 2006).

2. Other Approved Projects

The cumulative developments are included in addition to the existing land use in the study area. Table 3-3 presents the other development trip generates and Table 3-4 provides the other development land use and trip generation. Exhibit 3-D illustrates the cumulative location map.

EXHIBIT 3-B

PROJECT AM PEAK HOUR INTERSECTION VOLUMES

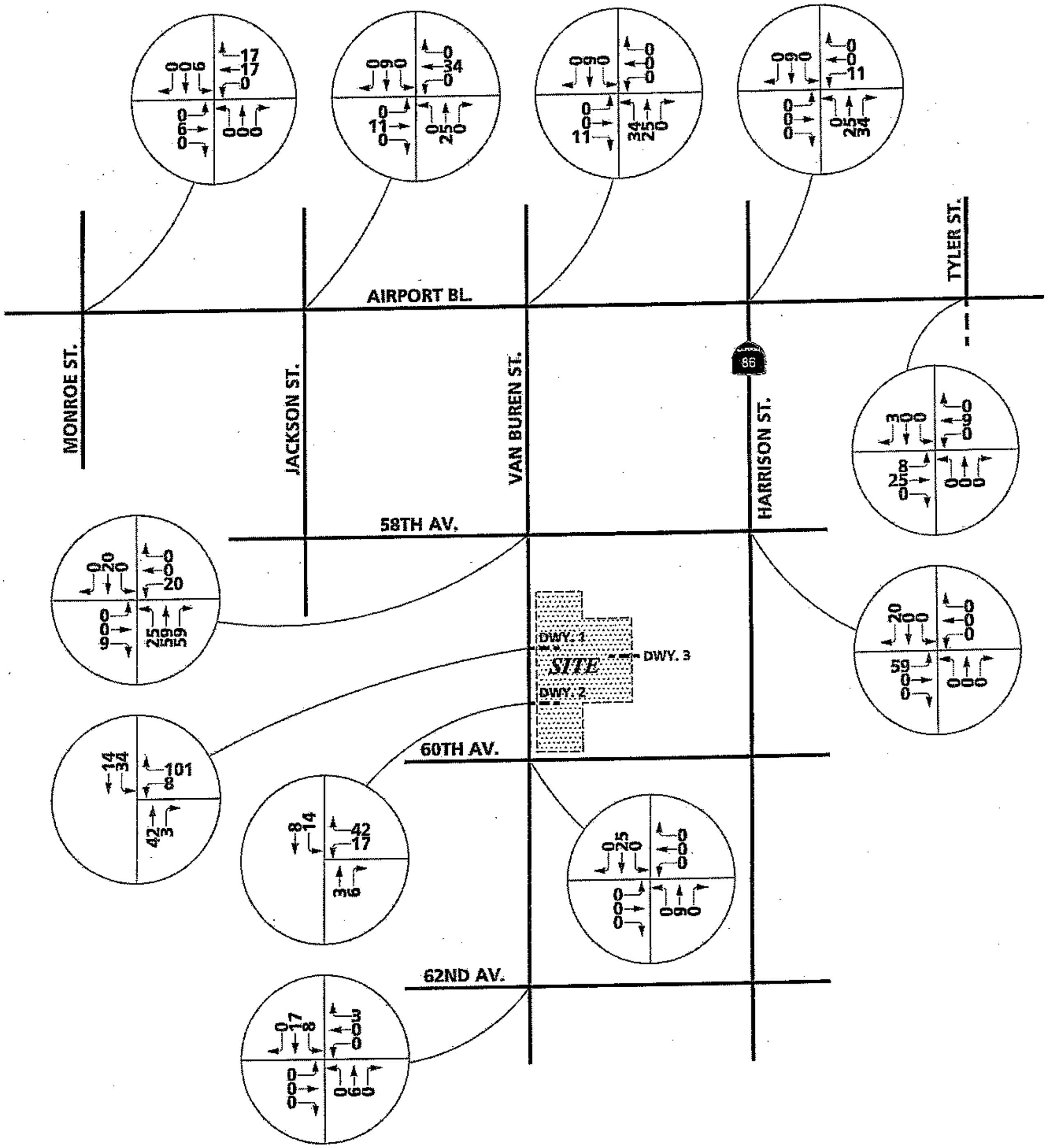


EXHIBIT 3-C

PROJECT PM PEAK HOUR INTERSECTION VOLUMES

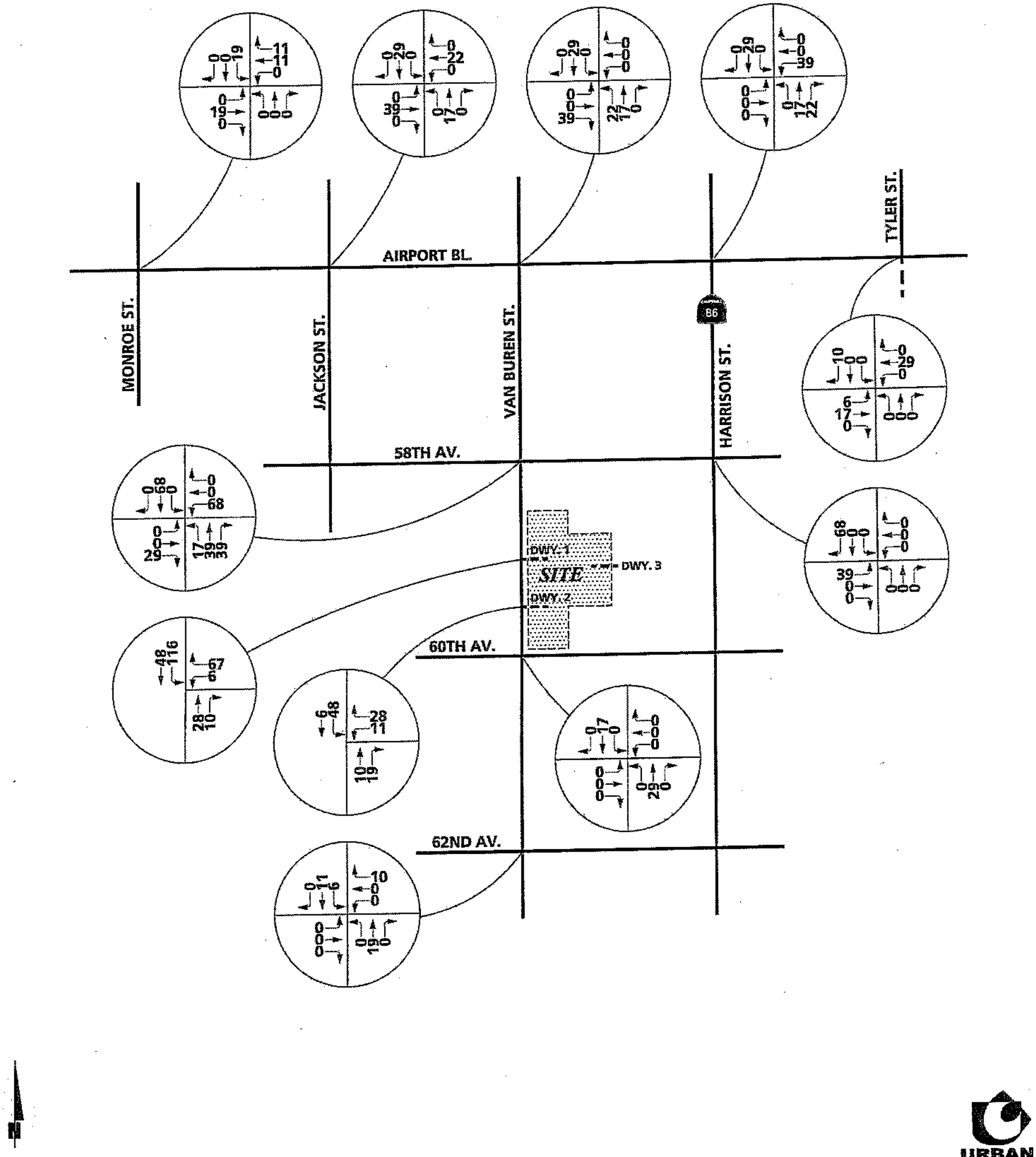
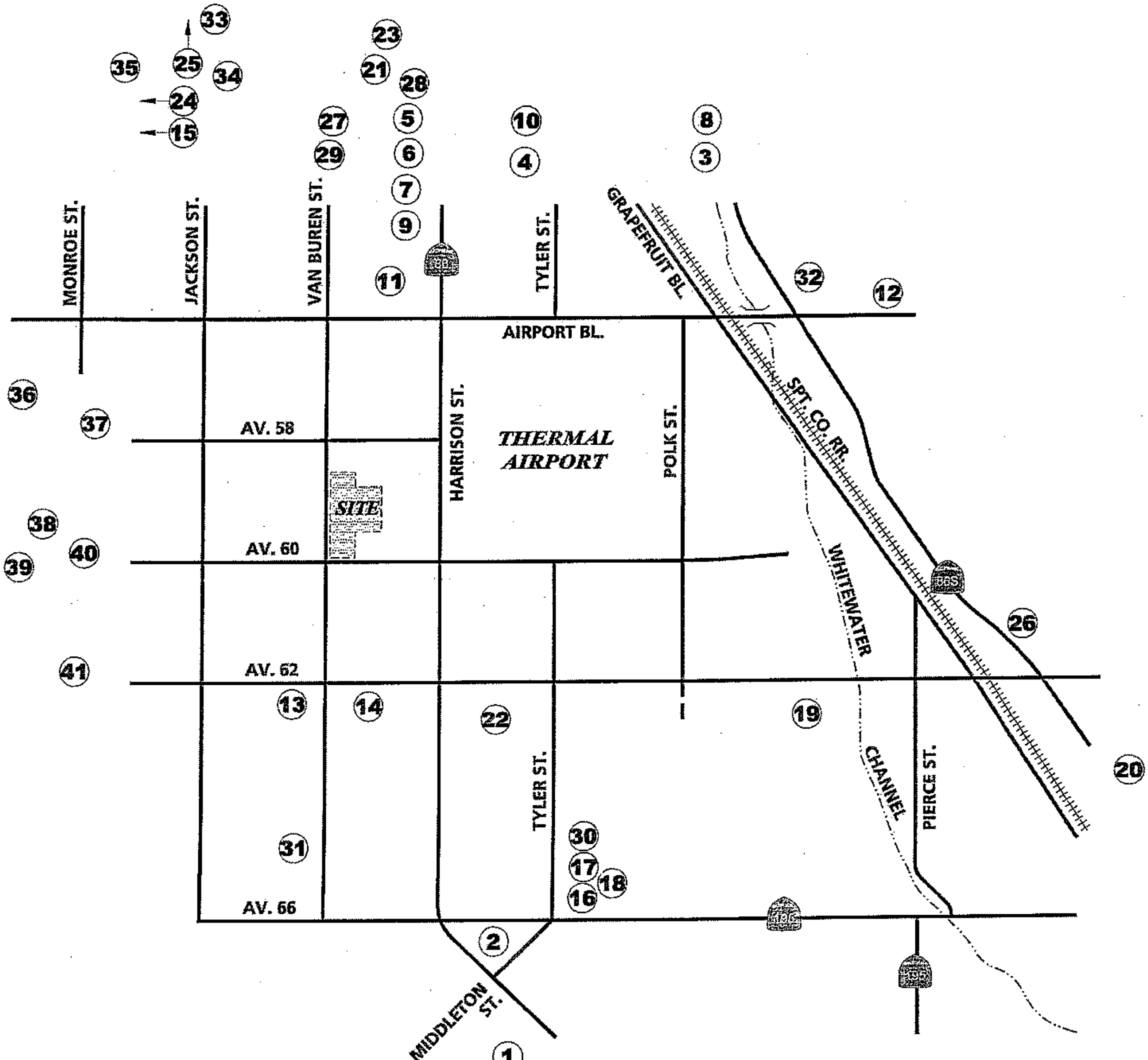


EXHIBIT 3-D

CUMULATIVE DEVELOPMENT LOCATION MAP



LEGEND:

ID#	PROJECT
1	MIGRANT CAMP
2	AUTO REPAIR W/ MOBILE HOME
3	MEGAN'S WORLD
4	RANCHO DE LA FE TTM 30889 TTM 31714 TTM 31978
5	ANTHONY 2 TTM 31664 SUN DATE 2 SUN DATE 1 TTM 31508 SUN DATE 3 SUN DATE 4 ANTHONY 1
6	RETAIL STRIP CENTRAL
7	TERRA BONITA TTM 31158
8	INDUSTRIAL PARK
9	TTM 30872 & COMMERCIAL PARCEL
10	MANUFACTURING & RESIDENTIAL TTM 31533
11	TTM 31550
12	TTM 32478
13	CASA DEL LAGO TR 32693
14	RANCHO SANTA ROSA TR 32694
15	TTM 32074

ID#	PROJECT
16	QUINTANA (KOHL RANCH) PHASE 1
17	QUINTANA (KOHL RANCH) SCHOOL
18	QUINTANA (KOHL RANCH) PHASE 2
19	CUP 03448
20	CUP 03500
21	RANCHO LAS FLORES TTM 30498 PAUL VAN-WEELDON TTM 30354 RANCHO MARIPOSA TTM 30631
22	LA QUINTA (PHASE I) LA QUINTA (PHASE II)
23	LA COLONIA LAS PLUMAS TTM 31376 TTM 33551
24	TTM 30684
25	COMMERCIAL CENTER
26	COACHELLA MIXED-USE (NORTH)
27	LA MORADA TTM 30830 VALENCIA TTM 31698
28	RITE AID W/ DRIVE THRU
29	TTM 31551
30	TTM 33467
31	TTM 34496

ID#	PROJECT
32	MARAVILLA SPECIFIC PLAN
33	RANCHO SANTANA CARMELLA
34	TTM 33559 TTM 33697
35	GRIFFIN RANCH
36	TTM 34243 TTM 33336 TTM 32279
37	PIAZZA SERENA CAPISTRANO TTM 33717
38	CORAL OPTION 1
39	CLASSIC ENTERPRISE CORAL MOUNTAIN
40	TTM 32398
41	ENCLAVE TTM 31732 TTM 31733

TABLE 3-3

OTHER DEVELOPMENT TRIP GENERATION RATES[1]

LAND USE	ITE CODE	UNITS[2]	PEAK HOUR TRIP RATES						DAILY
			AM			PM			
			IN	OUT	TOTAL	IN	OUT	TOTAL	
SFDR	210	DU	0.19	0.56	0.75	0.64	0.37	1.01	9.57
Condo/Townhouse	230	DU	0.07	0.37	0.44	0.35	0.17	0.52	5.86
Auto Repair	SANDAG[3]	STALLS	1.12	0.48	1.6	0.88	1.32	2.2	20
Industrial Park	130	TSF	7.1	1.45	8.55	1.86	6.98	8.84	63.11
Warehouse	150	TSF	0.37	0.08	0.45	0.12	0.35	0.47	4.96
Neighborhood Park	SANDAG[3]	AC	0.10	0.10	0.20	0.20	0.20	0.40	5.00
Elementary School	520	STU	0.23	0.19	0.42	0.03	0.06	0.09	1.29
Middle School	522	STU	0.29	0.24	0.53	0.08	0.07	0.15	1.62
Commercial (24 TSF)	820	TSF	1.69	1.08	2.77	4.88	5.29	10.17	111.91
Commercial (136.452.9 TSF)	820	TSF	0.84	0.54	1.38	2.70	2.93	5.63	60.91
Commercial (138.3 TSF)	820	TSF	0.84	0.54	1.38	2.69	2.92	5.61	60.62
Home Improvement	862	TSF	0.65	0.55	1.20	1.15	1.30	2.45	29.80
Pharmacy w/ Drive Thru'	881	TSF	1.52	1.14	2.66	4.22	4.40	8.62	88.16
Golf Course	430	AC	0.16	0.05	0.21	0.10	0.20	0.30	5.04
Hotel	310	RM	0.34	0.22	0.56	0.31	0.27	0.58	8.17
Apartment	220	DU	0.10	0.41	0.51	0.40	0.22	0.62	6.72
Mobile Home	240	OCC DU	0.09	0.35	0.44	0.37	0.22	0.59	4.99
Manufacturing	140	TSF	0.56	0.17	0.73	0.27	0.47	0.74	3.82
High School	530	STU	0.28	0.13	0.41	0.07	0.07	0.14	1.71
Restaurant	932	TSF	5.99	5.53	11.52	6.66	4.29	10.95	127.15

[1] Source: ITE (Institute of Transportation Engineers) Trip Generation Manual, 7th Edition, 2003.

[2] DU = Dwelling Units
RM = Rooms
STU = Students
AC = Acres
TSF = Thousand Square Feet
OCC DU = Occupied Dwelling Units

[3] SANDAG = (NOT SO) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region. April 2002.

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TABLE 3-4 (Page 1 of 2)

OTHER DEVELOPMENT LAND USE AND TRIP GENERATION

PROJECT					PEAK HOUR						
					AM			PM			
ID#	NAME	LAND USE[1]	QUANTITY	UNITS[2]	IN	OUT	TOTAL	IN	OUT	TOTAL	DAILY
1	Migrant Camp	Mobile Home	48	DU	4	17	21	18	11	28	240
2	Auto Repair w/ Mobile Home	Auto Repair	3	STALLS	3	1	5	3	4	7	60
		Mobile Home	1	OCC DU	0	0	0	0	0	1	5
		Subtotal			3	1	5	3	4	8	65
3	Megan's World	Manufacturing	90.6	TSF	51	15	66	24	43	67	346
4	Rancho de la Fe TTM 30889	SDFR	125	DU	24	70	94	80	46	126	1,196
	TTM 31714	SDFR	150	DU	29	84	113	96	56	152	1,436
	TTM 31978	SDFR	160	DU	30	90	120	102	59	162	1,531
		Subtotal			83	244	326	278	161	439	4,163
5	Anthony 2 TTM 31664	SDFR	153	DU	29	86	115	98	57	155	1,464
	Sun Date 2	SDFR	160	DU	30	90	120	102	59	162	1,531
	Sun Date 1 TTM 31508	SDFR	168	DU	32	94	126	108	62	170	1,608
	Sun Date 3	SDFR	177	DU	34	99	133	113	65	179	1,694
	Sun Date 4	SDFR	157	DU	30	88	118	100	58	159	1,502
	Anthony 1	SDFR	179	DU	34	100	134	115	66	181	1,713
		Subtotal			189	557	746	636	368	1,004	9,513
6	Retail Strip Central	Commercial	24	TSF	41	26	67	117	127	244	2,686
7	Terra Bonita TTM 31158	SDFR	115	DU	22	64	86	74	43	116	1,101
8	Industrial Park	Industrial	33.7	AC	239	49	288	63	235	298	2,127
9	TTM 30872 & Commercial Parcel	SDFR	95	DU	18	53	71	61	35	96	909
		Commercial	138.3	TSF	116	75	191	372	404	776	8,384
		Less Pass-By	25%		--	--	--	-93	-101	-194	-2,096
		Subtotal			134	128	262	340	338	678	7,197
10	Manufacturing & Residential TTM 31533	SDFR	265	DU	50	148	199	170	98	268	2,536
		Manufacturing	31.96	TSF	18	5	23	9	15	24	122
		Subtotal			68	153	222	181	110	292	2,658
11	TTM 31550	SDFR	80	DU	15	45	60	51	30	81	766
12	TTM 32478	SDFR	232	DU	44	130	174	148	86	234	2,220
13	Casa del Lago TR 32693	SDFR	269	DU	51	151	202	172	100	272	2,574
14	Rancho Santa Rosa TR 32694	SDFR	852	DU	162	477	639	545	315	861	8,154
		Elementary School	600	STU	138	114	252	18	36	54	774
		Junior High School	600	STU	174	144	318	48	42	90	972
		Subtotal			474	735	1,209	611	393	1,005	9,900
15	TTM 32074	SDFR	155	DU	29	87	116	99	57	157	1,483
16	Quintana (Kohl Ranch) Phase 1	SFDR	881	DU	167	493	660	564	326	890	8431
17	Quintana (Kohl Ranch) School Phase 1	Middle School	230	STU	67	55	122	18	16	34	373
		High School	957	STU	268	124	392	67	67	134	1,636
		Subtotal			335	180	514	85	83	168	2,009
18	Quintana (Kohl Ranch) Phase 2	SDFR	887	DU	169	497	666	568	328	896	8,489
19	CUP 03448	Mobile Home	72	DU	6	25	32	27	16	42	359
20	CUP 03500	Mobile Home	80	DU	7	28	35	30	18	47	399
21	Rancho las Flores TTM 30498	SDFR	552	DU	105	309	414	353	204	558	5,283
	Paul Van Weeldon TTM 30354	SDFR	126	DU	24	71	95	81	47	127	1,206
	Rancho Mariposa TTM 30831	SDFR	112	DU	21	63	84	72	41	113	1,072
		Subtotal			150	442	593	506	292	798	7,560
22	La Quinta (Phase I)	SDFR	946	DU	180	530	710	605	350	955	9,053
		Condo / Townhomes	310	DU	22	115	136	109	53	161	1,817
	La Quinta (Phase II)[5]	SDFR	302	DU	57	169	227	193	112	305	2,890
		Condo / Townhomes	83	DU	6	31	37	29	14	43	486
		Subtotal			265	844	1,109	936	529	1,465	14,246

TABLE 3-4 (Page 2 of 2)

OTHER DEVELOPMENT LAND USE AND TRIP GENERATION

PROJECT					PEAK HOUR						
					AM			PM			
ID#	NAME	LAND USE[1]	QUANTITY	UNITS[2]	IN	OUT	TOTAL	IN	OUT	TOTAL	DAILY
23	La Colonia	SDFR	122	DU	23	68	92	78	45	123	1,168
	Las Plumas TTM 31376	SDFR	87	DU	17	49	65	56	32	88	833
	TTM 33551	SDFR	143	DU	27	80	107	92	53	144	1,369
		Subtotal			67	197	264	225	130	356	3,369
24	TTM 30684	SDFR	233	DU	44	130	175	149	86	235	2,230
25	Commercial Center	Commercial	136.452	TSF	115	74	189	368	400	768	8,311
		Less Pass-By	25%		--	--	--	-92	-100	-192	-2,078
		Subtotal			115	74	189	276	300	576	6,233
26	Coachella Mixed-use (North)	SDFR	406	DU	77	227	304	260	150	410	3,885
		Condo / Townhomes	771	DU	54	285	339	270	131	401	4,518
		Elementary School	600	STU	138	114	252	18	36	54	774
		Park	7	AC	23	23	46	16	16	32	350
		Subtotal			292	649	941	564	333	897	9,527
		Internal Trips (Residential)			-10	-60	-70	-16	-7	-23	-118
		Internal Trips (School)			-60	-10	-70	-7	-16	-23	-118
		Total Reduction			-70	-70	-140	-23	-23	-46	-236
		Total External Trips			222	579	801	541	310	851	9,291
27	La Morada TTM 30830	SDFR	171	DU	32	96	128	109	63	173	1,636
	Valencia TTM 31698	SDFR	108	DU	21	60	81	69	40	109	1,034
		Subtotal			53	156	209	179	103	282	2,670
28	Rite Aid w/ Drive Thru	Pharmacy	17.272	TSF	26	20	46	73	76	149	1,523
29	TTM 31551	SDFR	252	DU	48	141	189	161	93	255	2,412
30	TTM 33487	SDFR	755	DU	143	423	566	483	279	763	7,225
31	TTM 34496	SDFR	8	DU	2	4	6	5	3	8	77
32	Maravilla Specific Plan[4]	SDFR		DU	372	1,114	1,486	1,136	668	1,804	18,254
		Apartments		DU	29	116	145	114	62	176	1,881
		Condos		DU	20	96	116	92	46	138	1,517
		Hotel		DU	59	42	101	51	54	105	1,338
		Golf Course		DU	32	8	40	22	27	49	643
		Commercial		DU	314	201	515	869	942	1,811	19,332
		Less Pass-By	25%		-79	-50	-129	-217	-236	-453	-4,833
		Subtotal (Maravilla Specific Plan)			747	1,527	2,274	2,067	1,563	3,630	38,132
33	Rancho Santana	SDFR	203	DU	39	114	152	130	75	205	1,943
	Carmella	SFDR	101	DU	19	57	76	65	37	102	967
		Subtotal	304		58	170	228	195	112	307	2,909
34	TTM 33559	SFDR	182	DU	35	102	137	116	67	184	1,742
	TTM 33697	SFDR	69	DU	13	39	52	44	26	70	660
		Subtotal	251		48	141	188	161	93	254	2,402
35	Griffin Ranch	SFDR	303	DU	58	170	227	194	112	306	2,900
36	TTM 34243	SFDR	70	DU	13	39	53	45	26	71	670
	TTM 33336	SFDR	23	DU	4	13	17	15	9	23	220
	TTM 32279	SFDR	31	DU	6	17	23	20	11	31	297
		Subtotal	124		24	69	93	79	46	125	1,187
37	Piazza Serena	SFDR	27	DU	5	15	20	17	10	27	258
	Capistrano	SFDR	130	DU	25	73	98	83	48	131	1,244
	TTM 33717	SFDR	17	DU	3	10	13	11	6	17	163
		Subtotal	174		33	97	131	111	64	176	1,665
38	Coral Option 1	SFDR	472	DU	90	264	354	302	175	477	4,517
39	Classic Enterprise	SFDR	24	DU	5	13	18	15	9	24	230
	Coral Mountain	SFDR	57	DU	11	32	43	36	21	58	545
		Subtotal			15	45	61	52	30	82	775
40	TTM 32398	SFDR	392	DU	74	220	294	251	145	396	3,751
41	Enclave	SFDR	474	DU	90	265	356	303	175	479	4,536
	TTM 31732	SFDR	199	DU	38	111	149	127	74	201	1,904
	TTM 31733	SFDR	127	DU	24	71	95	81	47	128	1,215
		Subtotal	800		152	448	600	512	296	808	7,656
TOTAL					4,564	9,787	14,354	11,548	7,714	19,262	189,456

[1] SFDR = Single Family Detached Residential

[2] DU = Dwelling Units

STU = Students

OCC DU = Occupied DU

TSF = Thousand Square Feet

[3] Internal Capture is the reduction of the overall traffic due to the compatability of land uses within the project site.

[4] Source:trip Generation is based on the Maravilla Specific Plan Traffic Study, FEHR & PEERS Tranpsortation Consultants, April 2006.

[5] Assumed 33 % of the La Quinta (pahse II) development to be occupied by 2010.

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3. Other Development Trip Distribution

Appendix E contains the directional distribution and assignment of the cumulative development traffic.

4. Total Future Traffic

Based on the identified trip distribution for the cumulative development on arterial highways throughout the study area, cumulative development AM and PM peak hour intersection turning movement volumes are shown on Exhibits 3-E and 3-F, respectively.

Existing plus ambient plus project AM and PM peak hour intersection turning movement volumes are shown on Exhibits 3-G and 3-H, respectively.

Existing plus ambient plus project plus cumulative AM and PM peak hour intersection turning movement volumes are shown on Exhibits 3-I and 3-J, respectively.

5. General Plan Buildout

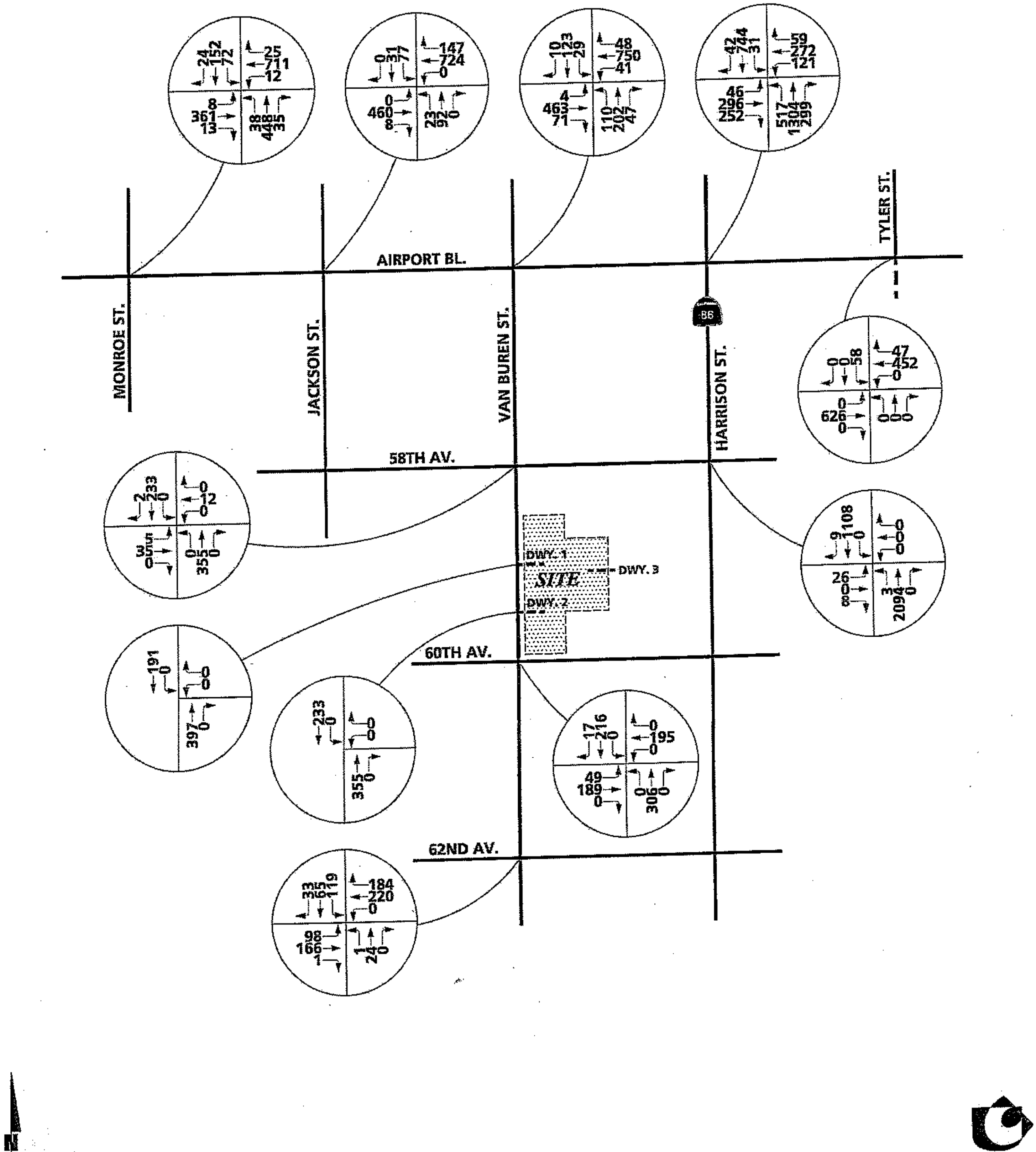
For long term buildout conditions, the General Plan Buildout volumes have been derived from the sub-regional travel demand model concurrently being used for long-range planning in the Coachella Valley. This model is referred to as the Coachella Valley Subarea Applications Traffic Model (CVSATM), which is an updated region model of the Coachella Valley Area Transportation Study (CVATS) regional model. This model has been refined to include updates to land use and network changes as developed for the South Valley Parkway Regional Study. General Plan Buildout forecasts have been developed from the traffic model using accepted procedures for model forecast refinement and smoothing.

The traffic forecasts reflect the area-wide growth anticipated between now and General Plan Buildout. The General Plan Buildout peak hour forecasts were refined using the long-range forecasts, along with projected EAPC peak hour traffic volumes at each analysis location. The traffic model zone structure is not designed to provide accurate turning movements along arterial roadways unless refinement and reasonableness checking is performed.

The initial estimate of the future General Plan Buildout peak hour turning movements has, therefore, been reviewed for reasonableness. The reasonableness checks performed include a review of flow conservation in addition to comparisons between the General Plan Buildout and EAPC turning volumes, ensuring a minimum growth of ten (10) percent. Where necessary, the initial raw model estimates were adjusted to achieve flow conservation, reasonable growth, and reasonable diversion between parallel routes. General Plan Buildout with project AM and PM peak hour intersection turning movement volumes are shown on Exhibit 3-K and 3-L , respectively. Post-processing worksheets are provided in Appendix "F" of this report.

EXHIBIT 3-E

CUMULATIVE DEVELOPMENT AM PEAK HOUR INTERSECTION VOLUMES



URBAN CROSSROADS

EXHIBIT 3-F

CUMULATIVE DEVELOPMENT
PM PEAK HOUR INTERSECTION VOLUMES

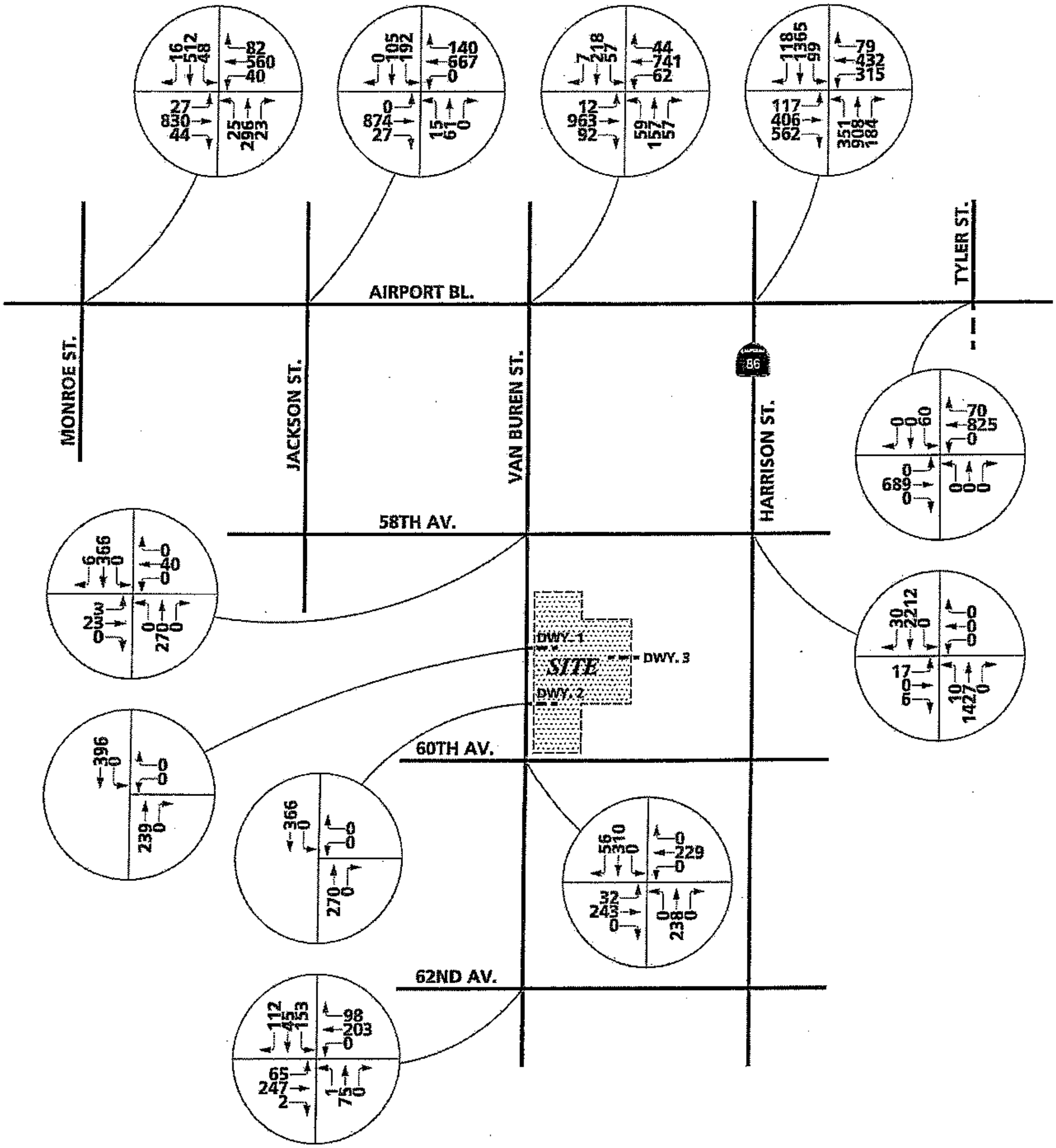


EXHIBIT 3-G

EXISTING PLUS AMBIENT PLUS PROJECT AM PEAK HOUR INTERSECTION VOLUMES

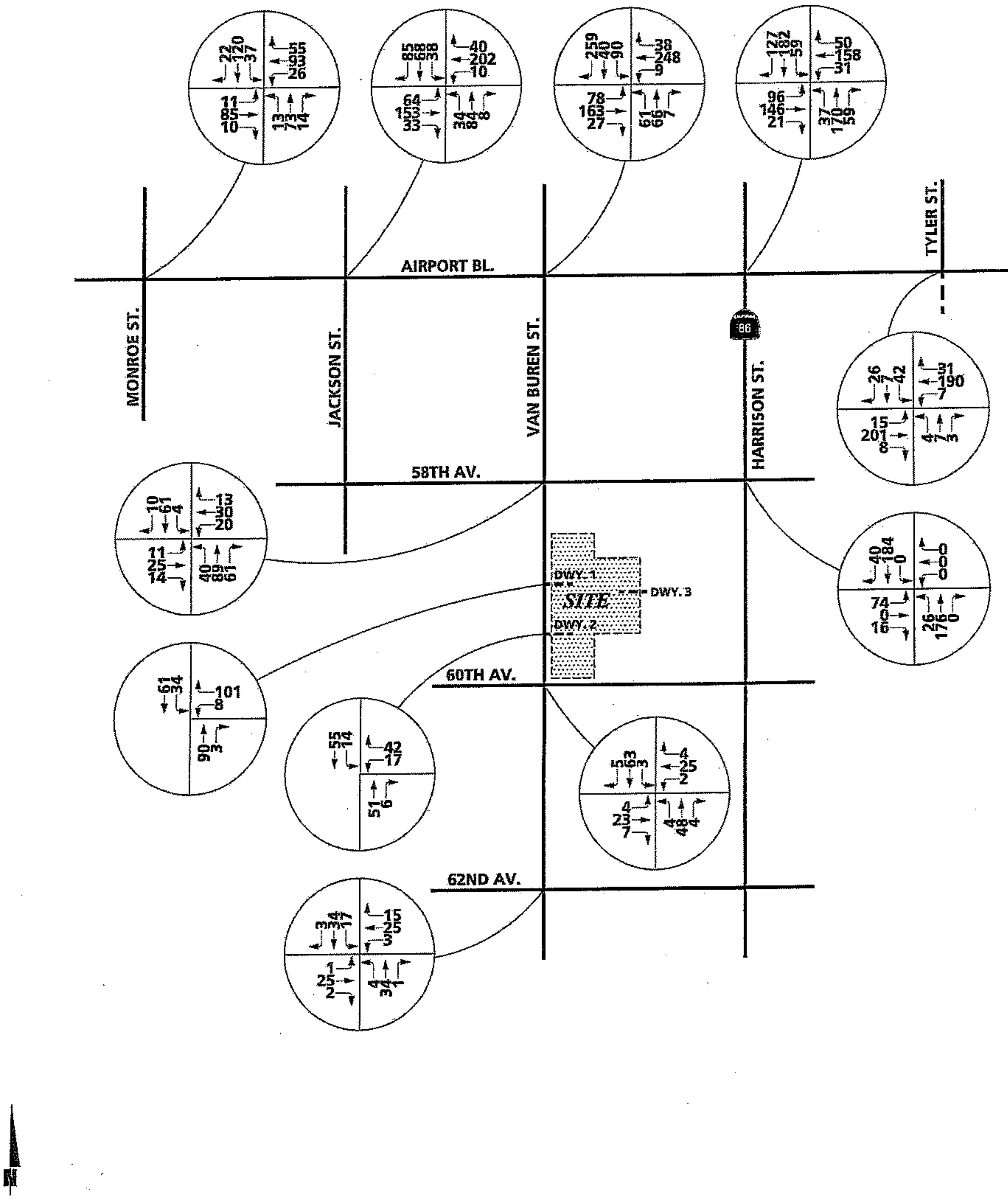


EXHIBIT 3-H

EXISTING PLUS AMBIENT PLUS PROJECT PM PEAK HOUR INTERSECTION VOLUMES

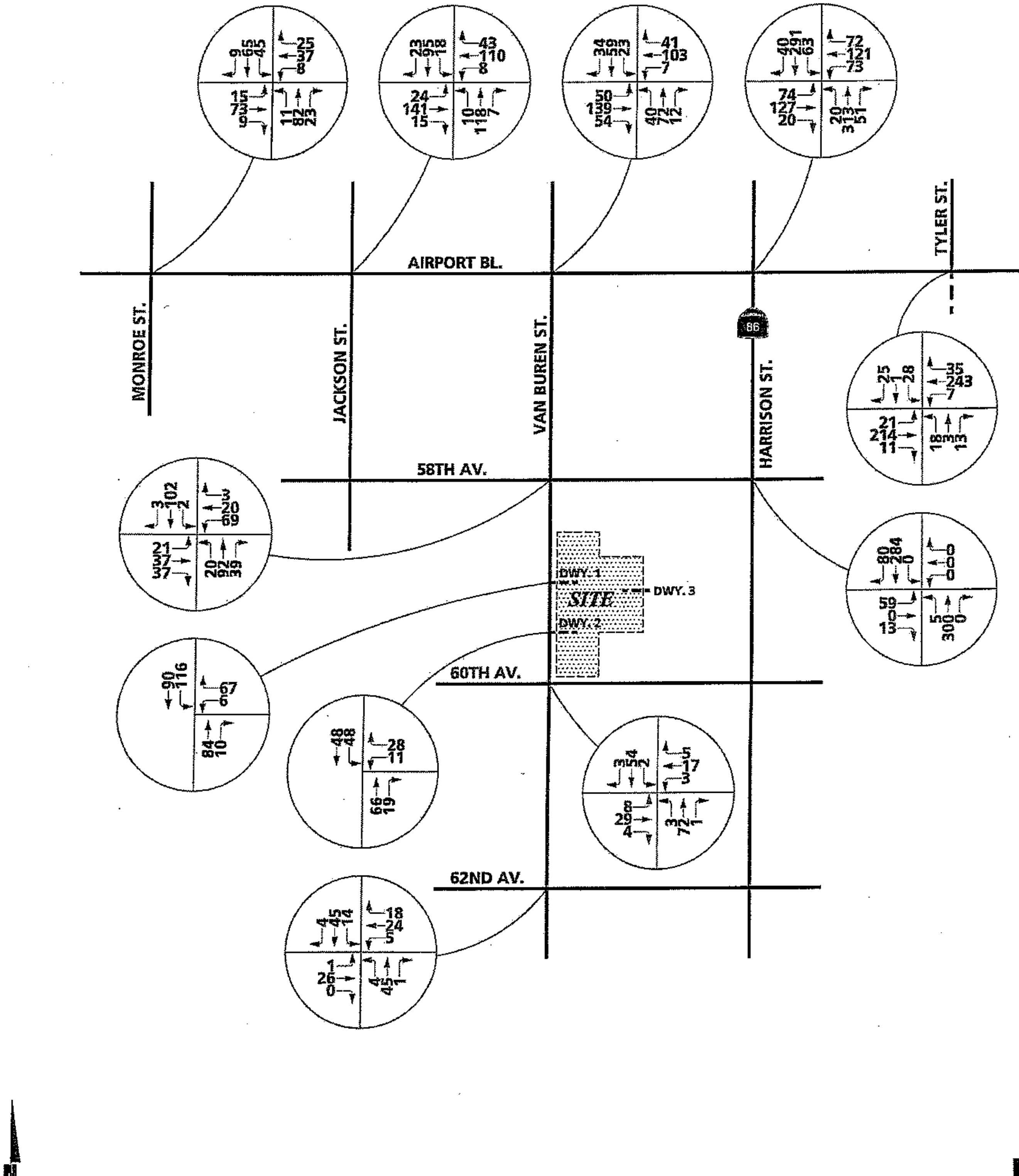


EXHIBIT 3-I

EXISTING PLUS AMBIENT PLUS PROJECT PLUS CUMULATIVE AM PEAK HOUR INTERSECTION VOLUMES

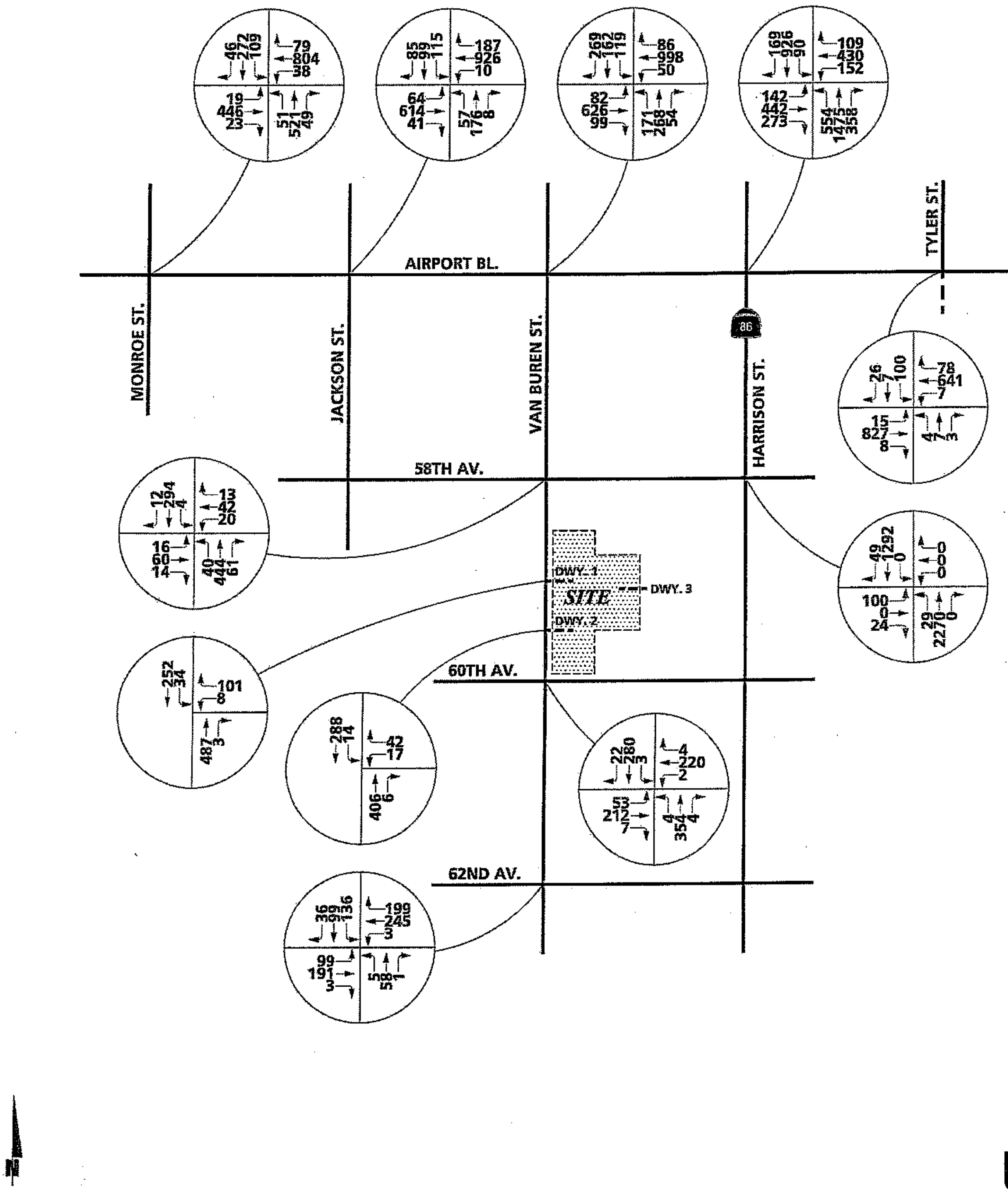


EXHIBIT 3-J

EXISTING PLUS AMBIENT PLUS PROJECT PLUS CUMULATIVE PM PEAK HOUR INTERSECTION VOLUMES

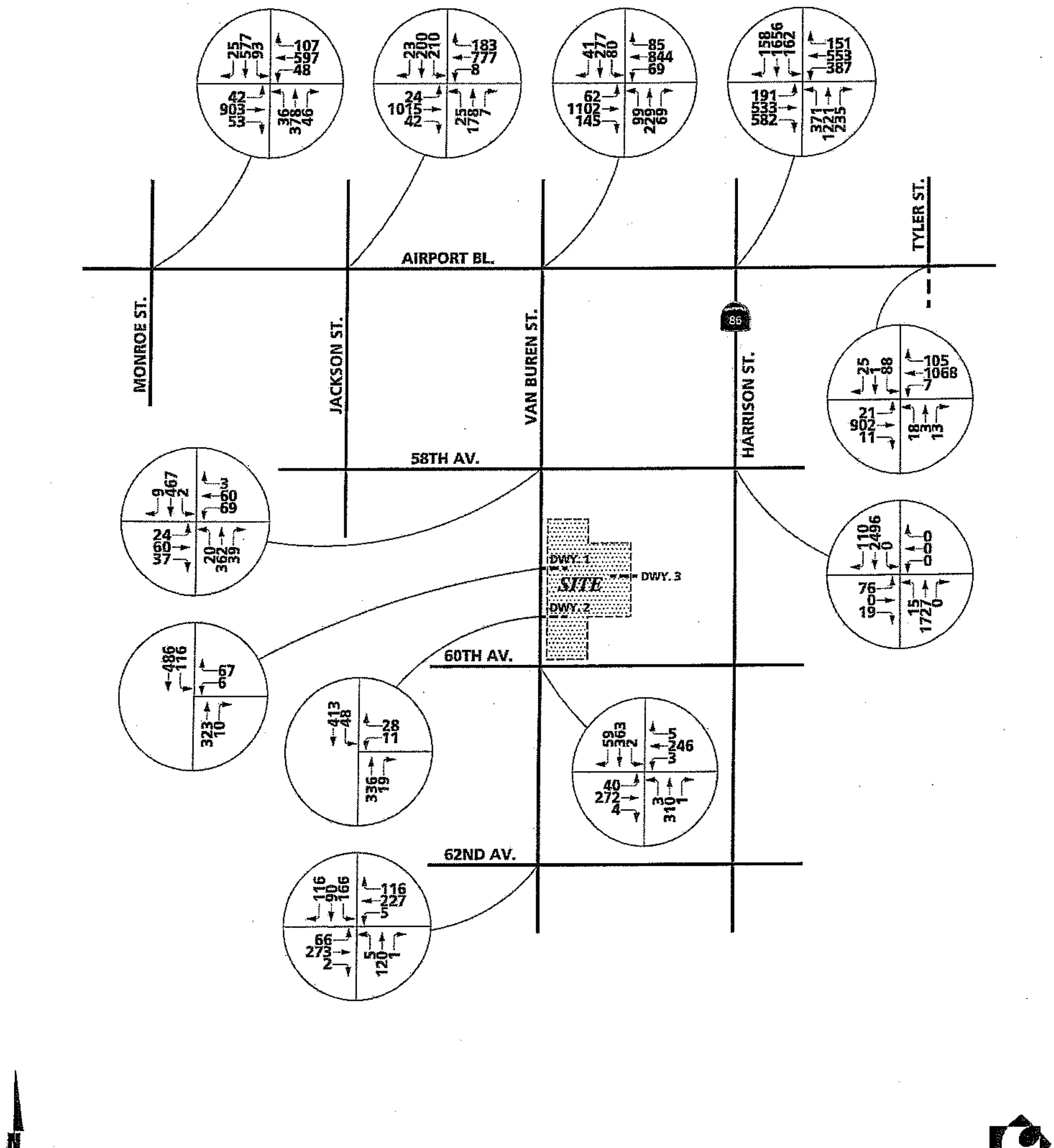


EXHIBIT 3-K

GENERAL PLAN BUILDOUT CONDITIONS AM PEAK HOUR INTERSECTION VOLUMES

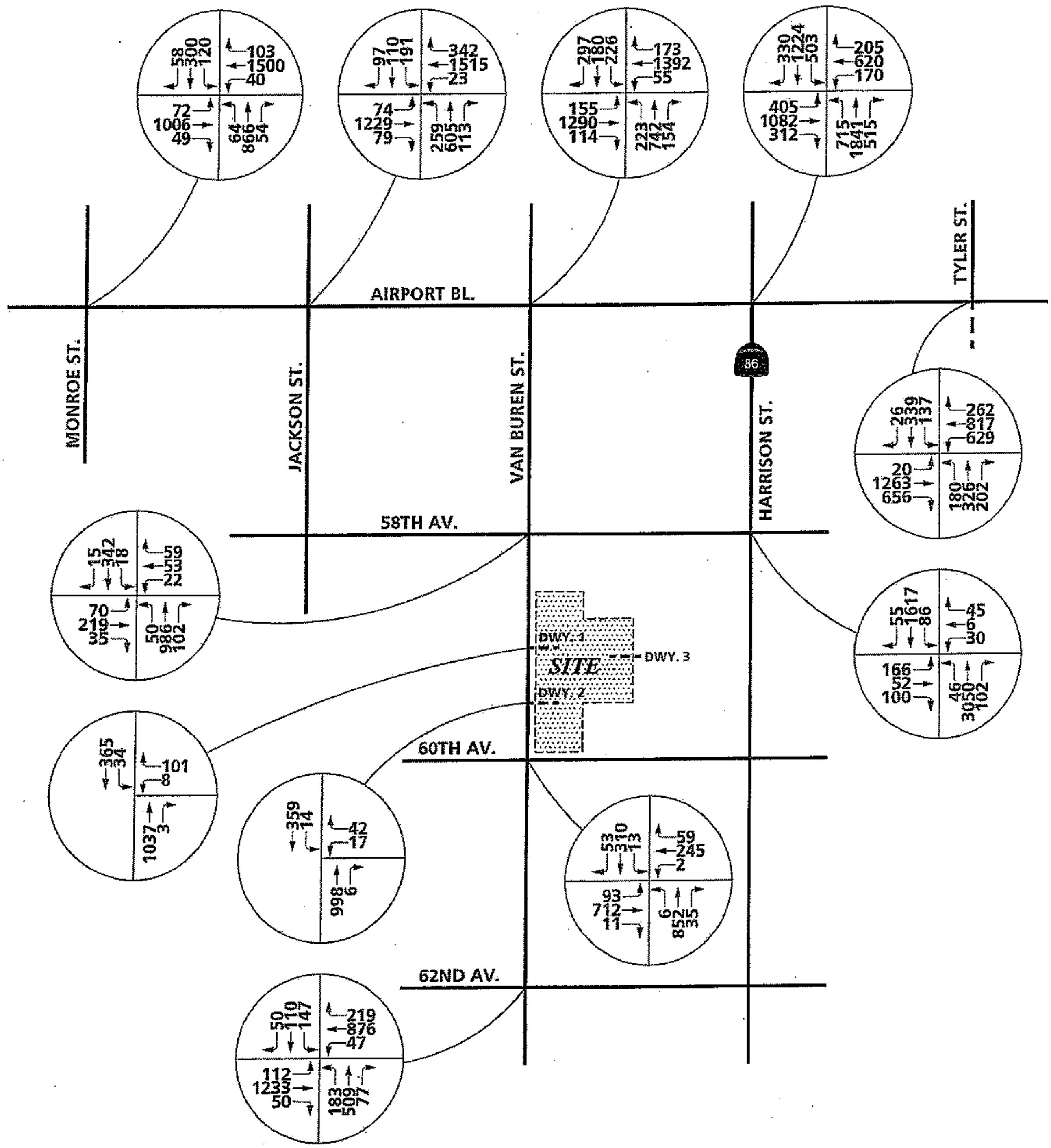


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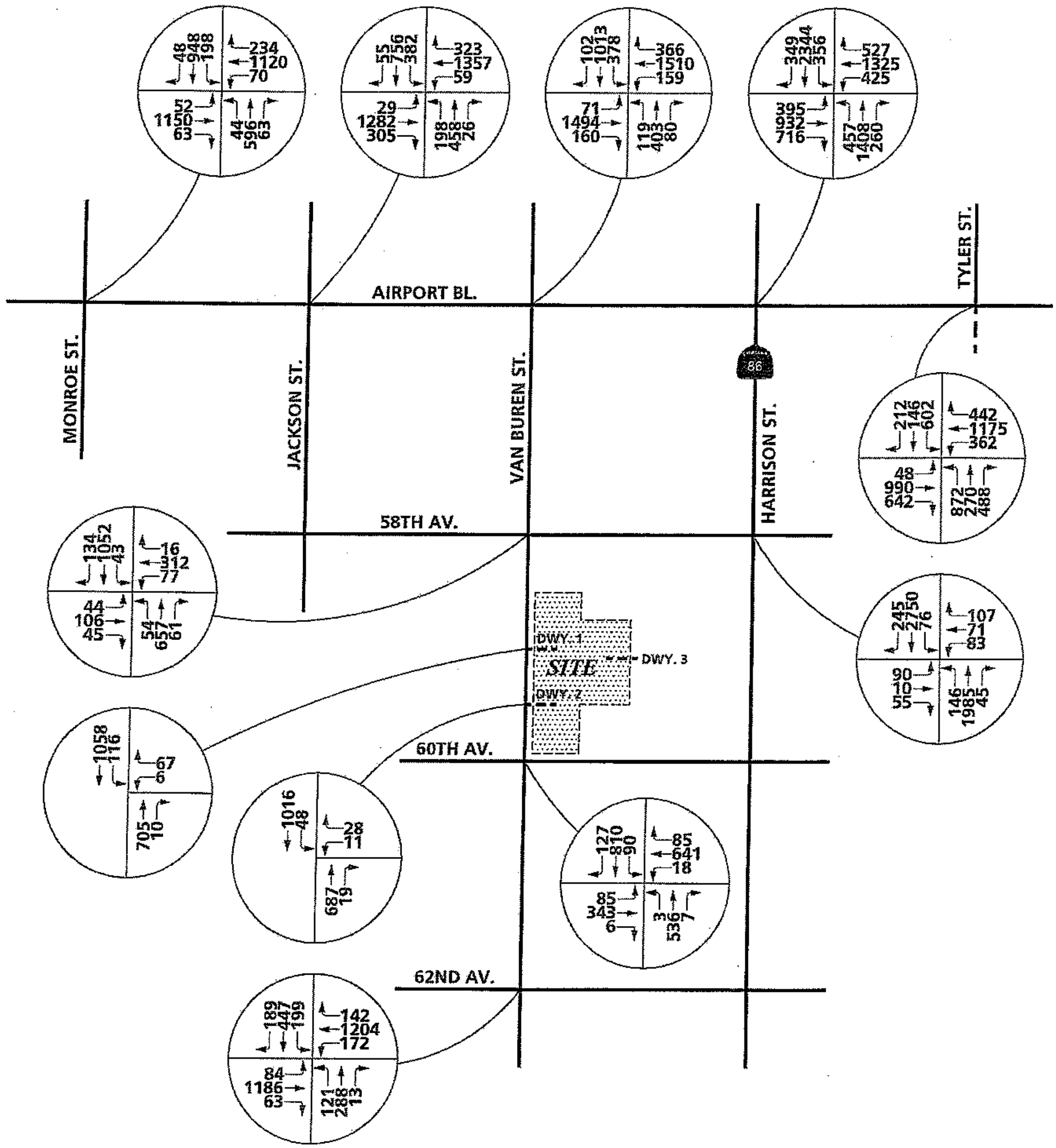
EXHIBIT 3-L

GENERAL PLAN BUILDOUT CONDITIONS
PM PEAK HOUR INTERSECTION VOLUMES



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URBAN CROSSROADS

4.0 FUTURE TRAFFIC SIGNAL WARRANTS

This chapter of the report summarizes the Traffic Signal Warrants for Existing Plus Ambient Plus Project and for Existing Plus Ambient Plus Project Plus Cumulative. Based on the County guidelines, the traffic signal warrant analysis for existing intersections was based on the CALTRANS Peak Hour Signal Warrants. For new intersections the CALTRANS Average Traffic Estimate worksheet was used.

A. Traffic Signal Warrants for Existing Plus Ambient Plus Project

For existing plus ambient plus project (E+A+P) traffic conditions, no unsignalized study area intersections are projected to warrant a traffic signal (see Appendix D) beyond existing conditions.

B. Traffic Signal Warrants for Existing Plus Ambient Plus Project Plus Cumulative

For existing plus ambient plus project plus cumulative traffic conditions, additional traffic signals are projected to be warranted at the following study area intersections (see Appendix D):

Monroe Street (NS) at:

- Airport Boulevard (EW)

Jackson Street (NS) at:

- Airport Boulevard (EW)

Van Buren Street (NS) at:

- Airport Boulevard (EW)
- Avenue 58 (EW)
- Avenue 60 (EW)
- Avenue 62 (EW)

Harrison Street (SR 86) (NS) at:

- Avenue 58 (EW)

C. Traffic Signal Warrant for General Plan Buildout

For general plan buildout with project conditions, a traffic signal is anticipated to be warranted at the Van Buren Street and Driveway #1 intersection. (See Appendix "D")

5.0 TRAFFIC ANALYSIS

A. Level of Service for Existing Plus Ambient Plus Project

Existing plus ambient plus project intersection levels of service are shown in Table 5-1. Table 5-1 shows HCM calculations based on the existing geometrics at the study area intersections, with and without improvements.

For existing plus ambient plus project traffic conditions, the study area intersections are projected to operate at an acceptable level of service during the peak hours.

Existing plus ambient plus project HCM calculation worksheets are provided in Appendix "G".

B. Level of Service for Existing Plus Ambient Plus Project Plus Cumulative

Intersection levels of service for the existing plus ambient plus project plus cumulative conditions are shown in Table 5-2. Table 5-2 shows HCM calculations based on the geometrics at the study area intersections, with and without improvements.

For existing plus ambient plus project plus cumulative traffic conditions, the following study area intersections are projected to operate at unacceptable levels of service during the peak hours, with existing geometry:

Monroe Street (NS) at:

- Airport Boulevard (EW)

Jackson Street (NS) at:

- Airport Boulevard (EW)

TABLE 5-1

INTERSECTION ANALYSIS FOR EXISTING PLUS AMBIENT GROWTH PLUS PROJECT (2010) CONDITIONS

INTERSECTION	TRAFFIC CONTROL[3]	INTERSECTION APPROACH LANES[1]												DELAY[2] (SECS.)		LEVEL OF SERVICE	
		NORTH-BOUND			SOUTH-BOUND			EAST-BOUND			WEST-BOUND						
		L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
Monroe Street (NS) at:																	
• Airport Boulevard (EW)	AWS	1	1	0	1	2	1	1	1	1	0	1!	0	9.5	9.1	A	A
Jackson Street (NS) at:																	
• Airport Boulevard (EW)																	
- Without Improvements	AWS	0	1	1	0	1	1	0	1	1	0	1	1	11.9	9.8	B	A
Van Buren Street (NS) at:																	
• Airport Boulevard (EW)																	
- Without Improvements	AWS	0	1!	0	0	1	1	0	1	1	0	1	1	19.5	10.0	C	B
• Avenue 58 (EW)																	
- Without Improvements	AWS	0	1!	0	0	1!	0	0	1!	0	0	1!	0	10.3	8.1	B	A
• Site Driveway 1 (EW)																	
- With Improvements	CSS	0	2	1	1	1	0	0	0	0	0	1!	0	9.1	9.1	A	A
• Site Driveway 2 (EW)																	
- With Improvements	CSS	0	2	1	1	1	0	0	0	0	0	1!	0	8.9	9.0	A	A
• Avenue 60 (EW)																	
- Without Improvements	CSS	0	1!	0	0	1!	0	0	1!	0	0	1!	0	10.0	9.9	A	A
• Avenue 62 (EW)																	
- Without Improvements	AWS	0	1!	0	0	1!	0	0	1!	0	0	1!	0	7.4	7.5	A	A
Harrison Street (NS) at:																	
• Airport Boulevard (EW)																	
- Without Improvements	TS	1	1	1	1	1	1	0	1	1	0	1	1	16.9	18.3	B	B
• Avenue 58 (EW)																	
- Without Improvements	CSS	1	1	0	1	1	0	0	1!	0	0	1!	0	12.6	15.2	A	C
Tyler Street (NS) at:																	
• Airport Boulevard (EW)																	
- Without Improvements	CSS	0	1!	0	0	1!	0	0	1	1	0	1	1	13.2	13.2	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; 1! = Left-Thru-Right, 1 = Improvement;

[2] Delay and level of service calculated using the following analysis software: Traffix, Version 7.8 R2. Per the 2000 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for worst individual movement (or movements sharing a single lane) are shown.

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

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TABLE 5-2

INTERSECTION ANALYSIS FOR EXISTING PLUS AMBIENT GROWTH PLUS PROJECT PLUS CUMULATIVE (2010) CONDITIONS

INTERSECTION	TRAFFIC CONTROL[3]	INTERSECTION APPROACH LANES[1]												DELAY[2] (SECS.)		LEVEL OF SERVICE	
		NORTH-BOUND			SOUTH-BOUND			EAST-BOUND			WEST-BOUND						
		L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
Monroe Street (NS) at:																	
• Airport Boulevard (EW)	AWS	1	1	0	1	2	1	1	1	1	0	1!	0	--[4]	--[4]	F	F
- With Improvements	TS	1	1	1	1	2	1	1	2	1	1	2	0	41.0	47.7	D	D
Jackson Street (NS) at:																	
• Airport Boulevard (EW)																	
- Without Improvements	AWS	0	1	1	0	1	1	0	1	1	0	1	1	--[4]	--[4]	F	F
- With Improvements	TS	1	1	0	1	1	0	1	2	0	1	2	0	32.6	35.5	C	D
Van Buren Street (NS) at:																	
• Airport Boulevard (EW)																	
- Without Improvements	AWS	0	1!	0	0	1	1	0	1	1	0	1	1	--[4]	--[4]	F	F
- With Improvements	TS	1	1	0	1	2	0	1	2	0	1	2	0	50.0	37.1	D	D
• Avenue 58 (EW)																	
- Without Improvements	AWS	0	1!	0	0	1!	0	0	1!	0	0	1!	0	19.6	--[4]	C	F
- With Improvements	TS	1	1	0	1	1	0	1	1	0	1	1	0	19.0	26.8	B	C
• Site Driveway 1 (EW)																	
- With Improvements	CSS	0	2	1	1	1	0	0	0	0	0	1!	0	11.0	11.0	B	B
• Site Driveway 2 (EW)																	
- With Improvements	CSS	0	2	1	1	1	0	0	0	0	0	1!	0	11.7	12.0	B	B
• Avenue 60 (EW)																	
- Without Improvements	CSS	0	1!	0	0	1!	0	0	1!	0	0	1!	0	--[4]	--[4]	F	F
- With Improvements	TS	1	1	0	1	1	0	1	1	0	1	1	0	22.8	22.8	C	C
• Avenue 62 (EW)																	
- Without Improvements	AWS	0	1!	0	0	1!	0	0	1!	0	0	1!	0	23.1	37.7	C	E
- With Improvements	TS	1	1	0	1	1	0	1	1	0	1	1	0	31.0	32.6	C	C
Harrison Street (NS) at:																	
• Airport Boulevard (EW)																	
- Without Improvements	TS	1	1	1	1	1	1	0	1	1	0	1	1	--[4]	--[4]	F	F
- With Improvements	TS	2	3	1	1	3	1	1	3	1>>	2	3	1	35.3	43.3	D	D
• Avenue 58 (EW)																	
- Without Improvements	CSS	1	1!	0	0	1!	0	0	1!	0	0	1!	0	--[4]	--[4]	F	F
- With Improvements	TS	1	2	0	1	3	0	1	1	0	1	1	0	20.9	11.8	C	B
Tyler Street (NS) at:																	
• Airport Boulevard (EW)																	
- Without Improvements	CSS	0	1!	0	0	1!	0	0	1	1	0	1	1	--[4]	--[4]	F	F
- With Improvements	TS	1	1	0	1	1	0	1	1	0	1	1	0	15.0	25.2	B	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; 1 = Improvement; 1!= Left-Thru-Right, > = Right Turn Overlap Phase; >> = Free Right Turn Lane

[2] Delay and level of service calculated using the following analysis software: Traffix, Version 7.8 R2. Per the 2000 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for worst individual movement (or movements sharing a single lane) are shown.

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

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

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Van Buren Street (NS) at:

- Airport Boulevard (EW)
- Avenue 58 (EW)
- Avenue 60 (EW)
- Avenue 62 (EW)

Harrison Street (SR 86) (NS) at:

- Airport Boulevard (EW)
- Avenue 58 (EW)

Tyler Street (NS) at:

- Airport Boulevard (EW)

For existing plus ambient plus project plus cumulative traffic conditions, the study area intersections are projected to operate at acceptable levels of service during the peak hours, with improvements. Existing plus ambient plus project plus cumulative HCM calculation worksheets are provided in Appendix "H".

C. Level of Service for General Plan Buildout

General Plan Buildout levels of service are shown in Table 5-3. Table 5-3 shows HCM calculations based on the geometrics at the study area intersections, without and with improvements.

For General Plan Buildout traffic conditions, the following study area intersections are projected to operate at unacceptable levels of service during the peak hour with existing geometry:

Monroe Street (NS) at:

- Airport Boulevard (EW)

TABLE 5-3

INTERSECTION ANALYSIS FOR GENERAL PLAN BUILDOUT CONDITIONS

INTERSECTION	TRAFFIC CONTROL[3]	INTERSECTION APPROACH LANES[1]												DELAY[2] (SECS.)		LEVEL OF SERVICE	
		NORTH-BOUND			SOUTH-BOUND			EAST-BOUND			WEST-BOUND						
		L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
Monroe Street (NS) at:																	
• Airport Boulevard (EW)	AWS	1	1	0	1	2	1	1	1	1	0	1!	0	–[4]	–[4]	F	F
- With Improvements	TS	1	2	0	1	2	1	1	2	1	1	2	1	46.5	41.2	D	D
Jackson Street (NS) at:																	
• Airport Boulevard (EW)																	
- Without Improvements	AWS	0	1	1	0	1	1	0	1	1	0	1	1	–[4]	–[4]	F	F
- With Improvements	TS	1	2	0	1	2	0	1	2	1	1	2	1	45.1	52.2	D	D
Van Buren Street (NS) at:																	
• Airport Boulevard (EW)																	
- Without Improvements	AWS	0	1!	0	0	1	1	0	1	1	0	1	1	–[4]	–[4]	F	F
- With Improvements	TS	1	2	0	1	2	0	1	3	0	1	3	0	46.4	54.6	D	D
• Avenue 58 (EW)																	
- Without Improvements	AWS	0	1!	0	0	1!	0	0	1!	0	0	1!	0	19.6	–[4]	C	F
- With Improvements	TS	1	1	0	1	1	1	1	1	0	1	1	0	32.2	32.7	C	C
• Site Driveway 1 (EW)																	
- With Improvements	TS	0	2	1	1	1	0	0	0	0	0	1!	0	12.1	15.4	B	B
• Site Driveway 2 (EW)																	
- With Improvements	CSS	0	2	1	1	1	0	0	0	0	0	1!	0	18.5	23.7	C	C
• Avenue 60 (EW)																	
- Without Improvements	CSS	0	1!	0	0	1!	0	0	1!	0	0	1!	0	–[4]	–[4]	F	F
- With Improvements	TS	1	2	0	1	2	0	1	1	0	1	1	0	45.8	49.4	D	D
• Avenue 62 (EW)																	
- Without Improvements	AWS	0	1!	0	0	1!	0	0	1!	0	0	1!	0	23.1	37.7	C	E
- With Improvements	TS	1	1	0	1	1	1	1	2	0	1	2	0	54.2	45.8	D	D
Harrison Street (NS) at:																	
• Airport Boulevard (EW)																	
- Without Improvements	TS	1	1	1	1	1	1	0	1	1	0	1	1	–[4]	–[4]	F	F
- With Improvements	TS	2	4	1>	2	4	1>	2	3	1>>	2	3	1>	49.0	54.9	D	D
• Avenue 58 (EW)																	
- Without Improvements	CSS	1	1!	0	0	1!	0	0	1!	0	0	1!	0	–[4]	–[4]	F	F
- With Improvements	TS	1	3	0	1	3	0	1	1	0	1	1	0	39.3	34.4	D	C
Tyler Street (NS) at:																	
• Airport Boulevard (EW)																	
- Without Improvements	CSS	0	1!	0	0	1!	0	0	1	1	0	1	1	–[4]	–[4]	F	F
- With Improvements	TS	2	1	1	2	1	1	1	2	1>	2	2	1>	42.8	53.5	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; 1! = Left-Thru-Right; 1 = Improvement; > = Right Turn Overlap Phase; >> = Free Right Turn Lane

2 Delay and level of service calculated using the following analysis software: Traffix, Version 7.8 R2. Per the 2000 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for worst individual movement (or movements sharing a single lane) are shown.

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

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

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Van Buren Street (NS) at:

- Airport Boulevard (EW)
- Avenue 58 (EW)
- Avenue 60 (EW)
- Avenue 62 (EW)

Jackson Street (NS) at:

- Airport Boulevard (EW)

Harrison Street (SR-86) (NS) at:

- Airport Boulevard (EW)
- Avenue 58 (EW)

Tyler Street (NS) at:

- Airport Boulevard (EW)

Based on the improvement measures identified in Table 5-3, the study area intersections are anticipated to operate at acceptable service levels during the peak hours.

General Plan Buildout with Project HCM calculation worksheets are provided in Appendix "I".

6.0 FINDINGS AND CONCLUSIONS

A. Traffic Impacts and Level of Service

For existing plus ambient plus project (E+A+P) traffic conditions, the study area intersections are projected to operate at acceptable levels of service during the peak hours, with the geometry listed previously in Table 5-1.

For existing plus ambient plus project plus cumulative (E+A+P+C) traffic conditions, the study area intersections are projected to operate at acceptable levels of service during the peak hours with the intersection and traffic signal improvements listed previously in Table 5-2.

A list of study intersection improvement measures required for the traffic conditions analyzed in this study are included in Table 6-1, and it is intended to identify improvements that are needed with the project and other future developments.

Exhibit 6-A summarizes the required improvements for E+A+P+C conditions in addition to the existing intersection geometries shown on Exhibit 2-A

For General Plan Buildout traffic conditions, the study area intersections are projected to operate at acceptable levels of service during the peak hours with the roadway and traffic signal improvements listed previously on Table 5-3. Exhibit 6-B summarizes the General Plan Buildout required improvements in addition to the E+A+P+C improvements shown on Exhibit 6-A.

B. Traffic Signal Warrant Analysis

For existing plus ambient plus project (E+A+P) traffic conditions, no additional unsignalized study area intersections are projected to warrant a traffic signal (see Appendix D) beyond existing conditions.

TABLE 6-1

SUMMARY OF INTERSECTION IMPROVEMENTS

INTERSECTION	EAP	EAPC	General Plan
Monroe Street (NS) at: Airport Boulevard (EW) – Northbound – Eastbound – Westbound		• Install a traffic signal • Construct NB right turn lane • Construct 2nd EB through lane • Construct 1st WB left turn lane • Construct 2nd WB through lane	• Same • Convert NB right turn to a shared through right turn lane • Same • Same • Same • Construct a WB right turn lane
Jackson Street (NS) at: Airport Boulevard (EW) – Northbound – Southbound – Eastbound – Westbound		• Install a traffic signal • Restripe NB left turn lane • Convert NB right turn to a shared through right turn lane • Restripe SB left turn lane • Convert SB right turn to a shared through right turn lane • Restripe EB left turn lane • Construct 2nd EB through lane • Convert EB right turn to a shared through right turn lane • Restripe WB left turn lane • Construct 2nd WB through lane • Convert WB right turn to a shared through right turn lane	• Same • Same • Same • Construct a NB through lane • Same • Same • Construct a SB through lane • Same • Same • Same • Construct an EB through lane • Same • Same • Same • Construct a WB through lane
Van Buren Street (NS) at: Airport Boulevard (EW) – Northbound – Southbound – Eastbound – Westbound		• Install a traffic signal • Construct NB left turn lane • Construct SB left turn lane • Convert SB right turn to a shared through right turn lane • Construct EB left turn lane • Convert EB right turn to a shared through right turn lane • Construct WB left turn lane • Convert WB right turn to a shared through right turn lane	• Same • Same • Construct a NB through lane • Same • Same • Same • Same • Construct EB through lane • Same • Same • Construct WB through lane
Van Buren Street (NS) at: Avenue 58 (EW) – Northbound – Southbound – Eastbound – Westbound		• Install a traffic signal • Construct NB left turn lanes • Construct SB left turn lane • Construct EB left turn lane • Construct WB left turn lane	• Same • Same • Same • Construct a right turn lane • Same • Same
Van Buren Street (NS) at: Site Driveway 1 (EW) – Northbound – Southbound – Westbound		• Provide a Stop Sign Control • Construct NB right turn lane • Construct SB left turn lane • Construct WB shared right and left turn lane	• Install a traffic signal • Same • Same • Same
Van Buren Street (NS) at: Site Driveway 2 (EW) – Northbound – Southbound – Westbound		• Provide a Stop Sign Control • Construct NB right turn lane • Construct SB left turn lane • Construct WB shared right and left turn lane	• Same • Same • Same • Same
Van Buren Street (NS) at: Avenue 60 (EW) – Northbound – Southbound – Eastbound – Westbound		• Install a traffic signal • Construct NB left turn lanes • Construct SB left turn lane • Construct EB left turn lane • Construct WB left turn lane	• • Same • Same • Construct a NB through lane • Same • Construct a SB through lane • Same • Same
Van Buren Street (NS) at: Avenue 62 (EW) – Northbound – Southbound – Eastbound – Westbound		• Install a traffic signal • Construct NB left turn lanes • Construct SB left turn lane • Construct EB left turn lane • Construct WB left turn lane	• Same • Same • Same • Construct a SB through lane • Same • Construct a EB through lane • Same • Construct a WB through lane
Harrison Street (NS) at: Airport Boulevard (EW) – Northbound – Southbound – Eastbound – Westbound		• Construct 2nd NB left turn lane (with receiving lane) • Construct 2nd NB through lane • Construct 3rd NB through lane • Construct 2nd and 3rd SB through lane • Construct EB left turn lane • Construct 2nd and 3rd EB through lane • Construct EB Free right turn lane • Construct 1st and 2nd WB left turn lane (with receiving • Construct 2nd and 3rd WB through lane	• Same • Same • Same • Construct 4th NB through lane • Same • Construct 2nd SB left turn lane • Construct 4th SB through lane • Same • Same • Same • Construct 2nd EB left turn lane • Same • Same
Harrison Street (NS) at: Avenue 58 (EW) – Northbound – Southbound – Eastbound – Westbound		• Install a traffic signal • Construct 2nd NB through lane • Construct 2nd and 3rd SB through lane • Construct EB left turn lane • Construct WB left turn lane	• Same • Same • Construct 3rd NB through lane • Same • Same • Same
Tyler Street (NS) at: Airport Boulevard (EW) – Northbound – Southbound – Eastbound – Westbound		• Install a traffic signal • Construct NB left turn lanes • Construct SB left turn lane • Construct EB left turn lane • Construct WB left turn lane	• Same • Same • Construct 2nd NB left turn lane • Construct NB right turn lane • Same • Construct 2nd left turn lane • Construct SB right turn lane • Same • Construct 2nd EB through lane • Construct EB right turn lane • Same • Construct 2nd left turn lane • Construct 2nd WB through lane • Construct right turn lane

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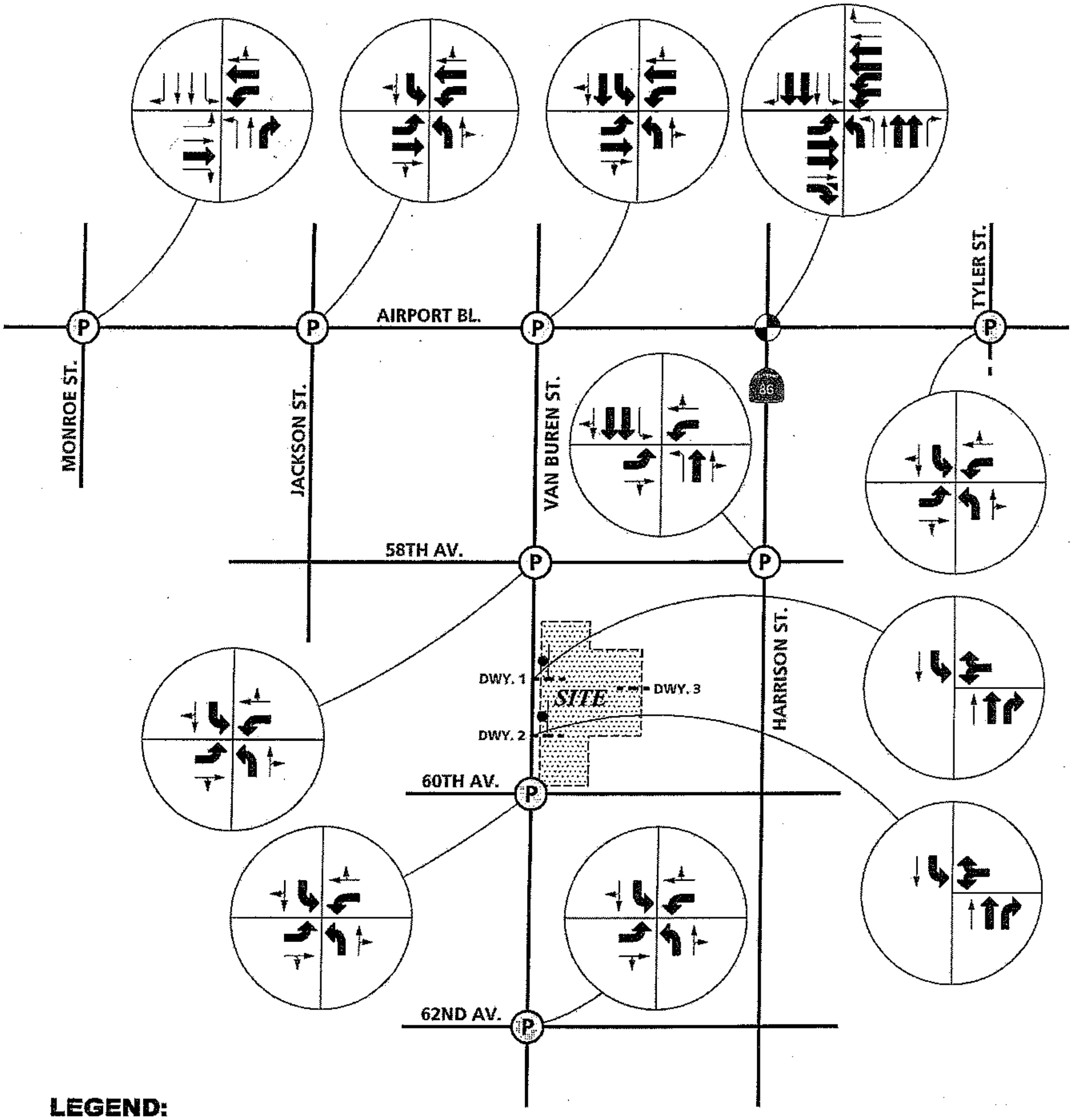
EXHIBIT 6-A

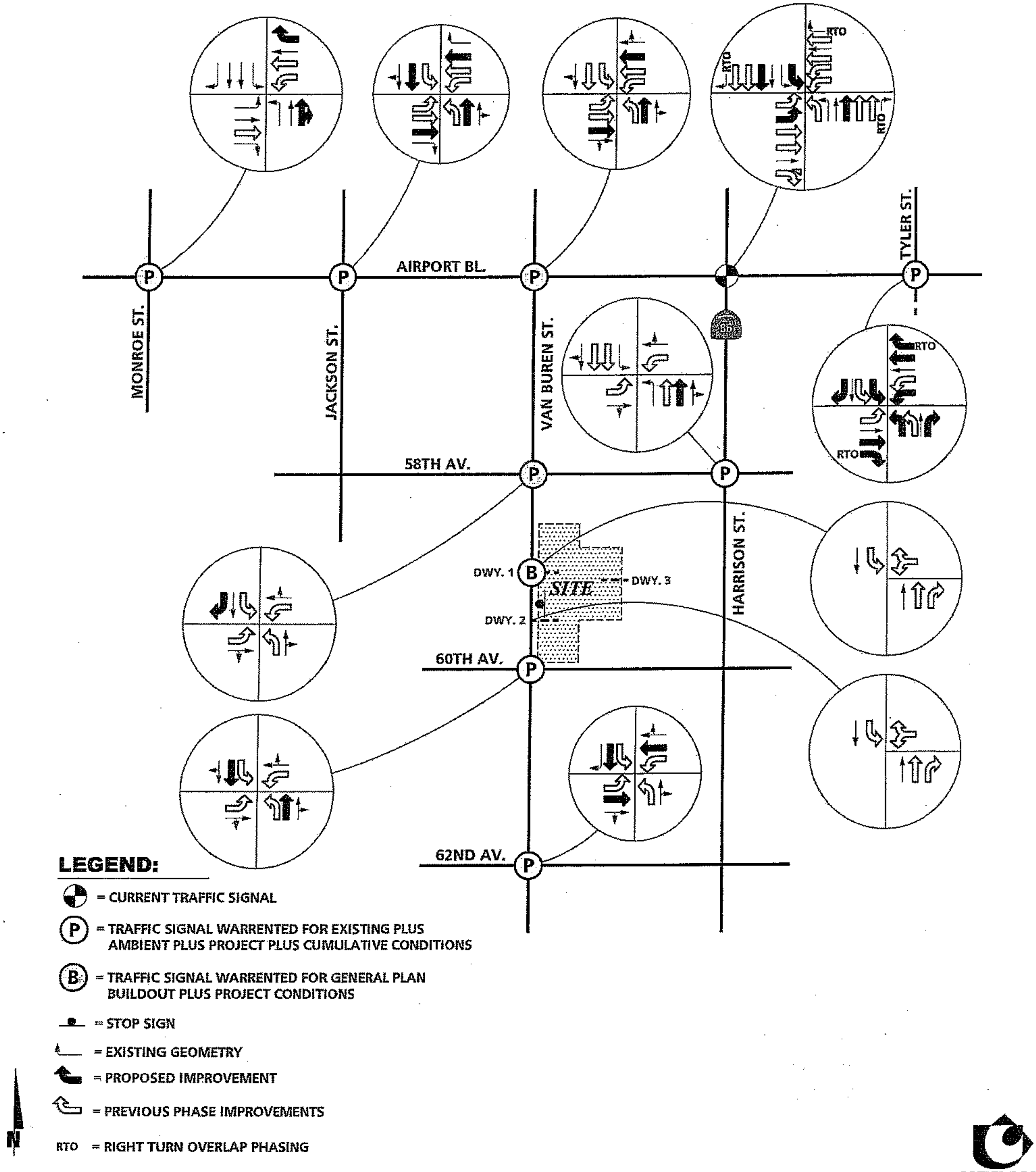
RECOMMENDED IMPROVEMENTS FOR EXISTING PLUS AMBIENT PLUS PROJECT PLUS CUMULATIVE CONDITIONS



LEGEND:

- = CURRENT TRAFFIC SIGNAL
- (P) = TRAFFIC SIGNAL WARRENTED FOR EXISTING PLUS AMBIENT PLUS PROJECT PLUS CUMULATIVE CONDITIONS
- = STOP SIGN
- = EXISTING GEOMETRY
- = PROPOSED IMPROVEMENT
- = PROPOSED FREE RIGHT TURN

ADDITIONAL REQUIRED IMPROVEMENTS FOR GENERAL PLAN BUILDOUT



For existing plus ambient plus project plus cumulative traffic conditions, traffic signals are projected to be warranted at the following study area intersections (see Appendix D):

Monroe Street (NS) at:

- Airport Boulevard (EW)

Jackson Street (NS) at:

- Airport Boulevard (EW)

Van Buren Street (NS) at:

- Airport Boulevard (EW)
- Avenue 58 (EW)
- Avenue 60 (EW)
- Avenue 62 (EW)

Harrison Street (SR 86) (NS) at:

- Avenue 58 (EW)

Tyler Street (NS) at:

- Airport Boulevard (EW)

For general plan buildout with project conditions, a traffic signal is anticipated to be warranted at the Van Buren Street and Driveway #1 intersection. (See Appendix "D")

C. Circulation Recommendations

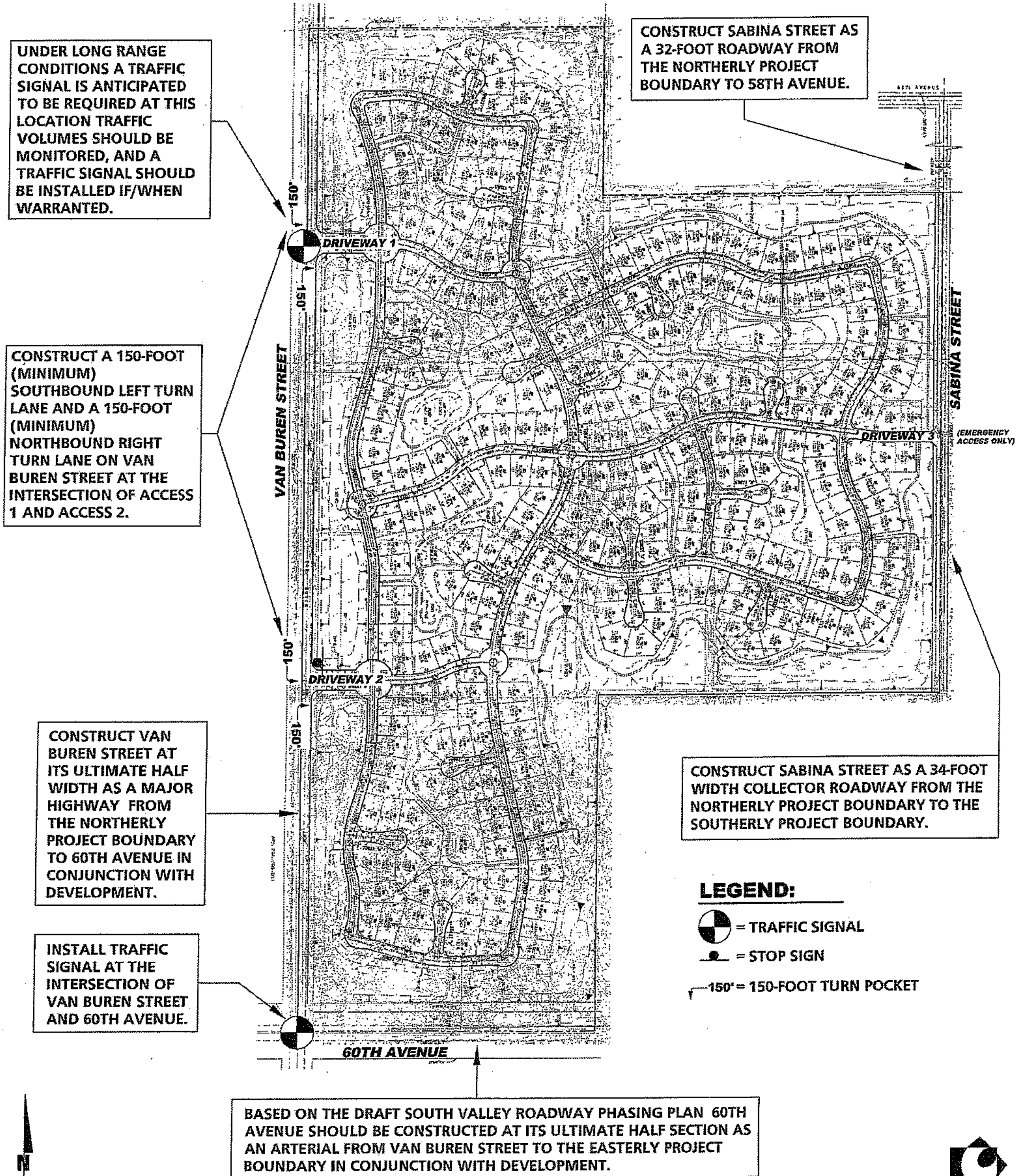
1. On-Site

The recommended on-site roadway improvements are described below. Exhibit 6-C illustrates the on-site recommended roadway and intersection lane improvements. Construction of on-site improvements shall occur in conjunction with adjacent project development activity or as needed for project access purposes.

- Install traffic signal at the intersection of Van Buren / Avenue 60.
- Install a westbound stop sign at the intersection of Van Buren Street / Project Access 1. Under long range conditions, a traffic signal may be required at this location. Since a traffic signal may not be warranted in the near future, the traffic volumes should be monitored to determine if/when the increased volumes warrant a traffic signal.
- Install a westbound stop sign at the intersections of Van Buren Street /Project Access 2.
- Construct minimum 150 foot and southbound left turn lanes and a 150 foot (minimum) northbound right turn lane at the intersections of Van Buren Street and Project Access 1 and Project Access 2.
- Construct Van Buren Street at its ultimate half-section width as a Major Highway from the northerly project boundary to Avenue 60.
- Based on the draft South Valley Roadway Phasing Plan, Avenue 60 should be constructed at its ultimate half-section as an Arterial from Van Buren Avenue to the easterly project boundary.

EXHIBIT 6-C

CIRCULATION RECOMMENDATIONS



- Construct Sabina Street as its ultimate half sections with as a collector roadway (34-foot part width) from the northerly project boundary to the southerly project boundary.
- Construct Sabina Street as a 32-foot roadway from the northerly project boundary to 58th Avenue for emergency access purposes.

The intersection geometrics at Van Buren Street / Avenue 60 should be constructed at its ultimate configuration adjacent to the project site based on the General Plan roadway designations. Appendix "I" contains the General Plan intersection geometrics.

On-site traffic signing and striping should be implemented in conjunction with detailed construction plans for the project site.

Sight distance at each project access roadway should be reviewed with respect to standard Caltrans and County of Riverside sight distance standards at the time of preparation of final grading, landscape and street improvement plans.

D. Regional Improvement Funding Mechanism

The project should participate in funding or construction of off-site improvements that are needed to serve existing plus ambient plus project plus cumulative conditions through the payment of Riverside County Transportation Uniform Mitigation Fees (TUMF) and Development Impact Fees (DIF).

URBAN CROSSROADS

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TENTATIVE TRACT MAP NO. 34556
AIR QUALITY IMPACT ANALYSIS
COUNTY OF RIVERSIDE, CALIFORNIA

August 16, 2006

JN:03863-02
AE:HQ:IK:mt

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TENTATIVE TRACT MAP NO. 34556
AIR QUALITY IMPACT ANALYSIS
COUNTY OF RIVERSIDE, CALIFORNIA

1.0 EXECUTIVE SUMMARY

1.1 Introduction

This analysis is intended to determine the impacts to air quality associated with the development of the proposed residential development known as Tentative Tract No. 3455 ("Project"). The proposed project consists of 301 single-family lots. The project site is generally located north of 60th Avenue and east of Van Buren Street in the County of Riverside.

Specifically, this air quality analysis will evaluate the potential air quality impacts associated with the development (i.e., demolition, construction, and operations) of the proposed project. The analysis will also consider the potential for localized Carbon Monoxide (CO) "hot spots" resulting from traffic volumes and congestion near the project site. Lastly, emissions reduction measures will be identified to reduce the potential for significant air quality impacts due to construction or ongoing operations activity of the project.

1.2 Air Quality Setting

The project location is within the Salton Sea Air Basin (SSAB). The SSAB is aligned in a northwest-southeast orientation stretching from the Banning Pass to the Mexican Border. The project site is located in the northern region of the SSAB in Riverside County centrally located within the Coachella Valley. The South Coast Air Quality Management District has jurisdiction over the Riverside County portion of the SSAB.

Air quality monitoring near the project site for ozone (O_3), fine particulate matter (PM_{10}), and ultra-fine particulate matter ($PM_{2.5}$) is carried out by the South Coast Air Quality Management District (SCAQMD) at the Coachella Valley 2 site located approximately 5.5 miles from the project site. Data for Carbon monoxide (CO) and nitrogen oxides (NO_x) was obtained from the Coachella Valley 1 site located approximately 29.0 miles from the project site.

Ozone and particulates are seen to be two of the most significant air quality concerns in this region of the basin. PM_{10} is the pollutant that most often exceeds allowable standards within the study area, with O_3 also exceeding allowable standards within the study area on an occasional basis.

Examples of sources and effects of the pollutants previously discussed are identified below:

- Carbon Monoxide (CO): Carbon monoxide is a colorless, odorless, tasteless and toxic gas resulting from the incomplete combustion of fossil fuels. CO interferes with the blood's ability to carry oxygen to the body's tissues and results in numerous adverse health effects. CO is a criteria air pollutant.

- Oxides of Sulfur (SO_x): Typically strong smelling, colorless gases that are formed by the combustion of fossil fuels. SO_2 and other sulfur oxides contribute to the problem of acid deposition. SO_2 is a criteria pollutant.

- Nitrogen Oxides (Oxides of Nitrogen, or NO_x): Nitrogen oxides (NO_x) consist of nitric oxide (NO), nitrogen dioxide (NO_2) and nitrous oxide (N_2O) and are formed when nitrogen (N_2) combines with oxygen (O_2). Their lifespan in the atmosphere ranges from one to seven days for nitric oxide and nitrogen dioxide, to 170 years for nitrous oxide.

Nitrogen oxides are typically created during combustion processes, and are major contributors to smog formation and acid deposition. NO_2 is a criteria air pollutant, and may result in numerous adverse health effects; it absorbs blue light, resulting in a brownish-red cast to the atmosphere and reduced visibility.

- Ozone (O_3): A strong smelling, pale blue, reactive toxic chemical gas consisting of three oxygen atoms. It is a product of the photochemical process involving the sun's energy. Ozone exists in the upper atmosphere ozone layer as well as at the earth's surface. Ozone at the earth's surface causes numerous adverse health effects and is a criteria air pollutant. It is a major component of smog.

- PM_{10} (Particulate Matter less than 10 microns): A major air pollutant consisting of tiny solid or liquid particles of soot, dust, smoke, fumes, and aerosols. The size of the particles (10 microns or smaller, about 0.0004 inches or less) allows them to easily enter the lungs where they may be deposited, resulting in adverse health effects. PM_{10} also causes visibility reduction and is a criteria air pollutant.

- $PM_{2.5}$ (Particulate Matter less than 2.5 microns): A similar air pollutant consisting of tiny solid or liquid particles which are 2.5 microns or smaller (which is often referred to as fine particles). These particles are formed in the atmosphere from primary gaseous emissions that include sulfates formed from SO2 release from power plants and industrial facilities and nitrates that are formed from NOx release from power plants, automobiles and other types of combustion sources. The chemical composition of fine particles highly depends on location, time of year, and weather conditions.

- Volatile Organic Compounds (VOC): Volatile organic compounds are hydrocarbon compounds (any compound containing various combinations of hydrogen and carbon atoms) that exist in the ambient air. VOCs contribute to the formation of smog through atmospheric photochemical reactions and/or may be toxic. Compounds of carbon (also known as organic compounds) have different levels of reactivity; that is, they do not react at the same speed or do not form ozone to the same extent when exposed to photochemical processes. VOCs often have an odor, and some examples include gasoline, alcohol, and the solvents used in paints. Exceptions to the VOC designation include: carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate.

- Reactive Organic Gasses (ROG): Similar to VOC, Reactive Organic Gasses (ROG) are also precursors in forming ozone and consist of compounds containing methane, ethane, propane, butane, and longer chain hydrocarbons, which are typically the result of some type of combustion/decomposition process. Smog is formed when ROG and nitrogen oxides react in the presence of sunlight.

The EPA (under the Federal Clean Air Act of 1970, and amended in 1977) established ambient air quality standards for these pollutants. This standard is called the National Ambient Air Quality Standards (NAAQS). The California Air Resources Board (CARB) subsequently established the more stringent California Ambient Air Quality Standards (CAAQS). Both sets of standards are shown in Table 3-1 (presented later in this report). Areas in California where ambient air concentrations of pollutants are higher than the state standard are considered to be in "non-attainment" status for that pollutant.

1.3 Air Quality Impacts

The analysis indicates that the project has the potential to create an adverse air quality impact during construction activity. The results of this analysis demonstrate that the project will not result in a significant impact (based on regional emissions threshold) for short-term construction activity after the implementation of recommended emissions reduction measures. The project however will result in a significant impact based on Localized Thresholds (LSTs) for emissions of PM_{10} (discussed later in this report) even after the implementation of recommended emissions reduction measures.

Long-term operational impacts are below regional and localized significance levels; therefore no emissions reduction measures are required.

Since the project is in exceedance of the localized emissions thresholds set forth by the SCAQMD (after mitigation) for PM_{10} it is assumed that cumulative developments can contribute to an exceedance and the project would therefore result in a cumulatively significant impact. The project, although not consistent with the currently adopted (2003) AQMP, can be consistent with the goals and objectives of the AQMP if there is proper compliance with standard regulatory requirements (discussed previously). The project is not expected to create objectionable odors affecting a substantial number of people. Lastly, the project generated traffic does not create a CO hotspot.

1.4 Recommendations

- Adhere to best management practices which include the application of water on disturbed soils three times per day, covering haul vehicles, replanting disturbed areas as soon as practical and restricting vehicle speeds on unpaved roads to 15 mph, to control fugitive dust.

- During rough grading activities the grading contractor should use low-sulfur diesel as defined in SCAQMD Rule 431.2, i.e., diesel with sulfur content of 15 ppm by weight or less.

- All paints shall be applied using either high-volume low-pressure (HVLP) spray equipment or by hand application and where feasible use of Zero-VOC paints (assumes no more than 100 gram/liter of VOC) Appendix F contains a list of Zero-VOC architectural coatings manufacturers.

2.0 INTRODUCTION

2.1 Purpose of Report

The purpose of this report is to evaluate the air quality impacts resulting from the proposed project. This initial section of the air quality impact analysis report describes the project and summarizes the atmospheric setting within the study area. Subsequent sections of the report describe the existing air quality setting for the study area; evaluate the project air quality impacts, and present recommended emissions reduction measures that should be implemented in conjunction with the proposed project.

2.2 Site Location

The project site is generally located north of 60th Avenue and east of Van Buren Street in the County of Riverside. Exhibit 2-A illustrates the location of the project site within the study area. The project site is currently undeveloped.

2.3 Existing On-Site and Surrounding Land Use

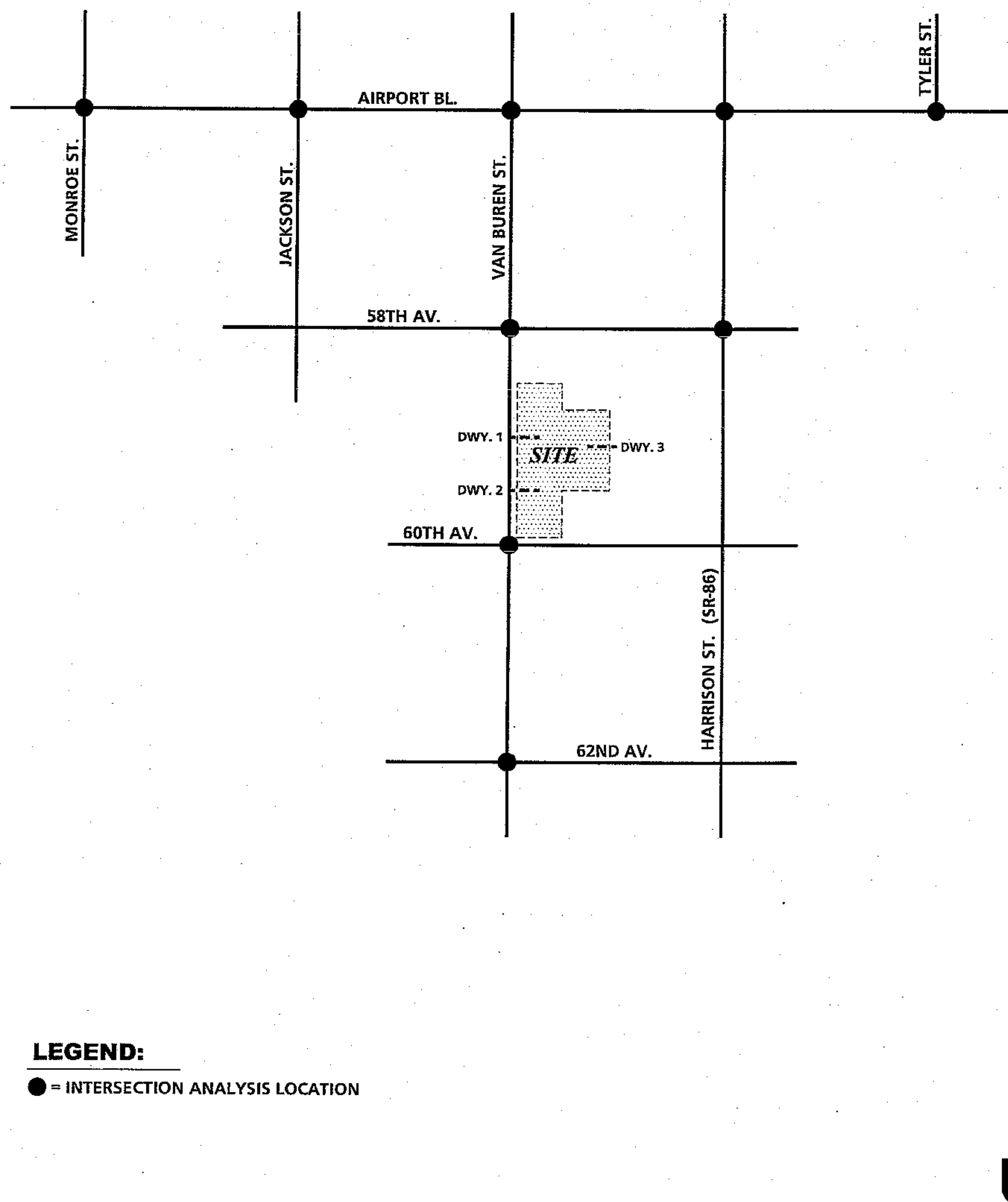
The project site currently consists of agricultural land uses which will be displaced by the proposed project. The implementation of the project will likely reduce fugitive dust emissions and odor associated with the current agriculture operations; however the project would generate new emissions of fugitive dust during construction and operational activity (discussed later in this report). Adjacent land uses in the project vicinity consist primarily of vacant land and agriculture.

2.4 Proposed Zoning and Land Use

Proposed Zoning / Land Use: SP, A-1-20 (Agriculture)

Proposed Zoning / Land Use: SP, R-1 (Medium Residential)

EXHIBIT 2-A
LOCATION MAP



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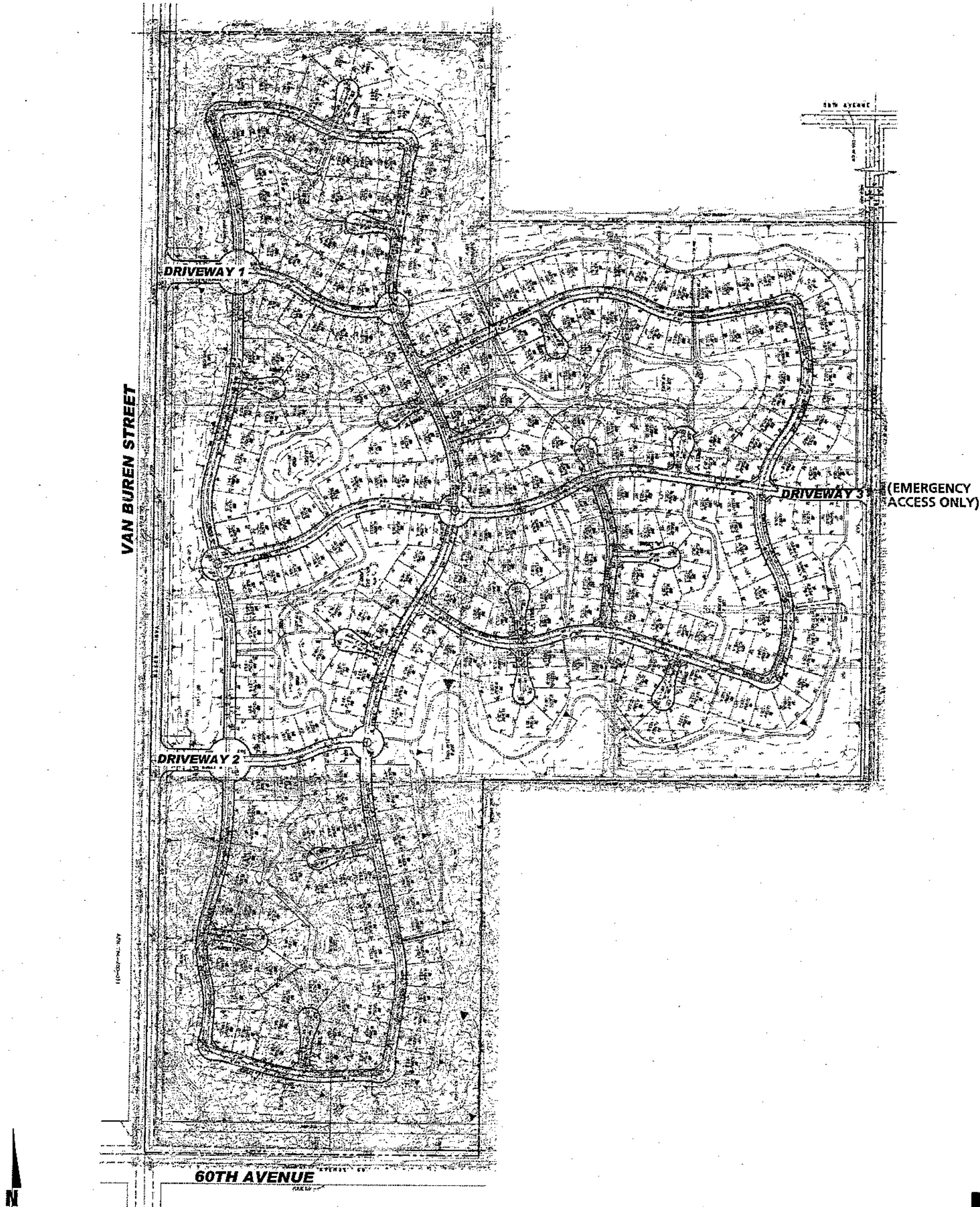
URBAN CROSSROADS

2.5 Proposed Project

Tentative Tract No. 34556 proposes to develop 301 single-family detached residential homes on undeveloped land in the unincorporated region of Riverside County. The project site is presented on Exhibit 2-B. For purposes of this analysis, the project is anticipated to be completed in 2010.

SITE PLAN


DRIVEWAY 1
DRIVEWAY 2
DRIVEWAY 3
(EMERGENCY ACCESS ONLY)
VAN BUREN STREET
60TH AVENUE
N

3.0 EXISTING CONDITIONS

3.1 Salton Sea Air Basin

The project location is within the newly created Salton Sea Air Basin (SSAB). The SSAB is aligned in a northwest-southeast orientation stretching from Banning Pass to the Mexican Border. The project site is located in the northern region of the SSAB in Riverside County centrally located within the Coachella Valley. The South Coast Air Quality Management District has the jurisdiction over the Riverside County portion of the SSAB.

3.2 Regional Climate

The climate of the Coachella Valley is a continental, desert-type climate, with hot summers, mild winters, and very little annual rainfall. Precipitation is less than six inches annually and occurs mostly in the winter months from active frontal systems and in the late summer months from thunderstorms. Temperatures exceed 100 degrees Fahrenheit, on the average, for four months each year, with daily highs near 110 degrees Fahrenheit during July and August. Summer nights are cooler with minimum temperatures in the mid-70's. During the winter season, daytime highs are quite mild, but the dry air is conducive to nocturnal radiational cooling, with early morning lows around 40 degrees.

The Coachella Valley and adjacent area is exposed to frequent gusty winds. The strongest and most persistent winds typically occur immediately to the east of Banning Pass, which is noted as a wind power generation resource area. Aside from this locale, the wind conditions in the remainder of the valley are geographically distinct. Stronger winds tend to occur in the open mid-portion of the valley, while lighter winds tend to occur closer to the foothills. Less frequently, widespread gusty winds occur over all areas of the valley. Within the project area, there is a natural sand migration process that has direct and indirect effects on air quality. Called "blowsand," this natural sand migration process produces PM_{10} in two ways: (1) by direct particle erosion and fragmentation natural PM_{10}, and (2) by secondary effects, as sand deposits on road surfaces. Rainfall in the project area varies considerably in both time and space. Almost all the annual rainfall comes from the fringes of mid-latitude storms from late November to early April with summers often being completely dry.

The importance of wind to air pollution is considerable. The direction and speed of the wind determines the horizontal dispersion and transport of the air pollutants. During the late autumn to early spring rainy season, the Basin is subjected to wind flows associated with the traveling storms moving through the region from the northwest. This period also brings five to ten periods of strong, dry offshore winds, locally termed "Santa Anas" each year. During the dry season, which coincides with the months of maximum photochemical smog concentrations, the wind flow is bimodal, typified by a daytime onshore sea breeze and a nighttime offshore drainage wind. Summer wind flows are created by the pressure differences between the relatively cold ocean and the unevenly heated and cooled land surfaces that modify the general northwesterly wind circulation over southern California. Nighttime drainage begins with the radiational cooling of the mountain slopes. Heavy, cool air descends the slopes and flows through the mountain passes and canyons as it follows the lowering terrain toward the ocean. Another characteristic wind regime in the basin is the "Catalina Eddy," a low level cyclonic (counterclockwise) flow centered over Santa Catalina Island which results in an offshore flow to the southwest. On most spring and summer days, some indication of an eddy is apparent in costal sections.

In the Basin, there are two distinct temperature inversion structures that control vertical mixing of air pollution. During the summer, warm high-pressure descending (subsiding) air is undercut by a shallow layer of cool marine air. The boundary between these two layers of air is a persistent marine subsidence/inversion. This boundary prevents vertical mixing which effectively acts as an impervious lid to pollutants over the entire Basin. The mixing height for the inversion structure is normally situated 1,000 to 1,500 feet above mean sea level.

A second inversion-type forms in conjunction with the drainage of cool air off the surrounding mountains at night followed by the seaward drift of this pool of cool air. The top of this layer forms a sharp boundary with the warmer air aloft and creates nocturnal radiation inversions. These inversions occur primarily in the winter, when nights are longer and onshore flow is weakest. They are typically only a few hundred feet above mean sea level. These inversions effectively trap pollutants, such as NO_X and CO from vehicles, as the pool of cool air drifts seaward. Winter is therefore a period of high levels of primary pollutants along the coastline.

3.3 Wind Patterns and City Location

The distinctive climate of Coachella and the Salton Sea Air Basin (SSAB) is determined by its terrain and geographical location. Daytime winds are predominately onshore sea breezes from the northwest which flow at relatively low velocities. During the night, winds usually slow and reverse direction, traveling toward the sea.

The prevailing winds in the project area (for a 24-hour period) move predominately from the Northwest to Southeast, with an average wind speed of 4.20 meters per second (m/s). A Windrose exhibit is available in Appendix "G" of this report and shows prevailing wind patterns and average speed in the project area for the 24-hour period. Meteorological data from the Thermal Monitoring Station was used to be representative of the project area. The Meteorological data was available for use by the CARB on their website (http://www.arb.ca.gov/toxics/harp/metfiles.htm).

3.4 Existing Air Quality

Existing air quality is measured based upon ambient air quality standards. These standards are the levels of air quality that are considered safe, with an adequate margin of safety, to protect the public health and welfare. Those standards currently in effect for both California and federal air quality standards are shown in Table 3-1.

TABLE 3-1

AMBIENT AIR QUALITY STANDARDS[1*]

AIR POLLUTANT	CALIFORNIA STANDARDS	FEDERAL PRIMARY STANDARDS	MOST RELEVANT EFFECTS
	CONCENTRATION/AVERAGING TIME	CONCENTRATION/AVERAGING TIME	
Ozone (O_3)	0.09 ppm, 1-hr. avg > 0.07 ppm, 8-hr. avg >**	0.08 ppm, 8-hr. avg >	(a) Short-term exposures: (I) Pulmonary function decrements and localized lung edema in humans and animals. (2) Risk to public health implied by alterations in pulmonary morphology and host defense in animals; (b) Long-term exposures: Risk to public health implied by altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans; (c) Vegetation damage; (d) Property damage
Carbon Monoxide (CO)	9.0 ppm, 8-hr avg. > 20.0 ppm, 1-hr avg. >	9.0 ppm, 8-hr avg. > 35.0 ppm, 1-hr avg. >	(a) Aggravation of angina pectoris and other aspects of coronary heart disease; (b) Decreased exercise tolerance in persons with peripheral vascular disease and lung disease; (c) Impairment of central nervous system functions; (d) Possible increased risk to fetuses
Nitrogen Dioxide (NO_2)	0.25 ppm, 1-hr avg. >	0.053 ppm, ann. avg. >	(a) Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; (b) Risk to public health implied by pulmonary and extra-pulmonary biochemical and cellular changes and pulmonary structural changes; (c) Contribution to atmospheric discoloration
Sulfur Dioxide (SO_2)	0.04 ppm, 24-hr avg. > 0.25 ppm, 1-hr avg. >	0.03 ppm, ann. avg. > 0.14 ppm, 24-hr avg. >	(a) Bronchoconstriction accompanied by symptoms which may include wheezing, shortness of breath and chest tightness, during exercise or physical activity in persons with asthma.
Suspended Particulate Matter (PM_{10})**	20 µg/m^3, ann. geometric mean > 50 µg/m3, 24-hr avgerage >	50 µg/m^3, ann. arithmetic mean > 150 µg/m3, 24-hr avgerage >	(a) Excess deaths for short-term exposures and exacerbation of symptoms in sensitive patients with respiratory disease; (b) Excess seasonal declines in pulmonary function, especially in children; (c) Increased risk of premature death from heart or lung diseases in elderly
Suspended Particulate Matter ($PM_{2.5}$)**	12 µg/m3, ann. geometric mean >***	15 µg/m^3, ann. arithmetic mean > 65 µg/m3, 24-hr avgerage >	
Sulfates	25 µg/m^3, 24-hr avg. ≥	No Federal Standards	(a) Decrease in ventilatory function; (b) Aggravation of asthmatic symptoms; (c) Aggravation of cardio-pulmonary disease; (d) Vegetation damage; (e) Degradation of visibility; (f) property damage
Lead	1.5 µg/m^3, 30-day avg. ≥	1.5 µg/m^3, calendar quarter ≥	(a) Increased body burden; (b) Impairment of blood formation and nerve conduction
Visibility Reducing Particles	Extinction coefficient of 0.23 per kilometer - visibility of ten miles or more (0.07 - 30 Miles or more for Lake Tahoe) due to the particles when the relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape	No Federal Standards	Visibility impairment on days when relative humidity is less than 70 percent

[1]Source: California Air Resources Board (11/29/05)

* For reader's convenience in picking out standards quickly, concentration appears first; e.g. "0.12 ppm, 1-hr avg.>" means 1hr-avg. > 0.12ppm.

** This concentration was approved by the ARB on April 28, 2005 and is expected to become effective in early 2006.

***There is no separate 24-hour PM 2.5 standard in California; however, the U.S. EPA promulgated a 24-hour PM 2.5 ambient air quality standard of 65 µg/m3.

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The determination of whether a region's air quality is healthful or unhealthful is determined by comparing contaminant levels in ambient air samples to the state standards and federal standards presented in Table 3-1. The air quality in a region is considered to be in attainment if: the measured ambient air pollutant levels for O_3, CO, SO_2 (1-hour and 24-hour), NO_2, and PM_{10} are not exceeded and all other standards are not equaled or exceeded at any time in any consecutive three-year period; and the federal standards (other than O_3, PM_{10}, and those based on annual averages or arithmetic mean) are not exceeded more than once per year. The O_3 standard is attained when the fourth highest eight-hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when 99 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. See Table 3-2 for attainment designations.

3.5 Regional Air Quality

The SCAQMD monitors levels of various criteria pollutants at 30 monitoring stations throughout the air district. In 2005 the federal and state standards for ozone at most monitoring locations exceeded threshold on one or more days. No areas of the Basin exceeded federal or state standards for NO_2, SO_2, CO, sulfates or lead.

3.6 Local Air Quality

The closest long-term air quality monitoring in the Salton Sea Air Basin for O_3, PM_{10}, and $PM_{2.5}$ is carried out by the South Coast Air Quality Management District (SCAQMD) at the Coachella Valley 2 site located approximately 5.5 miles from the project site. CO and NO_x data was obtained from the Coachella Valley 1 site located approximately 29.0 miles from the project site. The 5 years of data in Table 3-3 shows the number of days standards were exceeded for the study area. Data for particulate lead and particulate sulfates is not available from either the SCAQMD or CARB at either the Coachella Valley 1 or Coachella Valley 2 monitoring sites.

TABLE 3-2

ATTAINMENT STATUS

Criteria Pollutant	Federal Designation	State Designation
Ozone - 8 hour standard	Nonattainment - Serious	Nonattainment
Ozone - 1hour standard	Nonattainment - Severe 17	Nonattainment
Carbon Monoxide	Unclassified/Attainment	Attainment
PM10	Serious Nonattainment	Nonattainment
PM2.5	Unclassifiable/Attainment	Nonattainment
Nitrogen Dioxide	Attainment	Attainment

Source: California Air Resources Board, Attainment Designation Fact Sheets, Janruary 2006

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TABLE 3-3

COACHELLA VALLEY AIR QUALITY MONITORING SUMMARY - 1998-2005[1]

POLLUTANT / STANDARD	2000	2001	2002	2003	2004	2005
Ozone :						
1- Hour > 0.09 ppm (days)	40	53	49	54	23	18
8- Hour > 0.07 ppm (days)	XX	XX	XX	XX	XX	36
1- Hour > 0.12 ppm (days)	0	6	2	4	3	0
8- Hour ≥ 0.08 ppm (days)	33	42	48	44	18	18
Max. 1-Hour Conc. (ppm)	0.112	0.114	0.114	0.123	0.111	0.114
Carbon Monoxide[2] :						
1- Hour > 20. ppm (days)	0	0	0	0	0	0
8- Hour > 9. ppm (days)	0	0	0	0	0	0
Max. 1-Hour Conc. (ppm)	3.0	2.0	2.0	3.0	2.0	3.0
Max. 8-Hour Conc. (ppm)	2.1	1.5	1.2	1.3	1.0	1.0
Nitrogen Dioxide[2] :						
1-Hour > 0.25 ppm (days)	0	XX	0	0	0	0
Max. 1-Hour Conc. (ppm)	0.06	0.08	0.10	0.06	0.07	0.10
Inhalable Particulates (PM-10) :						
24-Hour > 50 ug/m^3 (days exceeded)	52	50	52	47	23	39
24-Hour > 150 ug/m^3 (days exceeded)	0	0	0	0	0	0
Max. 24-Hour Conc. (ug/m^3)	114	149	139	124	83	106
Ultra-Fine Particulates (PM-2.5) :						
24-Hour > 65 pg/m^3(days exceeded)	0	0	0	0	0	0
Max. 24-Hour Conc. (pg/m^3)	28.6	33.5	26.8	26.8	28.5	44.4

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[1] Data obtained from Coachella Valley 2 Monitoring Station unless otherwise noted
[2] Data obtained from Coachella Valley 1 Monitoring Sation
XX = Data not available from SCAQMD or CARB
Source: South Coast AQMD (www.aqmd.gov)
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3.7 Regulatory Background

3.7.1 Federal Regulations

The U.S. Environmental Protection Agency (EPA) is responsible for setting and enforcing the National Ambient Air Quality Standards (NAAQS) for oxidants (O_3), CO, NO_x, SO_2, PM_{10}, and lead. The U.S. EPA has jurisdiction over emissions sources that are under the authority of the federal government including aircraft, locomotives, and emissions sources outside state waters (Outer Continental Shelf). The U.S. EPA also establishes emission standards for vehicles sold in states other than California. Automobiles sold in California must meet the stricter emission requirements of the CARB.

The Federal Clean Air Act (CAA) was first enacted in 1955 and has been amended numerous times in subsequent years (1963, 1965, 1967, 1970, 1977, and 1990). As discussed above, the CAA establishes the federal air quality standards, the NAAQS, and specifies future dates for achieving compliance. The CAA also mandates that States submit and implement State Implementation Plans (SIPs) for local areas not meeting these standards. These Plans must include pollution control measures that demonstrate how the standards will be met.

The 1990 amendments to the CAA that identify specific emission reduction goals for areas not meeting the NAAQS require a demonstration of reasonable further progress toward attainment and incorporate additional sanctions for failure to attain or to meet interim milestones. The sections of the CAA most directly applicable to the development of the project site include Title I (Nonattainment Provisions) and Title II (Mobile Source Provisions).

Title I provisions were established with the goal of attaining the NAAQS for the following criteria pollutants O_3, NO_2, SO_2, PM_{10}, CO, $PM_{2.5}$, and lead. The NAAQS were amended in July 1997 to include an additional standard for O_3 and to adopt a NAAQS for $PM_{2.5}$. Table 3-1 (previously presented) provides the NAAQS within the basin.

Mobile source emissions are regulated in accordance with Title II provisions. These provisions require the use of cleaner burning gasoline and other cleaner burning fuels such as methanol and natural gas. Automobile manufacturers are also required to reduce tailpipe emissions of hydrocarbons and nitrogen oxides (NO_x). NO_x is a collective term that includes all forms of nitrogen oxides (NO, NO_2, NO_3) which are emitted as byproducts of the combustion process.

3.7.2 California Regulations

The CARB, which became part of the California EPA in 1991, is responsible for ensuring implementation of the California Clean Air Act (AB2595), responding to the federal CAA, and for regulating emissions from consumer products and motor vehicles. The California CAA mandates achievement of the maximum degree of emissions reductions possible from vehicular and other mobile sources in order to attain the state ambient air quality standards by the earliest practical date. The CARB established the CAAQS for all pollutants for which the federal government has NAAQS and, in addition, establishes standards for sulfates, visibility, hydrogen sulfide, and vinyl chloride. However at this time, hydrogen sulfide and vinyl chloride are not measured at any monitoring stations in the Basin because they are not considered to be a regional air quality problem. It should also be noted that the CAAQS are generally more stringent than the NAAQS.

Local air quality management districts, such as the SCAQMD, regulate air emissions from commercial and light industrial facilities. All air pollution control districts have been formally designated as attainment or nonattainment for each CAAQS.

Serious non-attainment areas are required to prepare air quality management plans that include specified emission reduction strategies in an effort to meet clean air goals. These plans are required to include:

- Application of Best Available Retrofit Control Technology to existing sources;
- Developing control programs for area sources (e.g., architectural coatings and solvents) and indirect sources (e.g. motor vehicle use generated by residential and commercial development);
- A District permitting systems designed to allow no net increase in emissions from any new or modified permitted sources of emissions;
- Implementing reasonably available transportation control measures and assuring a substantial reduction in growth rate of vehicle trips and miles traveled;
- Significant use of low emissions vehicles by fleet operators;
- Sufficient control strategies to achieve a five percent or more annual reduction in emissions or 15 percent or more in a period of three years for ROCs, NO_x, CO and PM_{10}. However, air basins may use alternative emission reduction strategy which achieves a reduction of less than five percent per year under certain circumstances.

4.0 PROJECT AIR QUALITY IMPACT

4.1 Introduction

The proposed project may violate an air quality standard or contribute to an existing or project air quality violation. Additionally, the proposed project may result in a cumulatively considerable net increase of a criteria pollutant for which the project is non-attainment under an applicable Federal or State ambient air quality standard. The significance of these potential impacts is described below.

4.2 Project Description

Tentative Tract No. 34556 proposes to develop 301 single-family detached residential homes on undeveloped land in the unincorporated region of Riverside County.

4.3 Site Location

The project site is generally located north of 60th Avenue and east of Van Buren Street in the County of Riverside.

4.4 Standards of Significance

The SCAQMD has developed significance thresholds based on the volume of pollution emitted. The SCAQMD's CEQA Air Quality Handbook, 1993 states that any projects in the District with daily emissions that exceed any of the following thresholds should be considered as having an individually and cumulatively significant air quality impact:

TABLE 4-1 MAX DAILY EMISSIONS THRESHOLDS		
Pollutant	**Construction**	**Operational**
NO_x	100 lbs/day	100 lbs/day
VOC	75 lbs/day	75 lbs/day
PM_{10}	150 lbs/day	150 lbs/day
SO_x	150 lbs/day	150 lbs/day
CO	550 lbs/day	550 lbs/day
AMBIENT AIR QUALITY FOR CRITERIA POLLUTANTS		
CO 1-hour average 8-hour average	20.0 ppm 9.0 ppm	

Per SCAQMD guidelines, during construction activity if a daily emission threshold is exceeded regardless of quarterly emissions levels, the project is determined to have a significant air quality impact. Therefore, a conservative approach is to evaluate construction emissions based on daily emissions rather than quarterly emissions. This analysis uses the more conservative approach to construction emissions, and analyzes construction emissions on a daily basis.

Additional indicators of potentially significant air quality impacts are listed in the CEQA Air Quality Handbook that should be used as screening criteria to evaluate the need for further analysis with respect to air quality. These policies are consistent with those identified in appendix G of the CEQA Guidelines. Whenever possible, the project should be evaluated in a quantitative analysis; otherwise a qualitative analysis is appropriate. The additional indicators that apply to this project are as follows:

I. Project could interfere with the attainment of the federal or State ambient air quality standards by either violating or contributing to an existing or projected air quality violation;

II. Project could generate vehicle trips that cause a CO hotspot;

III. Project has the potential to create or be subjected to objectionable odors;

IV. Project could conflict with or obstruct implementation of the applicable air quality management plan;

V. Expose sensitive receptors to substantial pollutant concentrations;

VI. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).

In order to determine significance for item "I" emissions resulting from construction and operations of the project have been compared to the regional and localized emissions thresholds (discussed later in this report). A CO Hotspot Analysis has been performed and is presented later in this report to determine significance for item "II." An evaluation of potential objectionable odors is also discussed later in this report and therefore addresses item "III." Section 4.9 discusses consistency with the applicable air quality management plan and therefore satisfies item "IV." Discussion regarding localized significance addresses item "V," and item "VI" respectively by computing pollutant concentrations resulting from the proposed project.

Localized Significance thresholds (LSTs) were developed in response to the Governing Board's Environmental Justice Enhancement Initiative I-4. The LST methodology was provisionally adopted by the Governing Board in October 2003.

LSTs are only applicable to the following criteria pollutants: NO_2, CO, and PM_{10}. LSTs represent the maximum emissions from a project that are not expected to cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard, and are developed based on the ambient concentrations of that pollutant for each source receptor area and distance to the nearest sensitive receptor. For PM_{10} LSTs were derived based on requirements in SCAQMD Rule 403 – Fugitive Dust.

The use of LSTs is voluntary, to be implemented at the discretion of local public agencies acting as a lead agency pursuant to the California Environmental Quality Act (CEQA). LSTs would only apply to projects that must undergo an environmental analysis pursuant to CEQA or the National Environmental Policy Act (NEPA) and are five acres or less. It is recommended that proposed projects larger than five acres in area undergo air dispersion modeling to determine localized air quality. As such, dispersion modeling was performed for this project and is discussed in Section 4.8 of this report.

Pollutant emissions are considered to have a significant effect on the environment if they result in concentrations that create either a violation of an ambient air quality standard, contribute to an existing air quality violation or expose sensitive receptors to substantial pollutant concentrations. Should ambient air quality already exceed existing standards, the SCAQMD has established specific significance criteria to account for the continued degradation of local air quality.

For PM_{10} emissions, background concentrations in the project area occasionally exceed the CAAQS for the PM_{10} 24-hour averaging time. As a result, a significant impact is achieved when pollutant concentrations produce a measurable change over existing background concentrations. Background concentrations are based upon the highest observed value for the most recent three year period. For NO_2 and CO, background concentrations are below the current air quality standards. As such, significance is achieved when pollutant concentrations add to existing levels and create an exceedance of the CAAQS. Table 3-3 (presented previously) shows the pollutant concentrations collected at the nearest monitoring stations for CO, NO_2, and PM_{10} where data for the last three years is available.

4.5 Project-Related Sources of Potential Impact

Land uses such as those proposed for the project impact air quality predominately through emissions associated with vehicular travel. Trip generation rates and characteristics were available from the report, Tentative Tract Map No. 34556 (Urban Crossroads, Inc., July 24, 2006).

The CARB has developed a land use and air pollution emissions computer model (URBEMIS 2002) that is used to calculate the daily emissions increase associated with a proposed project. For project related emissions the URBEMIS 2002 v. 8.7.0 model was used to forecast emissions levels for both project construction and operational activities. Output from the model runs for both construction and operational scenarios are provided in Appendix "A" and "B", respectively. Sections 4.6 and 4.7 discuss emissions outputs from the model in more detail.

4.6 Construction Emissions

Construction activities associated with the proposed project will result in emissions of CO, VOCs, NO_x, SO_x, and PM_{10}. Construction related emissions are expected from the following construction equipment and construction activities:

- Rough Grading
- Underground Utility Construction
- Paving
- Building Construction
- Architectural Coatings
- Construction Workers Commuting

Based on discussion with the project team, it is assumed for purposes of this analysis that construction activity is estimated to begin in June 2007 and is to be completed in 2010. Grading activity is estimated to take place from June 2007 to October 2007, Underground Utility Construction is estimated to take place from October 2007 to October 2009, and Physical Building Construction is estimated to take place from January 2008 to June 2010. Based on the development scheduling there is potential for overlap during Underground Utility and Physical Building Construction this phase of activity is representative of worst-case conditions for all pollutant emissions except PM_{10}. The worst-case PM_{10} emissions are expected to be generated during rough grading activity of the project site.

4.6.1 Rough Grading

Exhaust emissions from rough grading activity result from both on-road and off-road heavy equipment operating during this activity. For purposes of this analysis it is assumed that the project will utilize approximately six scrapers, two water trucks, and two loaders operational for a worst-case eight hours per day during grading activities.

Dust is normally a major concern during rough grading activities. Because such emissions are not amenable to collection and discharge through a controlled source, they are called "fugitive emissions". Emissions rates vary as a function of many parameters (soil silt, soil moisture, wind speed, area disturbed, number of vehicles, depth of disturbance or excavation, etc.). PM_{10} emissions were calculated based on discussion with the client that, approximately 20 acres of the approximate 164 acres disturbed would be actively graded at any one time. The project site is expected to balance and no import/export is anticipated. Grading activity is estimated to take place over approximately four months. Fugitive dust emission rates for average conditions (0.11 ton/acre-month) were available from the report Improvement of Specific Emission Factors (Midwest Research Institute, 1996) and utilized for this analysis.

In addition to fine particles that remain suspended in the atmosphere semi-indefinitely, construction (grading) activities generate many larger particles with shorter atmospheric residence times. Emissions generated from grading activity are presented in Table 4-2 (presented later in this report).

4.6.2 Underground Utility Construction and Paving

Exhaust emissions will result from heavy equipment that will be operational during underground utility construction. The types of activities that generally take place may include general trench-work, pipe laying with associated base material and cover, ancillary earthwork, manholes, etc. This activity is assumed to take place in a single phase prior to building construction. For purposes of this analysis it is assumed that approximately one excavator, one loader, and one bottom dump truck are operational at a worst-case for eight hours per day during this phase of construction.

Paving activities include the movement of any remaining material as well as necessary curb and gutter work, road base material placement and blacktop. A project this size is anticipated to utilize approximately one grader, one paver, and one roller during paving activities. It is estimated that underground utility work and paving activity will last the duration of approximately twenty-four months (two years). Emissions generated from underground utility construction are presented on Table 4-2 (presented later in this report).

4.6.3 Building Construction

Building construction activity will result in emissions from heavy equipment that will be operational during building construction. The types of activities that generally take place will likely include physical building construction. Construction equipment will likely include: two gradealls, one loader, and one work truck. Building construction activities are estimated to last approximately twenty-five months.

TABLE 4-2

EMISSIONS SUMMARY OF PEAK CONSTRUCTION ACTIVITIES (POUNDS PER DAY)

Construction Activity	VOC	NO_x	CO	SO_x	PM_{10}
Rough Grading*	24.72	158.25	216.77	0	206.31
Peak Day Mass Emissions* **	**24.72**	**158.25**	**216.77**	**0.00**	**206.31**
SCAQMD Regional Threshold	75	100	550	150	150
Significant?	**NO**	**YES**	**NO**	**NO**	**YES**

Construction Activity	VOC	NO_x	CO	SO_x	PM_{10}
Underground Utility Construction	6.73	48.57	62.87	0	1.52
Building Construction**	6.96	40.90	103.88	0.04	1.65
Architectural Coatings	168.02	3.65	34.88	0.02	0.08
Peak Day Mass Emissions* **	**181.71**	**93.12**	**201.63**	**0.06**	**3.25**
SCAQMD Regional Threshold	75	100	550	150	150
Significant?	**YES**	**NO**	**NO**	**NO**	**NO**

*Includes emissions from two water trucks

**includes emissions from one heavy truck

***Peak Day Mass Emissions are representative of highest emissions generated during each construction activity and accounts for potential overlap of phases

Source: URBEMIS 2002 v 8.7.0

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4.6.4 Architectural Coatings

The application of architectural surface coatings (painting) generates VOC emissions when organic solvents in the coating evaporate as the coating dries. The following equation was used to estimate VOC emissions from architectural coatings:

Emissions (lb/day) = C x V

where:

C = VOC content of coating (lb/gal)

V = Amount of coating applied (gal/day)

A VOC content of 2.08 lb/gal (250 g/l) was assumed (typical water-based paint), based on the VOC limit specified in SCAQMD Rule 1113. It should be noted that Rule 1113 specifies a limit of 0.84 lb/gal (100 g/l) for coatings (flats). However, Rule 1113 allows a coating that is manufactured prior to the effective date of the applicable limit specified in the Table of Standards, and that has a VOC content above that limit , to be sold, supplied, offered for sale, or applied for up to three years after the specified effective date. Therefore, it was conservatively assumed that the coatings used for construction of the proposed project would meet the VOC-content limit currently in effect.

Emissions estimates have been calculated for architectural coatings assuming 80 gallons of paint per day were utilized; worker trips during architectural coatings have also been included in calculations and are available in Appendix “A”.

4.6.5 Construction Workers Commuting

Construction emissions for construction worker vehicles traveling to and from the project site were estimated assuming the maximum projected workers at each location traveling to and from the site each weekday. The maximum projected workers are calculated using the URBEMIS 2002 model defaults and are based on the type of land use to be developed, they are as follows: 0.72 worker trips/unit (Single-Family). 0.36 worker trips/unit (Multifamily), 0.32 worker trips/1,000 s.f. (Commercial/Retail), and 0.42 worker trips/1,000 s.f. (Industrial Trips).

4.6.6 Construction Emission Summary

Emissions resulting from grading activity are presented separately since this activity is expected to occur prior to other aspects of construction. Underground Utility, Building Construction, and Architectural Coating emissions are presented together since there is potential for these phases of construction to overlap. Assuming a "worst case" scenario of equipment was operated on average for 8 hours per day, along with other assumptions for construction activity (previously mentioned); the estimated maximum daily construction emissions are summarized on Table 4-2. Under the assumed worst case conditions, the project will result in emissions that would exceed criteria pollutant thresholds established by the SCAQMD for emissions of VOCs, NO_X and PM_{10}. Section 5.0 provides emissions reduction measures to reduce project impacts to the extent feasible.

4.7 Operational Emissions Impacts

Operational activities associated with the proposed project will result in emissions of ROG, NO_X, CO, PM_{10}, and SO_X. Operational emissions would be expected from the following equipment and activities:

- Vehicle emissions
- Fugitive dust related to vehicle travel
- Combustion emissions associated with natural gas use
- Landscape maintenance equipment emissions
- Emissions from consumer products
- Architectural coatings

4.7.1 Vehicle Emissions

Project operational (vehicular) impacts are dependent on both overall daily vehicle trip generation and the effect of the project on peak hour traffic volumes and traffic operations in the vicinity of the project. The project related operational air quality impact centers on the 2,881 new vehicle trips generated by the project. Trip characteristics were available from the report, Tentative Tract Map No. 34556 Traffic Impact Analysis (Urban Crossroads, Inc., July 24, 2006). Overall project daily emissions are evaluated first, followed by analysis of the potential peak hour "micro-scale" air quality impacts of the project (i.e. CO hotspot analysis).

4.7.2 Fugitive Dust Related to Vehicle Travel

Vehicles traveling on paved roads would be a source of fugitive emissions due to the generation of road dust. The emissions estimates for travel on paved roads used assumptions from the URBEMISIS 2002 model. The estimated PM_{10} emissions from vehicles for fugitive dust are provided in Appendix "B".

4.7.3 Combustion Emissions Associated with Natural Gas Use

Combustion emissions would be generated by the use of natural gas in the development. The emissions associated with natural gas use were calculated based on assumptions from the URBEMIS 2002 model. The estimated combustion emissions are provided in Table 4-3 (presented later in this report. Detailed emission calculations are provided in Appendix "B").

4.7.4 Landscape Maintenance Emissions

Landscape maintenance equipment would generate emissions from fuel combustion and evaporation of unburned fuel. Equipment in this category would include lawnmowers, trailers, shedders/grinders, blowers, trimmers,

TABLE 4-3

SUMMARY OF PEAK OPERATIONAL EMISSIONS (SUMMER)
(POUNDS PER DAY)

Operational Activities	VOC	NO_x	CO	SO_x	PM_{10}
Vehicle Emissions	22.14	23.29	257.16	0.19	29.22
Natural Gas Use	0.29	3.77	1.6	0	0.01
Landscape Maintenance Emissions	1.14	0.15	9.18	0.06	0.03
Architectural Coatings	10.25	0	0	0	0
Operational Emissions	**48.55**	**27.21**	**267.94**	**0.25**	**29.26**
SCAQMD Regional Threshold	75	100	550	150	150
Significant?	**NO**	**NO**	**NO**	**NO**	**NO**

Source: URBEMIS 2002 v 8.7.0

SUMMARY OF PEAK OPERATIONAL EMISSIONS (WINTER)
(POUNDS PER DAY)

Operational Activities	VOC	NO_x	CO	SO_x	PM_{10}
Vehicle Emissions	20.32	33.68	243.5	0.16	29.22
Natural Gas Use	0.29	3.77	1.6	0	0.01
Consumer Products	14.73	0	0	0	0
Architectural Coatings	10.25	0	0	0	0
Operational Emissions	**45.59**	**37.45**	**245.10**	**0.16**	**29.23**
SCAQMD Regional Threshold	75	100	550	150	150
Significant?	**NO**	**NO**	**NO**	**NO**	**NO**

Source: URBEMIS 2002 v 8.7.0

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chain saws, and hedge trimmers used to maintain the landscaping of the development. The emissions associated with landscape maintenance equipment were calculated based on assumptions provided in the URBEMIS 2002 model. Detailed emissions calculations are provided in Appendix "B".

4.7.5 Emissions from Consumer Products

Consumer products include, but are not limited to detergents, cleaning compounds, polishes, personal care products, and lawn and garden products. Many of these products contain organic compounds which when released in the atmosphere can react to form ozone and other photochemically reactive pollutants.

4.7.6 Architectural Coatings

It is assumed that over a period of time the buildings that are part of this project will be subject to emissions resulting from the evaporation of solvents contained in paints, varnishes, primers, and other surface coatings as part of project maintenance. It is conservatively estimated that approximately ten percent of the buildings built as part of this project will be repainted per year.

4.7.7 Operations Emissions Summary

The project-related operations emissions burdens, along with a comparison of SCAQMD recommended significance thresholds, are shown in Table 4-3.

The project related emissions levels for operational emissions are not expected to exceed the regional thresholds set forth by the SCAQMD.

4.8 Localized Significance

The Industrial Source Complex Short Term (ISCST3) model was used to calculate localized emissions resulting from construction activity. The ISCST3 model is a steady state Gaussian plume model and is approved by the U.S. EPA for estimating ground level impacts from point and fugitive sources in simple and complex terrain. ISCST3 is capable of quantifying pollutant emissions generated from multiple sources and can accommodate both stationary emission rates and those that reflect discrete operational periods unique to the source under consideration. For purposes of this analysis receptors were placed where current residences (sensitive receptors) are actually located in close proximity to the proposed project. Receptor height was set at 2.0 meters to account for sensitive receptors in the project vicinity. The urban option of the model was utilized, and the area source algorithm was used. For PM_{10} fugitive dust emissions, release height was assumed to be at ground level, for emissions of CO and NO_2 emissions were assumed to be released at 5.0 meters (consistent with SCAQMD LST guidance). An emissions rate of 1 gram per second was utilized for all emissions and the output in micrograms per cubic meter ($\mu g/m^3$), or parts per million (ppm) was then multiplied by the emissions rate determined from the URBEMIS 2002 model. A summary of calculations from both the ISCST3 model output and calculations for the actual concentration for each pollutant are available for review in Appendix C.

Table 4-4 presents the results of localized emissions during construction activity; emissions of CO and NO_2 do not exceed localized thresholds for construction activity. A review of PM_{10} emissions indicates that highest concentration before emissions reduction measures is approximately 106.11 $\mu g/m^3$ which exceeds the allowable threshold of $10.4 \mu g/m^3$. With the implementation of emissions reduction measures the maximum concentration is approximately 36.13 $\mu g/m^3$ which still exceeds the threshold (presented in Table 5-2 later in this report). The project therefore has the potential to exceed the localized standard for PM_{10} during short-term construction activity.

TABLE 4-4

LOCALIZED SIGNIFICANCE SUMMARY (CONSTRUCTION)

AIR POLLUTANT	AVERAGING TIME	PEAK DAY LOCALIZED EMISSIONS	BACKGROUND CONCENTRATION***	TOTAL CONCENTRATION	THRESHOLD	**SIGNIFICANT?**
Carbon Monoxide (CO)	8 Hours	0.153	1.3	1.45	9.0 ppm	**NO**
	1 Hour	0.570	3.0	3.57	20.0 ppm	**NO**
Nitrogen Dioxide (NO_2)	1 Hour	0.025	0.1	0.13	0.25 ppm	**NO**
Particulates (PM_{10})**	24 Hours (Construction)	106.11			10.4 μg/m3*	**YES**

*Threshold based on SCAQMD RULE 403

**Since basin is in non-attainment for PM10, threshold is established as an "allowable change" in concentration therefore background/total concentration is irrelevant

***Highest concentration from the last three years of available data

Note: PM_{10} concentrations are expressed in μg/m^3. All others are expressed in ppm.

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For operational activity, emissions levels for area source operations (LST guidance states that off-site mobile emissions from the project should not be included in emissions compared to LSTs) are below a level of significance for CO, NO_2, and PM_{10}. Table 4-5 presents the results in tabular format for review (see Appendix C for more details).

4.9 Air Quality Management Planning

The proposed project may conflict with or obstruct implementation of the applicable air quality plan. The project site is located within the SSAB, which is characterized by relatively poor air quality. The South Coast Air Quality Management District (SCAQMD) has jurisdiction over an approximately 12,000 square-mile area consisting of the four-county Basin and the Los Angeles County and Riverside County portions of what use to be referred to as the Southeast Desert Air Basin. State and Federal air quality standards are exceeded in most parts of the Basin. The SCAQMD has adopted a series of Air Quality Management Plans (AQMPs) to meet the State and Federal ambient air quality standards. The most recent version of the AQMP was adopted by the SCAQMD in August of 2003, the ARB (Air Resources Board) subsequently adopted the plan in October of 2003 and submitted its recommended modifications to the EPA for approval.

The AQMP contains a number of land use and transportation control measures (TCMs) which are divided into three categories:

- High occupancy vehicle (HOV) measures
- Transit and Systems Management measures
- Information-based measures

These measures can not be implemented on any single development , but require an integration of all development and all transportation planning. AQMP consistency on a single development basis is thus more a matter of facilitating or providing the infrastructure for TCM implementation rather than being required to carry out regionally comprehensive AQMP measures.

TABLE 4-5

LOCALIZED SIGNIFICANCE SUMMARY (OPERATIONS)

AIR POLLUTANT	AVERAGING TIME	PEAK DAY LOCALIZED EMISSIONS	BACKGROUND CONCENTRATION***	TOTAL CONCENTRATION	THRESHOLD	**SIGNIFICANT?**
Carbon Monoxide (CO)	8 Hours	0.007	1.3	1.31	9.0 ppm	**NO**
	1 Hour	0.009	3.0	3.01	20.0 ppm	**NO**
Nitrogen Dioxide (NO_2)	1 Hour	0.00021	0.1	0.100	0.25 ppm	**NO**
Particulates (PM_{10})**	24 Hours (Operations)	0.01			2.5 µg/m3*	**NO**

*Threshold based on SCAQMD RULE 1302, Table A-2

**Since basin is in non-attainment for PM10, threshold is established as an "allowable change" in concentration therefore background/total concentration is irrelevant

***Highest concentration from the last three years of available data

Note: PM_{10} concentrations are expressed in µg/m^3. All others are expressed in ppm.

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The Southern California Association of Governments (SCAG) and Coachella Valley Association of Governments (CVAG) are key participants in local and regional air quality improvement efforts. CVAG has also been instrumental in initiating programs that address regional air quality issues and shortcomings. The 2003 Coachella Valley State Implementation Plan (2003 CVSIP) was prepared by the SCAQMD, local Coachella Valley jurisdictions, agencies, and stakeholders. The CVSIP includes control measures and attainment demonstrations and an analysis of the most stringent measures. The SCAQMD also employs a Coachella Valley PM_{10} Air Quality Inspector, who works closely with CVAG, local jurisdictions, and developers to implement effective, site-specific PM_{10} mitigation measures.

The project relates to the air quality planning process through the growth forecasts that were used as inputs into the regional transportation model. If a proposed development is consistent with those growth forecasts, and if all available emissions reduction strategies are implemented as effectively as possible on a project-specific basis, then the project is consistent with the AQMP. The proposed project although not consistent with growth projections for the project area as the proposed zoning is not consistent with the currently adopted Riverside County Integrated Projects (RCIP), can be consistent with the AQMPs goals and objectives if there is proper compliance with applicable SCAQMD requirements and control measures for new developments and with prohibitory rules, such as Rule 403 & 403.1, for the control of fugitive dust. By meeting these requirements, the project although not consistent with the AQMP can be consistent with the goals and objectives outlined in the AQMP.

4.10 Secondary Effects Evaluation

The potential impact of the project on sensitive receptors has also been considered. Sensitive receptors can include uses such as long term health care facilities, rehabilitation centers, and retirement homes. Residences, schools, playgrounds, child care centers, and athletic facilities can also be considered as sensitive receptors.

The potential sensitive receptors include the residential component of the project site and adjacent residential units near the project site.

Sensitive receptors located near the project site have the potential to be affected during short-term construction activity due to odors and/or dust generated during construction activities. However, the effects would be more a nuisance (e.g. possible "track out" on adjacent roadway) than a health risk as the emissions generated are below the districts thresholds (after mitigation) and are short-term in duration. In addition these potential impacts can be reduced substantially with proper compliance with recommendations outlined in Section 5.0 of this report.

The potential for the project to generate objectionable odors has also been considered. Land uses generally associated with odor complaints include:

- Agricultural uses (livestock and farming)
- Wastewater treatment plants
- Food processing plants
- Chemical plants
- Composting operations
- Refineries
- Landfills
- Dairies
- Fiberglass molding facilities

The project site currently consists of agricultural land uses which will be displaced by the proposed project. The implementation of the project will likely reduce fugitive dust emissions and odor associated with the current agriculture operations; however the project would generate new emissions of fugitive dust during construction and operational activity (discussed later in this report). Adjacent land uses in the project vicinity consist primarily of vacant land and agriculture. The adjacent land uses have the potential to subject new residences which are part of the proposed project to objectionable odors.

It should also be noted that any odor impact generated during construction activities would be short-term in nature and cease upon completion of the respective phase (paving or building construction) of the project. As a result, no significant odor impacts are expected to affect surrounding sensitive receptors.

4.11 CO Hotspot Analysis

Air pollutant emissions related to project traffic have the potential to create new, or worsen existing, localized air quality. A CO impact analysis is required to assess the localized CO impacts on sensitive receptors that are situated adjacent to congested roadways and intersections.

Intersections with the highest potential for CO hot spot formation were selected for analysis based on their average delay, high project-related traffic volumes, and the proximity of intersections to sensitive receptors. Intersections functioning near or above capacity, which are characterized by a high average delay, have the potential to create a CO hot spot.

The SCAQMD recommends the use of CALINE-4, a dispersion model for predicting CO concentrations, as the preferred method of estimating localized pollutant concentrations at sensitive receptors near congested roadways and intersections. For each intersection analyzed, CALINE-4 adds roadway-specific CO emissions calculated from peak-hour turning volumes to ambient CO air concentrations. For this analysis, localized CO concentrations were calculated based on a simplified CALINE-4 screening procedure developed by the Bay Area Air Quality Management District (BAAQMD) and accepted by the SCAQMD. The simplified procedure is intended as a screening analysis, which identifies a potential CO hotspot. This methodology assumes worst-case conditions and provides a screening of maximum, worst-case CO concentrations. The emissions factors used in this analysis have been updated using EMFAC2002, as the emissions originally for use with the simplified CALINE-4 screening procedure are outdated.

Traffic volumes for the A.M. and P.M. peak hours were input into the simplified screening procedure to evaluate potential project impacts. These volumes were available from the report, Tentative Tract Map No. 34556 Traffic Impact Analysis (Urban Crossroads, Inc., July 24, 2006). Emissions factors used as inputs for CO analysis are presented in Appendix E.

Future CO concentrations were determined for the weekday peak time periods by adding the predicted increase in CO concentrations attributable to traffic-volumes in the study area to an ambient CO concentration within the study area. According to 2004 air quality data (see Table 3-3 presented previously), the SCAQMD predicts that the background 1-hour CO level for the study area in 2010 will be 2.2 parts per million (ppm), and the 8-hour CO level for the study area will be 1.3 ppm.

1-hour and 8-hour CO concentrations were calculated using methodology outlined in the BAAQMD's simplified CALINE-4 screening procedure. The results of these calculations are presented in Table 4-6 for representative receptor locations at roadway edge, 25, 50, and 100 feet from each roadway. The national 1-hour ambient air quality standard is 35.0 ppm and the State 1-hour ambient air quality standard is 20.0 ppm. The 8-hour national and state ambient air quality standard is 9.0 ppm.

Based on this analysis none of the locations reviewed is expected to experience CO levels in excess of the allowable concentration of 20.0 ppm. The highest one-hour CO "hot spot" level is 8.9 ppm. The analysis also indicates that none of the locations experience CO levels in excess of the 8-hour allowable concentration of 9.0 ppm. Appendix D contains a more detailed output from the simplified CALINE-4 screening procedure.

Since currently there are no significant impacts at intersections with the highest potential for CO hotspot formation, no significant impacts are anticipated to occur at any other locations in the project vicinity as a result of the proposed project. Consequently, sensitive receptors would not be significantly affected by CO emissions generated by Project-related traffic.

TABLE 4-6

INTERIM YEAR (WITH PROJECT + CUMULATIVE 2010) CARBON MONOXIDE (CO) HOT SPOT LEVELS[1]

Intersection	CO Concentration In Parts Per Million											
	At Edge			25 Feet			50 Feet			100 Feet		
	AM Peak	PM Peak	8-Hour	AM Peak	PM Peak	8-Hour	AM Peak	PM Peak	8-Hour	AM Peak	PM Peak	8-Hour
Van Buren St. (NS) and 60th Av. (EW)	3.5	2.2	1.3	3.0	2.2	1.3	2.8	2.2	1.3	2.6	2.2	1.3
Jackson St. (NS) and Airport Bl. (EW)	5.3	5.6	3.7	3.9	4.1	2.6	3.5	3.6	2.3	3.1	3.2	2.0
Van Buren St. (NS) and Airport Bl. (EW)	6.1	6.0	4.0	4.4	4.3	2.8	3.8	3.8	2.4	3.4	3.3	2.1
Harrison St. (NS) and Airport Bl. (EW)	7.5	8.9	6.0	5.2	6.0	4.0	4.5	5.1	3.3	3.9	4.3	2.7
Monroe St. (NS) and Airport Bl. (EW)	4.8	5.2	3.4	3.7	3.9	2.5	3.3	3.5	2.2	3.0	3.2	2.0
Tyler St. (NS) and Airport Bl. (EW)	4.6	2.2	1.3	3.5	2.2	1.3	3.2	2.2	1.3	2.9	2.2	1.3
Van Buren St. (NS) and 58th Av. (EW)	3.5	3.6	2.3	2.9	3.0	1.9	2.7	2.8	1.7	2.6	2.6	1.6
Harrison St. (NS) and 58th Av. (EW)	8.0	8.7	5.8	5.4	5.7	3.8	4.6	4.8	3.2	3.9	4.1	2.6
Van Buren St. (NS) and 62nd Av. (EW)	3.4	3.5	2.2	2.9	2.9	1.8	2.7	2.7	1.7	2.6	2.6	1.6

[1]All values represented in parts per million (ppm)
Source: Urban Crossroads, Inc., August 2006. Calculations are provided in Appendix C.

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5.0 RECOMMENDATIONS

5.1 Measures to Reduce Impact

- Adhere to best management practices which include the application of water on disturbed soils three times per day, covering haul vehicles, replanting disturbed areas as soon as practical and restricting vehicle speeds on unpaved roads to 15 mph, to control fugitive dust.

- During rough grading activities the grading contractor should use low-sulfur diesel as defined in SCAQMD Rule 431.2, i.e., diesel with sulfur content of 15 ppm by weight or less.

- All paints shall be applied using either high-volume low-pressure (HVLP) spray equipment or by hand application and where feasible use of Zero-VOC paints (assumes no more than 100 gram/liter of VOC) Appendix F contains a list of Zero-VOC architectural coatings manufacturers.

5.2 Level of Significance

The project will not result in a significant impact (based on regional emissions threshold) for short-term construction activity after the implementation of recommended emissions reduction measures. The project however will result in a significant impact based on LSTs for emissions of PM_{10} (discussed previously in this report) even after the implementation of recommended emissions reduction measures. Emissions estimates for construction related activity after the implementation of emissions reduction measures are shown in Table 5-1 (regional) and 5-2 (localized).

Long-term operational impacts are below regional and localized significance levels; therefore no emissions reduction measures are required.

TABLE 5-1

EMISSIONS SUMMARY OF PEAK CONSTRUCTION ACTIVITIES (POUNDS PER DAY) (MITIGATED)

Construction Activity	VOC	NO_x	CO	SO_x	PM_{10}
Rough Grading*	24.72	81.86	216.77	0	70.31
Peak Day Mass Emissions* **	**24.72**	**81.86**	**216.77**	**0.00**	**70.31**
SCAQMD Regional Threshold	75	100	550	150	150
Significant?	**NO**	**NOx**	**NO**	**NO**	**NO**

Construction Activity	VOC	NO_x	CO	SO_x	PM_{10}
Underground Utility Construction	6.73	48.57	62.87	0	1.52
Building Construction**	6.96	40.90	103.88	0.04	1.65
Architectural Coatings	58.19	3.65	34.88	0.02	0.08
Peak Day Mass Emissions* **	**71.88**	**93.12**	**201.63**	**0.06**	**3.25**
SCAQMD Regional Threshold	75	100	550	150	150
Significant?	**NO**	**NO**	**NO**	**NO**	**NO**

*Includes emissions from two water trucks

**includes emissions from one heavy truck

***Peak Day Mass Emissions are representative of highest emissions generated during each construction activity and accounts for potential overlap of phases

Source: URBEMIS 2002 v 8.7.0

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TABLE 5-2

LOCALIZED SIGNIFICANCE SUMMARY (CONSTRUCTION) (MITIGATED)

AIR POLLUTANT	AVERAGING TIME	PEAK DAY LOCALIZED EMISSIONS	BACKGROUND CONCENTRATION***	TOTAL CONCENTRATION	THRESHOLD	**SIGNIFICANT?**
Carbon Monoxide (CO)	8 Hours	0.153	1.3	1.45	9.0 ppm	**NO**
	1 Hour	0.570	3.0	3.57	20.0 ppm	**NO**
Nitrogen Dioxide (NO_2)	1 Hour	0.15	0.1	0.25	0.25 ppm	**NO**
Particulates (PM_{10})**	24 Hours (Construction)	36.16			10.4 μg/m3*	**YES**

*Threshold based on SCAQMD RULE 403

**Since basin is in non-attainment for PM10, threshold is established as an "allowable change" in concentration therefore background/total concentration is irrelevant

***Highest concentration from the last three years of available data

Note: PM_{10} concentrations are expressed in μg/m^3. All others are expressed in ppm.

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Since the project is in exceedance of the localized emissions thresholds set forth by the SCAQMD (after mitigation) for PM_{10} it is assumed that cumulative developments can contribute to an exceedance and the project would therefore result in a cumulatively significant impact. The project, although not consistent with the currently adopted (2003) AQMP, can be consistent with the goals and objectives of the AQMP if there is proper compliance with standard regulatory requirements (discussed previously). The project is not expected to create objectionable odors affecting a substantial number of people. Lastly, the project generated traffic does not create a CO hotspot.

URBAN
CROSSROADS

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VAN BUREN ESTATES TENTATIVE TRACT MAP 34556 EIR NOISE ANALYSIS COUNTY OF RIVERSIDE, CALIFORNIA

September 06, 2006

JN:03829-02
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APPENDICES

LIST OF EXHIBITS

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VAN BUREN ESTATES TENTATIVE TRACT MAP 34556
EIR NOISE ANALYSIS
COUNTY OF RIVERSIDE, CALIFORNIA

1.0 EXECUTIVE SUMMARY

This noise analysis has been completed to determine the noise impacts associated with the development of the proposed Van Buren Estates Tentative Tract Map 34556. The project site includes 301 single family homes and is generally located north of 60th Avenue, east of Van Buren Street and south of 58th Avenue in the County of Riverside

The purpose of this noise assessment is to evaluate the noise impacts for the project study area and to recommend noise mitigation measures to minimize the identified potential project impacts.

1.1 Off-Site Noise Analysis

The results of this analysis show that for all roadway segments for the 2010 conditions, the proposed project will create noise level impacts of less than 3.0 dBA CNEL, which in terms of community noise level impact assessment is generally considered to be insignificant. The results of the off-site noise analysis show that the proposed project's noise level contributions will not result in significant impacts to the existing or future sensitive noise receptors identified in the project study area.

1.2 On-Site Noise Analysis

The on-site noise analysis indicates that the future vehicle noise from 60th Avenue and Van Buren Street are the principal sources of traffic noise that will impact the site. The proposed project has all lots facing Van Buren Street and 60th Avenue. Front yards are not considered exterior living areas. With the homes positioned between the front yard areas and due to the additional distance from the roads, the backyard living areas will be below the County of Riverside 65 dBA Leq noise standard. No noise exterior noise mitigation will be required to meet the County of Riverside exterior noise standards. To meet the County of Riverside 45 dBA Ldn interior noise standard, the project should provide the following noise mitigation measures summarized below and shown on Exhibit 1-A:

- Provide upgraded dual-glazed windows with a minimum Standard Transmission Class (STC) of 29 for lots 1, 118 to 123, 139 to 131, 142 to 148, 169 to 174, 179, 180, and 201 to 205 facing Van Buren Street and lots 100, 101, 131 to 133, and 139 facing 60th Avenue.
- Provide standard dual-glazed windows with a minimum STC of 26 for all other lots within the project area.

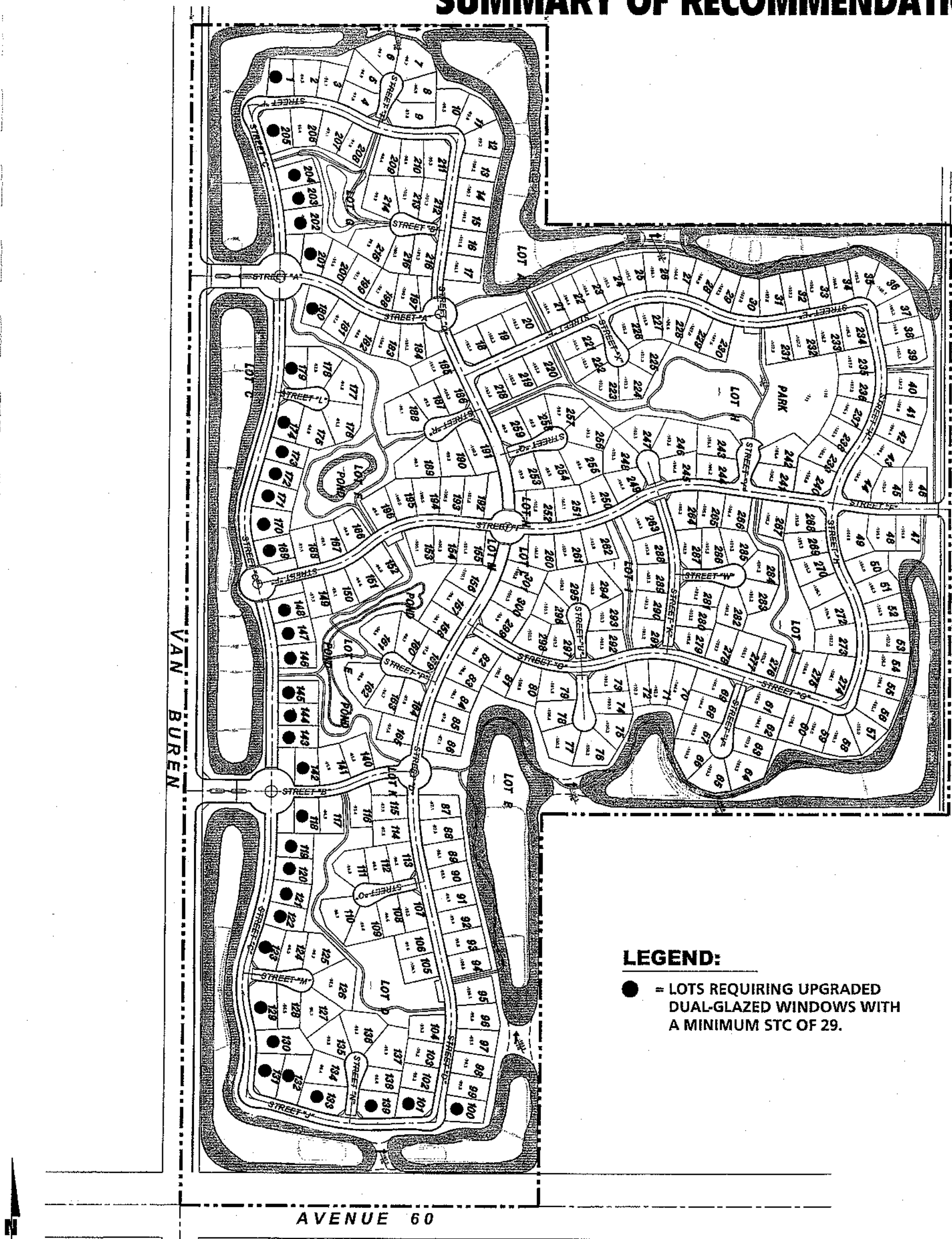
A final noise study will be required prior to the issuance of the first building permit for the proposed project. This report would identify the interior noise analysis based upon final grading plans and building plans.

1.3 Construction Noise Analysis

Construction noise is a short-term duration and will not represent any long-term impacts on the project site or surrounding area. The site is mostly vacant containing one existing single family home and is located in a relatively undeveloped area. The project site is specifically bounded by vacant land on all sides. Blasting and rock crushing may occur on the western 80 acres of the project site. Perceptible vibration effects occur less than 200 feet from the blast center, and when they are in very close proximity to the site perimeter, most people are not even aware that a fracturing blast has occurred. The rock drills used to place the charge, and the warning horns used to clear the blast site are often noisier than the blast itself. Rock crushing activities may also occur in the project site. As a stationary noise source with a drop off rate of 6 dBA per doubling distance, the noise impacts associated with rock crushing operations can be reduced to a less than significant level if the crusher is located far enough from the nearest home.

EXHIBIT 1-A

SUMMARY OF RECOMMENDATIONS



LEGEND:

● = LOTS REQUIRING UPGRADED DUAL-GLAZED WINDOWS WITH A MINIMUM STC OF 29.

To minimize the potential short-term noise impacts during the construction activities for the proposed project, the following construction noise mitigation measures are recommended:

During all project site excavation and grading on-site, the construction contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers, consistent with manufacturers' standards. The construction contractor shall place all stationary construction equipment so that emitted noise is directed away from the noise sensitive receptors nearest the project site.

- The construction contractor shall locate equipment staging in areas that will create the greatest distance between construction-related noise sources and noise sensitive receptors nearest the project site during all project construction.
- The construction contractor shall limit all construction-related activities that would result in high noise levels according to the construction hours to be determined by County staff. The construction contractor shall limit all construction-related activities that would result in high noise levels between the hours of 7:00 a.m. and 7:00 p.m. Monday through Saturday. No construction shall be allowed on Sundays and public holidays.
- The construction contractor shall limit haul truck deliveries to the same hours specified for construction equipment. To the extent feasible, haul routes shall not pass sensitive land uses or residential dwellings.
-

2.0 INTRODUCTION

This noise analysis has been completed to determine the noise impacts associated with the development of the proposed Van Buren Estates Tentative Tract Map 34556. The project site is generally located north of 60^{th} Avenue and east of Van Buren Street in the County of Riverside. Exhibit 2-A illustrates the location of the project site within the study area. The proposed project shown on Exhibit 2-B includes 301 single family homes.

This noise study briefly describes the proposed project, provides information regarding noise fundamentals, describes the local noise guidelines, provides the study methods and procedures for traffic noise analysis, and evaluates the future off-site and on-site exterior noise environment. Included in this study is an analysis of the potential off-site and on-site project-related noise impacts during construction activities and the predicted future noise environment that can be expected within the noise sensitive residential community.

The recommended noise mitigation measures included in this study have been designed to reduce the exterior and interior noise levels in the noise sensitive residential areas to meet the County of Riverside 45 dBA Ldn interior noise level standard. This study has been prepared to satisfy the County of Riverside noise standards.

EXHIBIT 2-A
LOCATION MAP

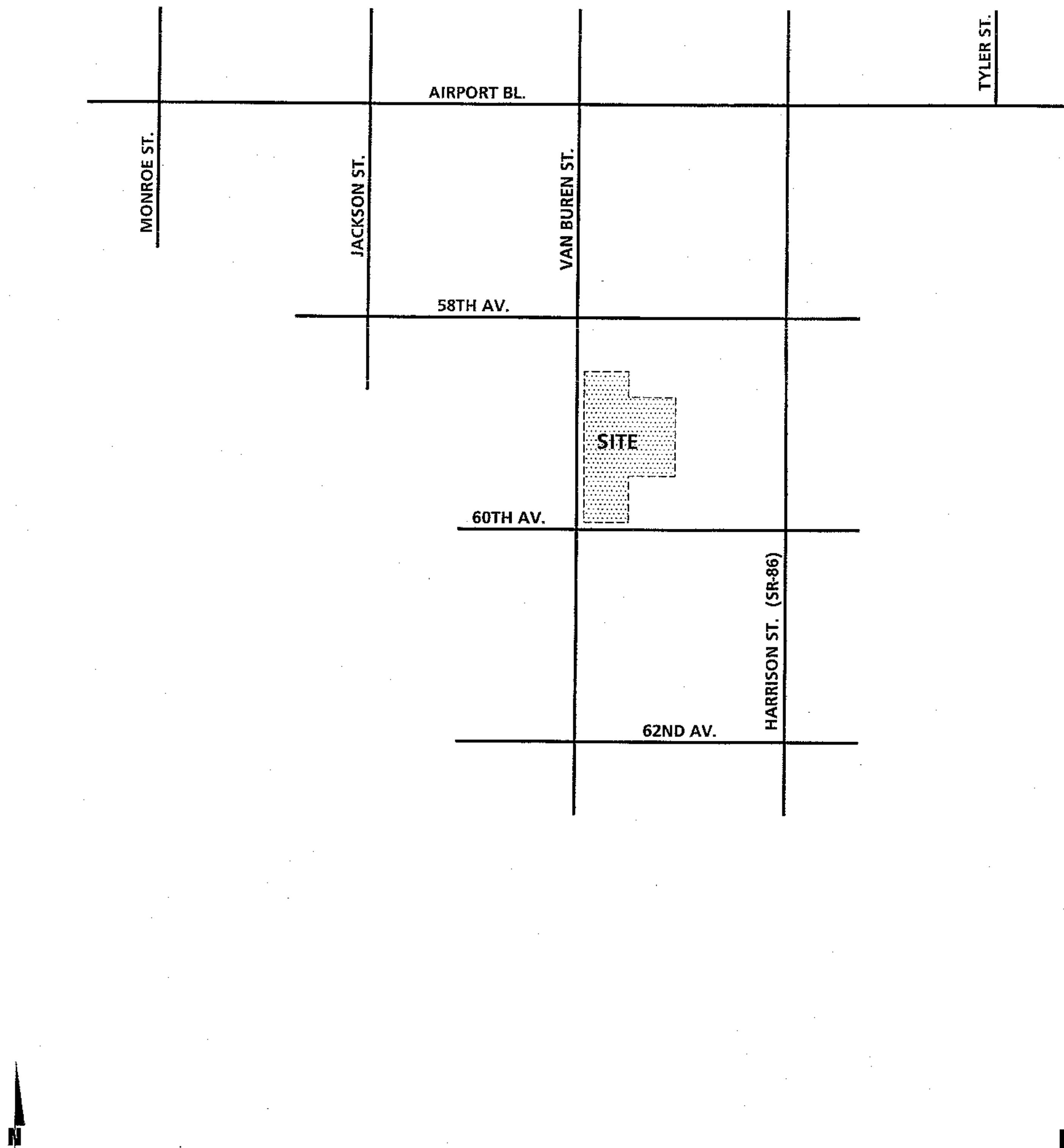
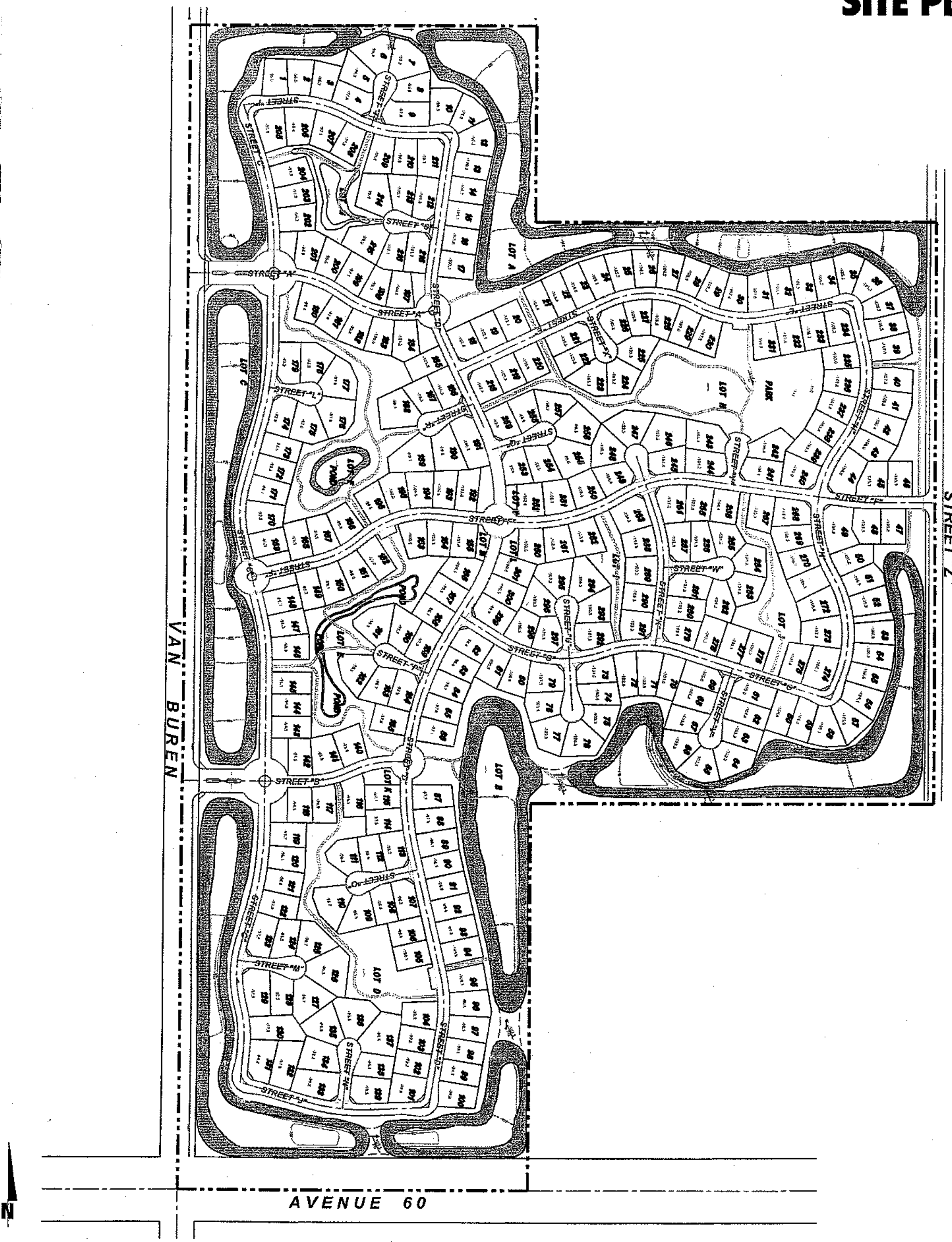


EXHIBIT 2-B
SITE PLAN



3.0 NOISE FUNDAMENTALS

Noise has been simply defined as "unwanted sound." Sound becomes unwanted when it interferes with normal activities, when it causes actual physical harm, or when it has adverse effects on health. Noise is measured on a logarithmic scale of sound pressure level known as a decibel (dB). A-weighted decibels (dBA) approximate the subjective response of the human ear to broad frequency noise source by discriminating against very low and very high frequencies of the audible spectrum. They are adjusted to reflect only those frequencies which are audible to the human ear.

3.1 Noise Descriptors

Equivalent sound levels are not measured directly but are calculated from sound pressure levels typically measured in A-weighted decibels (dBA). The equivalent sound level (Leq) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period. The peak hour Leq is the noise metric used to collect short-term noise level measurement samples and to calculate the Community Noise Equivalent Level (CNEL). The Leq descriptor is listed here for reference only; the County of Riverside relies on the CNEL to assess transportation related impacts on noise sensitive land uses.

The Community Noise Equivalent Level (CNEL) is the weighted average of the intensity of a sound, with corrections for time of day, and averaged over 24 hours. The time of day corrections require the addition of five decibels to dBA Leq sound levels in the evening from 7 p.m. to 10 p.m., and the addition of ten decibels to dBA Leq sound levels at night between 10 p.m. and 7 a.m. The Day-Night Level (Ldn) is the weighted average of the intensity of a sound, with corrections for time of day, and averaged over 24 hours. The time of day corrections require the addition of ten decibels to dBA Leq sound levels at night between 10 p.m. and 7 a.m. These additions are made to account for the noise sensitive time periods during the evening and night hours when sound appears louder and it is weighted accordingly. CNEL or Ldn does not represent the actual sound level heard at any particular time, but rather represents the total sound exposure. As identified in the County of Riverside General Plan Noise Element, the County relies on the CNEL or on the Ldn noise level standard to assess transportation related impacts on noise sensitive land uses.

3.2 Traffic Noise Prediction

The level of traffic noise depends on the three primary factors: (1) the volume of the traffic, (2) the speed of the traffic, and (3) the number of trucks in the flow of traffic. Generally, the loudness of traffic noise is increased by heavier traffic volumes, higher speeds, and greater number of trucks. A doubling of the traffic volume (assuming that the speed and truck mix do not change) results in a noise level increase of 3 dBA. The truck mix on a given roadway also has a significant effect on community noise levels. As the number of heavy trucks increases and becomes a larger percentage of the vehicle mix, adjacent noise levels increase. Vehicle noise is a combination of the noise produced by the engine, exhaust, and tires.

Because of the logarithmic nature of traffic noise levels, a doubling of the traffic noise (acoustic energy) results in a noise level increase of 3 dBA. Based on the Federal Highway Administration (FHWA) community noise assessment criteria this change is considered "barely perceptible".

3.3 Noise Control

Noise control is the process of obtaining an acceptable noise environment for a particular observation point or receiver by controlling the noise source, transmission path, receiver, or all three. This concept is known as the source-path-receiver concept. In general, noise control measures can be applied to any and all of these three elements and a noise barrier is most effective when placed close to the noise source or receiver.

3.4 Ground Absorption

To account for the ground-effect attenuation (absorption), two types of site conditions are commonly used in traffic noise models, soft site and hard site conditions. Soft site conditions account for the sound propagation loss over natural surfaces such as normal earth and ground vegetation. A drop-off rate of 4.5 dBA per doubling of distance is typically observed over soft ground with landscaping, as compared with a 3.0 dBA drop-off rate over hard ground such as asphalt, concrete, stone and very hard packed earth. For the purpose of this analysis, soft site conditions were used to develop the noise contour boundaries and hard site conditions were used to estimate the on-site barrier height requirements.

3.5 Noise Barrier Attenuation

Effective noise barriers can reduce noise levels by 10 to 15 dB, cutting the loudness of traffic noise in half. Noise barriers however, do have limitations. For a noise barrier to work, it must be high enough and long enough to block the view of a road. Noise barriers do very little good for homes on a hillside overlooking a road or for buildings which rise above the barrier. A noise barrier can achieve a 5 dB noise level reduction when it is tall enough to break the line-of-sight.

4.0 NOISE STANDARDS

The County of Riverside addresses two separate types of noise sources through the CEQA process: (1) mobile, and (2) stationary. The mobile, or transportation related, noise impacts are controlled using the 24-hour Community Day - Night Level (Ldn) to assess the land use compatibility for community noise exposure. To control community noise impacts from stationary (non-transportation) noise sources (such as speakerphones, trash compactors, etc.) the County of Riverside has identified the worst-case noise levels for daytime and nighttime activities. In the context of this noise analysis, the noise impacts associated with the proposed Van Buren Estates Tentative Tract Map 34556 Development are controlled by the County Noise Element.

4.1 Noise Criteria

The Noise Element of the County of Riverside General Plan provides performance standards and noise control guidelines for determining and mitigating non-transportation or stationary noise source impacts to residential properties. The purpose of the noise element is to protect, create and maintain an environment free from noise and vibration that may jeopardize the health or welfare of sensitive receptors, or degrade quality of life.

The County of Riverside has set exterior noise limits to control noise impacts associated with the development of the proposed Van Buren Estates Tentative Tract Map 34556 Development. Due to the design of the proposed project having front-facing lots, exterior mitigation will not be analyzed and is not necessary.

4.2 Community Noise Assessment Criteria

In community noise assessment, changes in noise levels greater than 3 dBA are often identified as "barely perceptible," while changes of 5 dBA are "readily perceptible." In the range of 1 dBA to 3 dBA, people who are very sensitive to noise may perceive a slight change in noise level.

In laboratory testing situations, humans are able to detect noise level changes of slightly less than 1 dBA. However, in a community situation the noise exposure is extended over a long time period, and changes in noise levels occur over years rather than the immediate comparison made in a laboratory situation. Therefore, the level at which changes in community noise levels become discernible is likely to be some value greater than 1 dBA, and 3 dBA appears to be appropriate for most people. For purposes of this study, noise impacts are considered significant if the project increases noise levels by 3 dBA, or if the predicted exterior noise levels exceed the County of Riverside Noise Element criteria.

5.0 EXISTING NOISE LEVEL MEASUREMENTS

To determine the existing noise level environment, noise measurements were taken at four (4) locations in the project study area. Exhibit 5-A provides the boundaries of the project study area and the noise measurement locations. The noise measurements were recorded by Urban Crossroads, Inc. between the hours of 10:00 a.m. and 12:00 p.m. on July 20, 2006. Appendix "B" includes a photo index and study area photos.

5.1 Measurement Procedure and Criteria

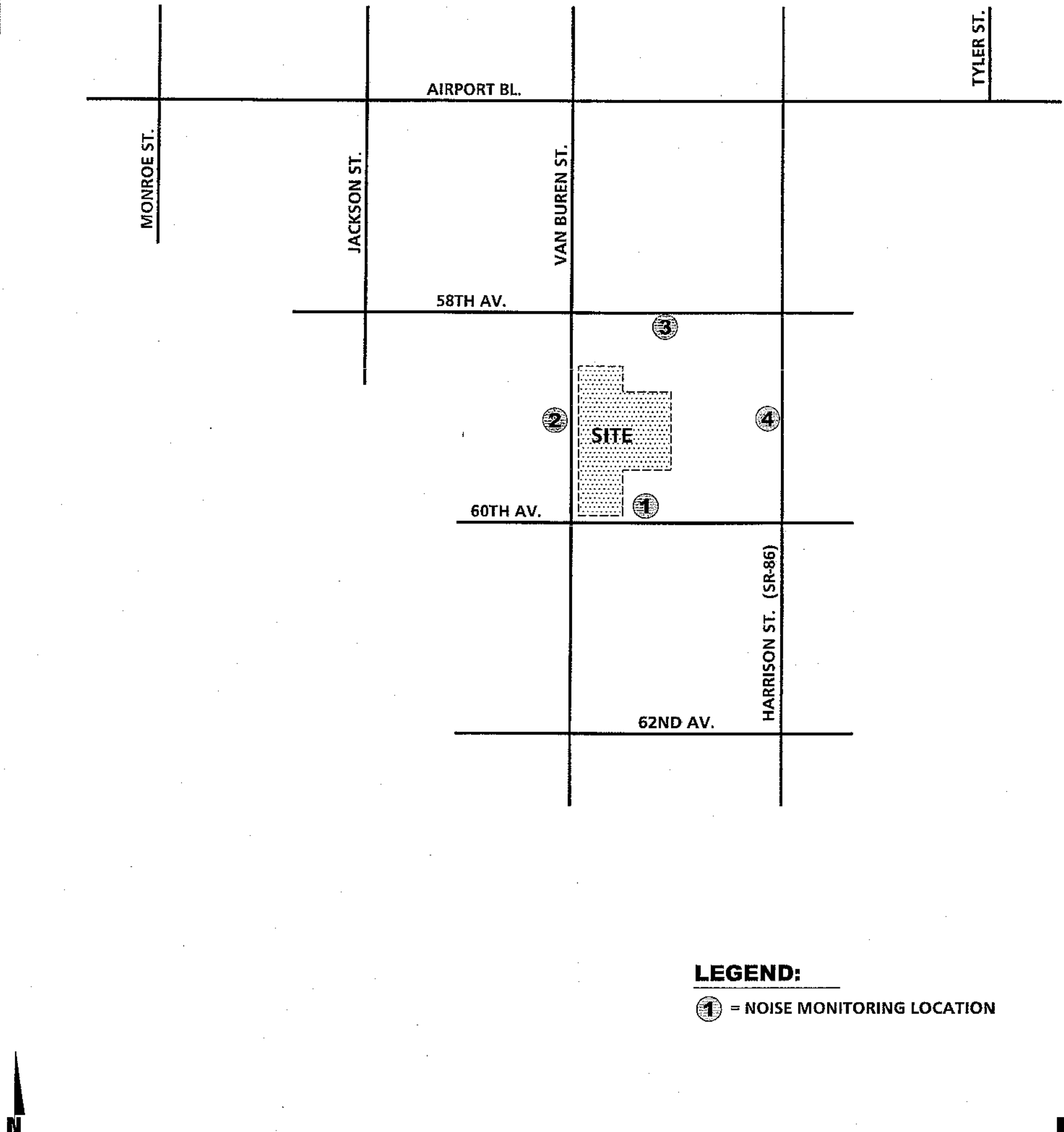
Noise measurements were taken using a Larson-Davis Model 824 Type 1 precision sound level meter, programmed, in "fast" mode, to record noise levels in "A" weighted form. The sound level meter and microphone were mounted on a tripod, five feet above the ground and equipped with a windscreen during all measurements. The sound level meter was calibrated before and after the monitoring using a Larson-Davis calibrator, Model CAL 150. All noise level measurement equipment meets American National Standards Institute (ANSI) specifications for sound level meters, S1.4-1983 identified on Chapter 19.68.020.AA.

5.2 Noise Measurement Locations

The project site is specifically bounded by vacant land on all sides with exception of a few sporadic single-family homes. The project site is mostly vacant with one single family home currently present and is located in a relatively undeveloped area and currently the project site does not experience significant traffic noise impacts.

Noise monitoring locations were selected by Urban Crossroads based on the impact potential. Site 1 is located 100 feet from the centerline of 60th Avenue, east of the project site. Sites 2 is located 100 feet from the centerline of Van Buren Street across from the project site. Site 3 is located approximately 100 feet from

EXHIBIT 5-A
NOISE MONITORING LOCATIONS



the centerline of 58th Avenue to the north of the project site. Site 4 is located 100 feet from the centerline of Harrison Street to the east of the project site. Exhibit 5-A shows the noise monitoring locations.

5.3 Noise Measurement Results

The results of the noise level measurements are presented in Table 5-1. All locations were monitored for a time period of 10 minutes. The noise levels measured near boundaries of the project site ranged from 45.2 to 59.9 dBA Leq. The noise monitoring data printouts are included in Appendix "C". The levels were then converted to CNEL and are show in Appendix "D". The CNEL noise levels ranged from 45.7 to 60.4 dBA CNEL. Harrison Street and 58th Avenue are the major sources of noise near the project site. The existing ambient Leq noise levels measured near the project site were below 65 dBA Leq, therefore the project site currently does not experience significant traffic noise impacts. The remaining areas within the project site do not experience significant traffic noise.

TABLE 5-1

EXISTING (AMBIENT) NOISE LEVEL MEASUREMENTS[1]

OBSERVER LOCATION[2]	DESCRIPTION[3]	TIME OF MEASUREMENT	PRIMARY NOISE SOURCE	NOISE LEVELS (Leq dBA)[4]	NOISE LEVELS (Leq CNEL)
1	Located 100 feet from the centerline of 60th Avenue.	10:48 AM	Traffic on 60th. Ave. and Ambient	45.2	45.8
2	Located 100 feet from the centerline of Van Buren Street.	11:09 AM	Traffic on Van Buren St. and Ambient	45.2	45.7
3	Located 100 feet from the centerline of 58th Avenue.	11:29 AM	Traffic on 58th Ave. and Ambient	53.8	54.3
4	Located 100 feet from the centerline of Harrison Street.	11:49 AM	Traffic on Harrison St. and Ambient	59.9	60.4

[1] Noise measurements taken by Urban Crossroads, Inc. on July 19, 2006.

[2] See Exhibit 5-A for the location of the monitoring sites, and Appendix "B" for Study Area Photos.

[3] All locations were monitored for a period of 10 minutes.

[4] Weather conditions: clear, temperature= 107°F, wind=calm

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6.0 METHODS AND PROCEDURES

The following section outlines the methods and procedures used to model and analyze the future noise environment.

6.1 FHWA Traffic Noise Prediction Model

The projected roadway noise impacts from vehicular traffic were projected using a computer program that replicates the Federal Highway Administration (FHWA) Traffic Noise Prediction Model- FHWA-RD-77-108 (the "FHWA Model"). The FHWA Model arrives at a predicted noise level through a series of adjustments to the Reference Energy Mean Emission Level (REMEL). Adjustments are then made to the reference energy mean emission level to account for; the roadway classification (e.g., collector, secondary, major and arterial), the roadway active width (i.e., the distance between the center of the outermost travel lanes on each side of the roadway), the total average daily traffic (ADT), the travel speed, the percentages of automobiles, medium trucks and heavy trucks in the traffic volume, the roadway grade, the angle of view (e.g., whether the roadway view is blocked), the site conditions ("hard" or "soft" relates to the absorption of the ground, pavement or landscaping) and the percentage of total average daily traffic (ADT) which flows each hour throughout a 24-hour period.

6.2 Traffic Noise Prediction Model Inputs

Table 6-1 presents the FHWA Traffic Noise Prediction Model roadway parameters used in this analysis. Soft site conditions were used to develop noise contours. The average daily traffic volumes used for this study presented in Table 6-2 were provided by the Tentative Tract Map No. 34556 Traffic Impact Analysis prepared by Urban Crossroads, Inc on July 24, 2006 along with general plan buildout volumes from the County of Riverside Circulation Element.

TABLE 6-1

ROADWAY PARAMETERS

ROADWAY	SEGMENT	ROADWAY CLASSIFICATION[1]	VEHICLE SPEED (MPH)	SITE CONDITIONS[2]
58th Avenue	w/o Harrison St.	Major	40	Soft
58th Avenue	w/o Van Buren St.	Major	40	Soft
60th Avenue	w/o Harrison St.	Expressway	40	Soft
60th Avenue	w/o Van Buren St.	Expressway	40	Soft
62th Avenue	w/o Van Buren St.	Secondary	40	Soft
62th Avenue	w/o Harrison St.	Secondary	40	Soft
Airport Boulevard	w/o Harrison St.	Urban Arterial	40	Soft
Airport Boulevard	w/o Jackson St.	Arterial	40	Soft
Airport Boulevard	w/o Tyler St.	Urban Arterial	40	Soft
Airport Boulevard	w/o Monroe St.	Arterial	40	Soft
Airport Boulevard	w/o Van Buren St.	Urban Arterial	40	Soft
Airport Boulevard	e/o Tyler St.	Urban Arterial	40	Soft
Harrison Street	n/o Airport Blvd.	Urban Arterial	40	Soft
Harrison Street	s/o Airport Blvd.	Urban Arterial	40	Soft
Harrison Street	s/o 58th Ave.	Urban Arterial	40	Soft
Jackson Street	s/o Airport Blvd.	Arterial	40	Soft
Jackson Street	n/o Airport Blvd.	Arterial	40	Soft
Monroe Street	n/o Airport Blvd.	Arterial	40	Soft
Tyler Street	n/o Airport Blvd.	Major	40	Soft
Van Buren Street	s/o Airport Blvd.	Major	40	Soft
Van Buren Street	s/o 58th Ave.	Major	40	Soft
Van Buren Street	s/o 60th Ave.	Major	40	Soft
Van Buren Street	s/o 62th Ave.	Major	40	Soft
Van Buren Street	n/o Airport Blvd.	Major	40	Soft

[1] According to the County of Riverside General Plan Circulation Element.
[2] Soft site is used for noise contours.

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TABLE 6-2

AVERAGE DAILY TRAFFIC (1000's)[1]

ROADWAY	SEGMENT	AVERAGE DAILY TRAFFIC (IN 1000's)		
		EXISTING	YEAR 2010 NO PROJECT	YEAR 2010 WITH PROJECT
58th Avenue	w/o Harrison St.	0.7	1.3	2.4
58th Avenue	w/o Van Buren St.	1.0	1.8	2.2
60th Avenue	w/o Harrison St.	0.6	4.8	4.8
60th Avenue	w/o Van Buren St.	0.7	5.7	5.7
62th Avenue	w/o Van Buren St.	0.7	6.8	6.8
62th Avenue	w/o Harrison St.	0.8	7.7	7.7
Airport Boulevard	w/o Harrison St.	3.7	23.7	23.7
Airport Boulevard	w/o Jackson St.	2.9	18.9	19.5
Airport Boulevard	w/o Tyler St.	5.2	20.6	21.2
Airport Boulevard	w/o Monroe St.	1.4	16.5	16.8
Airport Boulevard	w/o Van Buren St.	4.0	23.0	23.6
Airport Boulevard	e/o Tyler St.	5.5	22.1	22.6
Harrison Street	n/o Airport Blvd.	9.0	35.8	36.2
Harrison Street	s/o Airport Blvd.	7.3	43.4	44.4
Harrison Street	s/o 58th Ave.	6.7	42.5	42.5
Jackson Street	s/o Airport Blvd.	2.3	4.4	4.9
Jackson Street	n/o Airport Blvd.	3.0	8.2	8.7
Monroe Street	n/o Airport Blvd.	2.3	11.8	12.1
Tyler Street	n/o Airport Blvd.	1.1	2.4	2.6
Van Buren Street	s/o Airport Blvd.	1.5	7.9	8.9
Van Buren Street	s/o 58th Ave.	1.1	7.3	9.8
Van Buren Street	s/o 60th Ave.	1.0	6.4	6.8
Van Buren Street	s/o 62th Ave.	0.8	2.0	2.3
Van Buren Street	n/o Airport Blvd.	2.6	7.5	8.0

[1] According to the Van Buren Estates TTM 34556 Traffic Impact Analysis by Urban Crossroads,
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Table 6-3 presents the hourly traffic flow distribution (vehicle mix) used for this analysis as required by the County of Riverside. The vehicle mix provides the hourly distribution percentages of automobile, medium trucks and heavy trucks for input into the FHWA Model.

TABLE 6-3

HOURLY TRAFFIC FLOW DISTRIBUTION[1]

MOTOR-VEHICLE TYPE	DAYTIME (7 AM TO 7 PM)	EVENING (7 PM TO 10 PM)	NIGHT (10 PM TO 7 AM)	TOTAL % TRAFFIC FLOW
Urban Arterial, Major				
Automobiles	75.5%	14.0%	10.5%	92.00%
Medium Trucks	48.0%	2.0%	50.0%	3.00%
Heavy Trucks	48.0%	2.0%	50.0%	5.00%
Secondary				
Automobiles	77.5%	12.9%	9.6%	97.42%
Medium Trucks	84.8%	4.9%	10.3%	1.84%
Heavy Trucks	86.5%	2.7%	10.8%	0.74%

[1] Riverside County required vehicle mix.

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7.0 OFF-SITE NOISE ANALYSIS

To assess the off-site noise levels impact associated with development of the proposed Mesa Grande project noise contours were developed for the following traffic scenarios:

Existing: This scenario refers to the existing present-day noise conditions, without construction of the proposed project.

Year (2010) With / Without Project: This scenario refers to the background noise conditions at future year 2010 with and without the proposed project. This corresponds to the completion of the project buildout.

7.1 Traffic Noise Contours

Noise contours represent the distance to noise levels of a constant value and are measured from the center of the roadway. CNEL noise contours are determined below for the 55, 60, 65 and 70 dBA noise levels.

The distance from the centerline of the roadway to the CNEL contours for roadways in the proposed project's vicinity are presented in Tables 7-1, 7-2, and 7-3. The noise contours do not take into account the effect of any existing noise barriers or topography that may affect ambient noise levels.

7.2 Existing Roadway Noise Levels

Table 7-1 presents the existing noise contours. Currently there is little development immediately adjacent to the project site. The existing noise levels in the project area consist primarily on traffic noise from 60th Avenue and Van Buren Street. Both roads are currently 2-lane undivided roads with observed average traffic speeds of approximately 40 to 50 miles per hour.

TABLE 7-1

EXISTING CONDITIONS NOISE CONTOURS

ROAD	SEGMENT	CNEL AT 100 FEET (dBA)	DISTANCE TO CONTOUR (FEET)			
			70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	55 dBA CNEL
58th Avenue	w/o Van Buren St.	58.0	RW	RW	73	157
58th Avenue	w/o Harrison St.	56.4	RW	RW	RW	124
60th Avenue	w/o Harrison St.	56.5	RW	RW	RW	126
60th Avenue	w/o Van Buren St.	57.2	RW	RW	RW	140
62th Avenue	w/o Harrison St.	49.8	RW	RW	RW	RW
62th Avenue	w/o Van Buren St.	49.2	RW	RW	RW	RW
Airport Boulevard	w/o Monroe St.	59.5	RW	RW	93	200
Airport Boulevard	w/o Jackson St.	62.7	RW	70	151	325
Airport Boulevard	w/o Van Buren St.	64.3	RW	90	194	418
Airport Boulevard	w/o Harrison St.	64.0	RW	86	184	397
Airport Boulevard	w/o Tyler St.	65.5	RW	107	231	498
Airport Boulevard	e/o Tyler St.	65.7	RW	111	240	517
Harrison Street	n/o Airport Blvd.	67.8	RW	155	333	718
Harrison Street	s/o Airport Blvd.	66.9	RW	135	290	625
Harrison Street	s/o 58th Ave.	66.6	RW	127	274	590
Jackson Street	n/o Airport Blvd.	62.8	RW	72	154	332
Jackson Street	s/o Airport Blvd.	61.7	RW	RW	129	278
Monroe Street	n/o Airport Blvd.	61.7	RW	RW	129	278
Tyler Street	n/o Airport Blvd.	58.4	RW	RW	78	168
Van Buren Street	n/o Airport Blvd.	62.1	RW	64	138	298
Van Buren Street	s/o Airport Blvd.	59.7	RW	RW	96	206
Van Buren Street	s/o 58th Ave.	58.4	RW	RW	78	168
Van Buren Street	s/o 60th Ave.	58.0	RW	RW	73	157
Van Buren Street	s/o 62th Ave.	57.0	RW	RW	63	136

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TABLE 7-2

YEAR 2010 NO PROJECT CONDITIONS NOISE CONTOURS

ROAD	SEGMENT	CNEL AT 100 FEET (dBA)	DISTANCE TO CONTOUR (FEET)			
			70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	55 dBA CNEL
58th Avenue	w/o Van Buren St.	60.5	RW	RW	108	233
58th Avenue	w/o Harrison St.	59.1	RW	RW	87	188
60th Avenue	w/o Harrison St.	65.6	RW	109	235	506
60th Avenue	w/o Van Buren St.	66.3	RW	122	263	567
62th Avenue	w/o Harrison St.	59.6	RW	RW	95	204
62th Avenue	w/o Van Buren St.	59.1	RW	RW	87	188
Airport Boulevard	w/o Monroe St.	70.2	104	223	481	1,035
Airport Boulevard	w/o Jackson St.	70.8	113	244	526	1,133
Airport Boulevard	w/o Van Buren St.	71.9	134	289	623	1,343
Airport Boulevard	w/o Harrison St.	72.0	137	295	636	1,370
Airport Boulevard	w/o Tyler St.	71.4	125	269	579	1,248
Airport Boulevard	e/o Tyler St.	71.7	131	282	607	1,307
Harrison Street	n/o Airport Blvd.	73.8	180	388	837	1,803
Harrison Street	s/o Airport Blvd.	74.7	205	442	952	2,050
Harrison Street	s/o 58th Ave.	74.6	202	436	938	2,022
Jackson Street	n/o Airport Blvd.	67.2	65	140	301	650
Jackson Street	s/o Airport Blvd.	64.5	RW	92	199	429
Monroe Street	n/o Airport Blvd.	68.8	83	178	384	828
Tyler Street	n/o Airport Blvd.	61.8	RW	61	131	282
Van Buren Street	n/o Airport Blvd.	66.7	60	130	280	603
Van Buren Street	s/o Airport Blvd.	66.9	62	135	290	625
Van Buren Street	s/o 58th Ave.	66.6	59	128	275	593
Van Buren Street	s/o 60th Ave.	66.0	RW	117	252	543
Van Buren Street	s/o 62th Ave.	61.0	RW	RW	116	250

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TABLE 7-3

YEAR 2010 WITH PROJECT CONDITIONS NOISE CONTOURS

ROAD	SEGMENT	CNEL AT 100 FEET (dBA)	DISTANCE TO CONTOUR (FEET)			
			70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	55 dBA CNEL
58th Avenue	w/o Van Buren St.	61.4	RW	RW	124	266
58th Avenue	w/o Harrison St.	61.8	RW	61	131	282
60th Avenue	w/o Harrison St.	65.6	RW	109	235	506
60th Avenue	w/o Van Buren St.	66.3	RW	122	263	567
62th Avenue	w/o Harrison St.	59.6	RW	RW	95	204
62th Avenue	w/o Van Buren St.	59.1	RW	RW	87	188
Airport Boulevard	w/o Monroe St.	70.3	105	226	486	1,048
Airport Boulevard	w/o Jackson St.	71.0	116	249	537	1,157
Airport Boulevard	w/o Van Buren St.	72.0	137	294	634	1,366
Airport Boulevard	w/o Harrison St.	72.0	137	295	636	1,370
Airport Boulevard	w/o Tyler St.	71.6	127	274	590	1,272
Airport Boulevard	e/o Tyler St.	71.8	133	286	616	1,327
Harrison Street	n/o Airport Blvd.	73.9	182	391	843	1,817
Harrison Street	s/o Airport Blvd.	74.8	208	448	966	2,082
Harrison Street	s/o 58th Ave.	74.6	202	436	938	2,022
Jackson Street	n/o Airport Blvd.	67.4	68	146	314	676
Jackson Street	s/o Airport Blvd.	65.0	RW	99	214	461
Monroe Street	n/o Airport Blvd.	68.9	84	181	391	842
Tyler Street	n/o Airport Blvd.	62.1	RW	64	138	298
Van Buren Street	n/o Airport Blvd.	67.0	63	136	292	630
Van Buren Street	s/o Airport Blvd.	67.5	68	146	314	676
Van Buren Street	s/o 58th Ave.	67.9	72	155	335	721
Van Buren Street	s/o 60th Ave.	66.3	RW	122	262	565
Van Buren Street	s/o 62th Ave.	61.6	RW	59	127	274

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7.3 Year 2010 Project Traffic Noise Level Contributions

Table 7-4 presents a comparison of the Year (2010) without and with project noise levels shown respectively in Tables 7-2 and 7-3. For reference purposes, the CNEL noise level at a distance of 100 feet from the highway centerline is also included in the tables mentioned above.

7.4 Project Impacts

The roadway noise impacts on all segments will increase from 0.0 dBA CNEL to 2.7 dBA CNEL with the development of the proposed project. To be considered a significant impact, the project traffic must create a noise level increase in the area adjacent to the roadway segment or greater than 3 dBA and the resulting noise level must exceed the County of Riverside 65 dBA CNEL exterior noise standard.

For all roadway segments for the 2010 conditions, the proposed project will create noise level impacts of less than 3.0 dBA CNEL, which in terms of community noise level impact assessment is generally considered to be insignificant. The results of the off-site noise analysis show that the proposed project's noise level contributions will not result in significant impacts to the existing or future sensitive noise receptors identified in the project study area. The computer printouts of the off-site noise contours are provided in Appendix "E".

In summary, the project will not generate a substantial permanent increase in ambient noise levels or expose persons to noise levels in excess of the standards established in the County of Riverside General Plan or noise ordinance.

7.5 Non-Transportation Project Noise Impacts

The proposed project does not include potential sources of noise that could significantly impact the near residential uses located near the proposed project.

TABLE 7-4

YEAR 2010 PROJECT CONTRIBUTIONS

ROAD	SEGMENT	CNEL AT 100 FEET (dBA)			
		NO PROJECT	WITH PROJECT	PROJECT CONTRIBUTION	POTENTIAL SIGNIFICANT IMPACT?
58th Avenue	w/o Van Buren St.	60.5	61.4	0.9	NO
58th Avenue	w/o Harrison St.	59.1	61.8	2.7	NO
60th Avenue	w/o Harrison St.	65.6	65.6	0.0	NO
60th Avenue	w/o Van Buren St.	66.3	66.3	0.0	NO
62th Avenue	w/o Harrison St.	59.6	59.6	0.0	NO
62th Avenue	w/o Van Buren St.	59.1	59.1	0.0	NO
Airport Boulevard	w/o Monroe St.	70.2	70.3	0.1	NO
Airport Boulevard	w/o Jackson St.	70.8	71.0	0.1	NO
Airport Boulevard	w/o Van Buren St.	71.9	72.0	0.1	NO
Airport Boulevard	w/o Harrison St.	72.0	72.0	0.0	NO
Airport Boulevard	w/o Tyler St.	71.4	71.6	0.1	NO
Airport Boulevard	e/o Tyler St.	71.7	71.8	0.1	NO
Harrison Street	n/o Airport Blvd.	73.8	73.9	0.0	NO
Harrison Street	s/o Airport Blvd.	74.7	74.8	0.1	NO
Harrison Street	s/o 58th Ave.	74.6	74.6	0.0	NO
Jackson Street	n/o Airport Blvd.	67.2	67.4	0.3	NO
Jackson Street	s/o Airport Blvd.	64.5	65.0	0.5	NO
Monroe Street	n/o Airport Blvd.	68.8	68.9	0.1	NO
Tyler Street	n/o Airport Blvd.	61.8	62.1	0.3	NO
Van Buren Street	n/o Airport Blvd.	66.7	67.0	0.3	NO
Van Buren Street	s/o Airport Blvd.	66.9	67.5	0.5	NO
Van Buren Street	s/o 58th Ave.	66.6	67.9	1.3	NO
Van Buren Street	s/o 60th Ave.	66.0	66.3	0.3	NO
Van Buren Street	s/o 62th Ave.	61.0	61.6	0.6	NO

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8.0 ON-SITE EXTERIOR NOISE ANALYSIS

The County of Riverside noise standards for residential development provide that outdoor living areas should be no greater than 65 dBA CNEL. It is expected that the primary source of noise impacts to the site will be traffic noise from 60th Avenue and Van Buren Street. The proposed project will also experience some background traffic noise impacts from the project internal roads. Due to the distance, topography and low traffic volume/speed, traffic noise from those roads will not make a significant contribution to the noise environment.

The grading plan was used to predict the future noise environment. This information identifies the relationship between the roadway centerline elevation, the pad elevation and the centerline distance to the noise barrier, the exterior observer and at the building façade. To assess the exterior noise level impacts the backyard observers were placed five (5) feet above the pad elevation and ten (10) feet from the property line. All first floor observers were placed five (5) feet above the proposed finished floor elevation at the building façade with all second floor observers located fourteen (14) feet above the proposed finished floor elevation. Both the first floor and second floor receivers were located twenty (20) feet from the property line.

Calculations of the expected future noise impacts were completed according to the County of Riverside Noise Element requirements. Van Buren Street is classified as a 4-lane Major Road, with an ADT capacity for level of service "C" of 27,300 and 60th Avenue is classified as a 6-lane Expressway with a level of service "C" ADT capacity of 49,000 both at 40 miles per hour. Table 8-1 presents a summary of future exterior noise impacts to the residential areas nearest to Van Buren Street and 60th Avenue. Based on the FHWA traffic noise prediction model, the future unmitigated exterior noise levels at the front yards of lots facing Van Buren Street and 60th Avenue will range from 69.8 to 71.3 dBA Ldn. The proposed project has all lots facing Van Buren Street and 60th Avenue. Front yards are not considered exterior living areas. With the homes positioned between the front yard areas and due to the additional distance from the roads, the backyard living areas will be

TABLE 8-1

FUTURE EXTERIOR NOISE LEVELS (dBA Ldn)

LOT	ROADWAY	UNMITIGATED
100	60th Avenue	71.3
132	60th Avenue	70.6
139	60th Avenue	71.1
129	Van Buren Street	69.9
170	Van Buren Street	70.1
205	Van Buren Street	69.8

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below the County of Riverside 65 dBA Leq noise standard. No noise exterior noise mitigation will be required to meet the County of Riverside exterior noise standards. The computer outputs for the on-site impacts are included in Appendix "F". The grading plans used for this analysis are included in Appendix "G".

9.0 ON-SITE INTERIOR NOISE ANALYSIS

To ensure that interior noise levels comply with the County of Riverside 45 dBA CNEL criteria, future exterior noise levels were calculated at the first and second floor building facades.

9.1 Interior Noise Reduction Methodology

The interior noise exposure is the difference between the projected exterior dBA CNEL exposure at the building facade and the noise reduction of the structure. Typical building construction will provide approximately 12 dBA noise reduction with "windows open" and a minimum 20 dBA noise reduction with "windows closed". Several methods are used to improve interior noise reduction including: (1) weather-stripped solid core exterior doors; (2) upgraded dual glazed windows; (3) mechanical ventilation/air conditioning; and (4) exterior wall/roof assembles free of cut outs or openings.

New construction will generally produce a "windows closed" noise reduction ranging from 25 dBA to 30 dBA. However, sound leaks, cracks and openings within the window assembly can greatly diminish the effectiveness.

9.2 Interior Noise Level Assessment

Tables 9-1 and 9-2 present the future first and second floor interior noise levels. The exterior noise levels at the first and second floor building facade will range from 62.8 to 71.2 dBA CNEL. The calculations show that the "windows open" condition will not provide adequate interior noise mitigation.

To meet the 45 dBA CNEL interior noise standard an interior noise level reduction ranging from 17.8 to 26.2 dBA CNEL is required. The required interior noise level

TABLE 9-1

FIRST FLOOR INTERIOR NOISE IMPACTS (dBA Ldn)

LOT	ROADWAY	NOISE IMPACTS AT FAÇADE	INTERIOR NOISE LEVEL FOR WINDOWS		REQUIRED INTERIOR NOISE REDUCTION
			OPEN[1]	CLOSED[2]	
100	60th Avenue	71.2	59.2	51.2	26.2
132	60th Avenue	70.4	58.4	50.4	25.4
139	60th Avenue	71.0	59.0	51.0	26.0
129	Van Buren Street	69.7	57.7	49.7	24.7
170	Van Buren Street	69.9	57.9	49.9	24.9
205	Van Buren Street	69.6	57.6	49.6	24.6

[1] A minimum of 12 dBA noise reduction is assumed with a windows open condition.

[2] A minimum of 20 dBA noise reduction is assumed with a windows closed condition.

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TABLE 9-2

SECOND FLOOR INTERIOR NOISE IMPACTS (dBA Ldn)

LOT	ROADWAY	NOISE IMPACTS AT FAÇADE	INTERIOR NOISE LEVEL FOR WINDOWS OPEN[1]	INTERIOR NOISE LEVEL FOR WINDOWS CLOSED[2]	REQUIRED INTERIOR NOISE REDUCTION
100	60th Avenue	71.2	59.2	51.2	26.2
132	60th Avenue	70.4	58.4	50.4	25.4
139	60th Avenue	71.0	59.0	51.0	26.0
129	Van Buren Street	69.7	57.7	49.7	24.7
170	Van Buren Street	69.9	57.9	49.9	24.9
205	Van Buren Street	69.6	57.6	49.6	24.6

[1] A minimum of 12 dBA noise reduction is assumed with a windows open condition.

[2] A minimum of 20 dBA noise reduction is assumed with a windows closed condition.

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reduction can be accomplished with a "window closed" condition, requiring a means of mechanical ventilation (e.g. air conditioning) and upgraded windows with a sound transmission class (STC) rating 29 or higher for lots 1, 118 to 123, 139 to 131, 142 to 148, 169 to 174, 179, 180, and 201 to 205 facing Van Buren Street and lots 100, 101, 131 to 133, and 139 facing 60th Avenue as well as standard dual-glazed windows with an STC of 26 for all other lots within the project area. With these design features, the future interior noise levels will be below the County of Riverside 45 dBA CNEL interior level standard.

Verification of these requirements will be based upon the final noise study, which is required prior to obtaining building permits. The final noise study will evaluate the affects of the precise building placement, design and materials used for construction.

10.0 SHORT-TERM CONSTRUCTION NOISE IMPACTS

Construction noise represents a short-term impact on the ambient noise levels. Noise generated by construction equipment, including trucks, graders, bulldozers, concrete mixers and portable generators can reach high levels. Grading activities typically represent one of the highest potential sources for noise impacts. The most effective method of controlling construction noise is by limiting the hours of construction to normal weekday working hours.

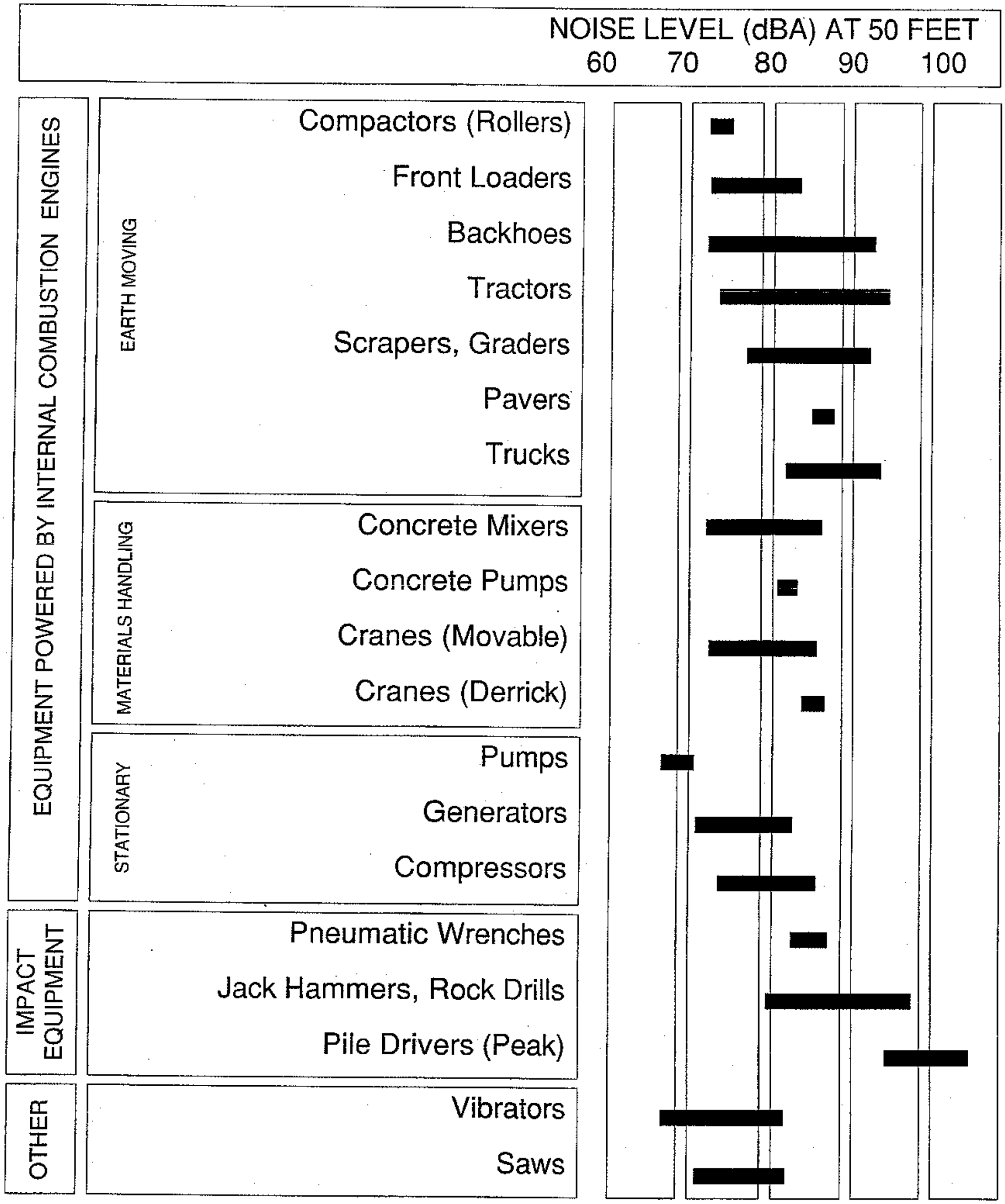
The U.S. Environmental Protection Agency (U.S. EPA) had compiled data regarding the noise generating characteristics of specific types of construction equipment. These data are shown on Exhibit 10-A. As shown, noise levels generated by heavy construction equipment can range from approximately 68 dBA to noise levels in excess of 100 dBA when measured at 50 feet. However, these noise levels would diminish rapidly with distance from the construction site at a rate of approximately 6 dBA per doubling of distance. For example, a noise level of 68 dBA measured at 50 feet from the noise source to the receptor would be reduced to 62 dBA at 100 feet from the source to the receptor, and would be further reduced by another 6 dBA to 56 dBA at 200 feet from the source to the receptor.

Field measurements show that construction noise levels generated by commonly used grading equipment (i.e. loaders, graders and trucks) generate noise levels that typically do not exceed the middle of the ranges shown on Exhibit 10-A. For the purpose of this analysis, an overall grading noise level of 89 dBA at 50 feet will be used as the worst-case maximum exterior noise level. Using a drop-off rate of 6 dBA per doubling of distance noise levels at 100 feet are estimated at 83 dBA and at 200 feet 77 dBA.

The project site is specifically bounded by vacant land and sporadic farms on all sides of the proposed project. Construction noise is of short-term duration and will not present any long-term impacts on the project site or the surrounding area. The following

EXHIBIT 10-A

TYPICAL CONSTRUCTION NOISE LEVELS



NOTE: Based on limited available data samples.

SOURCE: United States Environmental Protection Agency, 1971, "Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," NTID 300-1.

mitigation measures recommended will be employed as applicable and will serve to mitigate any potentially significant short-term construction impacts to a less than significant level.

- During all project site excavation and grading on-site, the construction contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers, consistent with manufacturers' standards. The construction contractor shall place all stationary construction equipment so that emitted noise is directed away from the noise sensitive receptors nearest the project site.
- The construction contractor shall locate equipment staging in areas that will create the greatest distance between construction-related noise sources and noise sensitive receptors nearest the project site during all project construction.
- The construction contractor shall limit all construction-related activities that would result in high noise levels according to the construction hours to be determined by County staff. The construction contractor shall limit all construction-related activities that would result in high noise levels between the hours of 7:00 a.m. and 7:00 p.m. Monday through Saturday. No construction shall be allowed on Sundays and public holidays.
- The construction contractor shall limit haul truck deliveries to the same hours specified for construction equipment. To the extent feasible, haul routes shall not pass sensitive land uses or residential dwellings.